

---

# Master Thesis

---



**LUND**  
**UNIVERSITY**

Faculty of Engineering at Lund University  
Division of Engineering Logistics

---

## Optimal Supplier Relationship Management

A multiple case study of Swedish MNE within the engineered products industry

Oscar Lindgren, Victor Bernhardsson

Alice: 'Would you tell me, please, which way I ought to go from here?', 'That depends a good deal on where you want to get to,' said the Cat.  
Lewis Carroll, 1865

Copyright © Oscar Lindgren and Victor Bernhardsson

Master thesis in Industrial Engineering and Management  
Division of Engineering Logistics  
Faculty of Engineering, LTH,  
Lund University  
Box 118  
SE-221 00 Lund

Media-Tryck  
Lund 2018  
Printed in Sweden

## **Authors**

Oscar Lindgren  
+46 70 789 3300  
Lindgren.oscar@gmail.com

Victor Bernhardsson  
+46 70 629 0730  
Victor.berhardsson@gmail.com

## **Supervisors**

Eszter Dean, *Alfa Laval*  
+46 46 366 589  
Eszter.dean@alfalaval.com

Johan Karlström, *Alfa Laval*  
+46 70 921 7666  
Johan.karlstrom@alfalaval.com

Louise Bildsten, *Lunds Tekniska Högskola, Division of Engineering Logistics*  
+46 46 222 9153  
Louise.bildsten@tlog.lth.se

## **Examinator**

Jan Olhager, *Lunds Tekniska Högskola, Division of Engineering Logistics*  
+46 70 345 1175  
Jan.olhager@tlog.lth.se



# Acknowledgements

This master thesis was written in the spring of 2018 as the final step of our Master of Science in Industrial Engineering and Management. The thesis was conducted at the Division of Engineering Logistics at Lund University, Faculty of Engineering in collaboration with the department of Global Sourcing at Alfa Laval, Lund.

We would like to thank Alfa Laval and all the employees who have helped us on the way and for the opportunity to write this master thesis. Writing this thesis has been developing in many ways and has significantly increased our knowledge within the area of industrial purchasing which will be a great asset in both our future endeavors. We would also like to extend our sincerest gratitude to all the interviewees at the case companies for their hospitality and participation.

Furthermore, we would like to extend a special thanks to both our supervisor at the Division of Engineering Logistics, Louise Bildsten for her guidance and devotion throughout the entire process. Secondly, we will like to extend a special thanks to our supervisors at Alfa Laval, Eszter Dean and Johan Karlström.

Finally, we would like to thank our friends and family for all their support during our five years of studies in Lund.

Lund 31<sup>st</sup> May 2018



Oscar Lindgren



Victor Bernhardsson

# Abstract

- Title** Optimal Supplier Relationship Management: A multiple case study of Swedish multi-national enterprises within the engineered products industry.
- Background** The questions elevated in this thesis are founded in Alfa Laval's strive for excellence in purchasing. At the time of writing Alfa Laval has recently developed a new supplier segmentation model, however they have no standardized method on how to interact with their different levels of suppliers and what should signify them. As there is relatively little support in current literature Alfa Laval has requested the execution of this case study in order to aid the segmentations model's conversion from theory to practice. SRM is the summarizing term for this area within purchasing and is becoming all the more important for companies to maintain their competitive advantage.
- Purpose** The purpose of this study is to analyze how companies within the engineered product industry engage in SRM strategies and activities.
- Methodology** The methodology of this case study follows abductive approach with a literature review for theory development and a multiple case study for the empirics. The general approach has been to conduct interviews at Swedish MNE. The interactions of different companies with their suppliers have been analyzed and compared in both a with-in case and a cross-case analysis.
- Conclusions** The study indicated that a pyramid segmentation model is the most common and applicable one. The study also showed that the weakness of the pyramid model is its failure to incorporate risk and the lack of a commercial strategic supplier segment. Additionally, the study showed that preferred customer status is important to develop feasible collaboration relationships with suppliers. Companies who best managed to achieve preferred customer status paired volume pooling with additional tools or incentives, developed based on company specific competencies and abilities. The study also revealed three possible correlations; (1) between the size of the supply base and the development of an organization's SRM activities, (2) between the level of refinement/value-add in the products that are purchased by an organization and the relative development of the SRM and (3) between the degree of decentralization and difficulty of coordinating SRM efforts.
- Keywords** SRM, Supplier Relationships, Purchasing, SI&D, SCR, SPM, Supplier Segmentation, Supplier Innovation, Supplier Collaboration.

# Table of Contents

1	Introduction .....	1
1.1	Background .....	1
1.2	Problem Discussion .....	2
1.3	Purpose and research questions .....	2
1.4	Delimitations .....	3
1.5	Target Audience .....	3
1.6	Structure of Thesis .....	4
2	Methodology .....	5
2.1	Structure of research .....	5
2.2	Research philosophy .....	5
2.3	Research Approach .....	6
2.4	Research Strategy.....	7
2.5	Research Design .....	8
2.6	Quality of Research Design .....	12
3	Theoretical Framework .....	14
3.1	Supplier Relationship Management .....	14
3.2	What to gain from a Supplier Relationship .....	15
3.3	Segmentation in Supplier Relationship Management.....	20
3.4	How to engage with suppliers in Supplier Relationship Management.....	23
4	Empirics .....	30
4.1	Case 1 – Alfa Laval.....	30
4.2	Case 2 – Trelleborg .....	39
4.3	Case 3 – Assa Abloy.....	44
4.4	Case 4 – Ikea.....	51
4.5	Case 5 – Axis Communications .....	59
5	Analysis.....	65
5.1	With-in case analysis .....	65
5.2	Cross case analysis.....	75
6	Conclusions.....	83
6.1	Key Findings.....	83
6.2	Theoretical Implications .....	86
6.3	Further Research .....	86
7	References .....	88
8	Appendix .....	92
8.1	Appendix 1 – Data Collection Plan .....	92
8.2	Appendix 2 - Case information sources .....	95

# List of Figures

Figure 1: Model that defines possibilities from the supply base. Adapted from O'Brien (2014) .....	3
Figure 2: The research logic, inspired by the research onion (Saunders & Tosey, 2013).....	5
Figure 3: The case study method adapted for this case study from Yin (1994).....	8
Figure 4: Conceptual map for this case study .....	9
Figure 5: Conceptual map for this case study .....	15
Figure 6: Model that defines possibilities from the supply chain. Adapted from O'Brien (2014) .....	16
Figure 7: Supplier interactions and their relative importance. Adapted from O'Brien (2014).....	24
Figure 8: Measurement approaches according to supplier importance (O'Brien, 2014).....	25
Figure 9: The different types of supplier innovation according to how the supplier is motivated and how innovation is made available (O'Brien, 2014) .....	29
Figure 10: Map indicating Alfa Laval's Global Presence (Alfa Laval, 2018) .....	30
Figure 11: Alfa Laval's new organizational structure (Alfa Laval, 2017c).....	31
Figure 12: Alfa Laval's 6 different commodity groups (Alfa Laval, 2017c).....	31
Figure 13: Alfa Laval Supplier Classification model (Alfa Laval, 2017b) .....	34
Figure 14: Trelleborg's Kraljic Segmentation (Trelleborg, 2018c) .....	42
Figure 15: Share of group sales by region 2017 (Assa Abloy, 2017a) .....	45
Figure 16: Assa Abloy divisions (Assa Abloy, 2017b).....	46
Figure 17: Production sites in low-cost countries (Assa Abloy, 2017a).....	46
Figure 18: Assa Abloy Supplier Classification Model (Assa Abloy, 2016) .....	48
Figure 19: Overview of Ikea Supply Strategy (Ikea, 2017).....	52
Figure 20: The Ikea business model aiming to shorten the distance between the possibilities of its suppliers and the needs of its customers (Ikea, 2013).....	53
Figure 21: Grouping of categories within purchasing development (Ikea, 2017).....	54
Figure 22: Axis' indirect sales model (Axis Communications AB, 2017) .....	59
Figure 23: Case companies mapped in the "supplier innovation"-matrix. Adapted from O'Brien (2014).....	82
Figure 24: New proposed supplier segmentation model .....	84



# List of tables

Table 1: Relevant situations for different research strategies (Yin, 1994) .....	7
Table 2: Case study tactics for four design tests (Yin, 1994) .....	12
Table 3: Criteria that has to be met to access supplier inventiveness (Lynch & Rogers, 2007).....	18
Table 4: Value potential and conditions (O'Brien, 2014).....	19
Table 5: Characteristics of operational close relationships (O'Brien, 2014).....	19
Table 6: How buyer supplier relationships may change over time (van Weele, 2014) .....	22
Table 7: Description of ESI types adapted from Ragatz, et al. (2005) .....	28
Table 8: Factors that prevent and encourage supplier innovation (O'Brien, 2014).....	29
Table 9: Alfa Laval's key figures (Alfa Laval, 2017a).....	32
Table 10: Trelleborg's key figures (Trelleborg, 2018b).....	39
Table 11: Trelleborg's business areas and their share of revenue (Trelleborg, 2018a). .....	39
Table 12: Assa Abloy key figures (Assa Abloy, 2017a) .....	45
Table 13: Ikea's Key Figures (Ikea Group, 2017).....	51
Table 14: Axis's Key Figures (Axis Communications AB, 2017).....	59
Table 15: Overview of case company base facts .....	76
Table 16: Summary of case companies supplier segmentation.....	76
Table 17: Summary of strategic supplier criteria.....	77
Table 18: Summary of preferred supplier criteria .....	77
Table 19: Summary of case companies SPM .....	78
Table 20: Summary of case companies Improvement & Development activities .....	79
Table 21: Summary of case companies Collaboration and Innovation activities.....	81

# Abbreviations

B2B – Business to Business  
B2C – Business to Consumer  
COGS – Cost of Goods Sold  
COPQ – Cost of Poor Quality  
ERP – Enterprise Resource Planning  
ESI – Early Supplier Involvement  
KPI – Key Performance Indicator  
MNE – Multi National Enterprise  
OTD – On Time Delivery  
PPM – Parts Per Million  
SCR – Strategic Collaborative Relationships  
SI&D – Supplier Improvement & Development  
SPM – Supplier Performance Management  
SRM – Supplier Relationship Management  
TCO – Total Cost of Ownership

# 1 Introduction

---

*This chapter introduces the reader to this thesis' focus areas. It also introduces the reader to the background, purpose, research questions, delimitations, target audience and the structure of the thesis.*

---

## 1.1 Background

*“The typical manufacturing firm of today is more in the assembling business than in the business of actually, producing the components required to create the end product”* (Joshi, 2009). Due to the increasingly globalized and competitive markets, customers are demanding higher quality, shorter lead times, faster product development cycles and a wider range of products. This is significantly increasing the demands on companies to maintain a competitive advantage (Duclos, et al., 2003).

Organizations and companies find their competitive advantage in the combination of their external resources and internal resources (Hallikas, et al., 2005). Therefore, suppliers are key to a functional business and the selection of them is instrumental to run a profitable and effective enterprise. An efficient supply base can have a major impact on the improvement of everything from lead times and operational flexibility to product development (van Weele, 2014). To aid this process, buying companies maintain different levels and types of relationships with different suppliers based on a number of factors such as their financial impact and possible supply risk (Kraljic, 1983). Thorough relationships cannot be held with all suppliers. Having relationships at different levels, suppliers with a larger impact on the business can be focused on more to leverage their potential benefits (Lambert, 2008 ). Thus, a Supplier Relationship Management program is an important aid in this process to help tend and manage the process. However, a uniform and reactive management of supplier relationships cannot be applied to all suppliers. An efficient management of supplier relationships requires different activities for different suppliers (Hallikas, et al., 2005).

Within companies the purchasing function is seen as all the more strategic (Chen, et al., 2006) and its role has changed significantly over time. From historically being a transactional operation acting as the intermediary between buyer and supplier, with the responsibility of securing supply, the role is very different today. Purchasing today has a more increased and strategic role and with a focus to improve the value received from the suppliers, in everything from product quality to innovation (van Weele, 2014; Chen, et al., 2006).

Looking through a historical perspective, companies have often looked inwards when trying to reduce cycle times in a trade-off between efficiency and flexibility, in an attempt to meet increased market demands. However, in the 1990's the scope widened, and companies started to look beyond their borders towards the different tiers of suppliers to improve the value created. This movement has been titled “Supply Chain Management” where the company's focus has been redefined to encompass business processes across enterprises and not solely internally (Duclos, et al., 2003).

Today businesses are no longer sole autonomous entities, but rather a part of a network of business relationships where focus lies on performance improvements resulting from better relationship management (Lambert, 2008 ).

Throughout the manufacturing industry there is a visible trend that companies have redefined their focus to their core competencies and outsource non-core activities to external suppliers. This trend has further increased the importance of supplier relationship management as that is a key source of competitive advantage. The increased dependency on suppliers increases the demands on efficiently developing and managing different suppliers and the supply chain as a whole (Krause, et al., 1998).

## **1.2 Problem Discussion**

The questions brought up in this thesis are founded in Alfa Laval's strive for excellence in purchasing. Alfa Laval has a complex supply chain with a large number of suppliers. Having such a large supply base has made it difficult to get a strong buying power as Alfa Laval often is a low volume buyer. This leads to Alfa Laval getting higher prices and being for many suppliers less of a preferred customer. As a side effect of this Alfa Laval has got down-prioritized, longer lead times and achieved less cooperation than wanted with their suppliers.

Alfa Laval has recently implemented a large reformation of their Supplier Relationship Management (SRM) process. The new initiative's focus is primarily oriented around a supplier classification model. Until now, there has been no standardized method to classify and prioritize suppliers which has excited the implementation of Alfa Laval's new Supplier Classification model. One challenge in using the new standardized Alfa Laval model is that there are a variety of different factors that drive the different commodities and business units throughout Alfa Laval. However, by dividing the suppliers into the different levels, it is an easily understandable aid for purchasers to understand how to treat, engage and interact with the different suppliers in a more homogenous manner.

In order to convert theory into practice, Alfa Laval wants a better understanding on how to engage and interact with their different suppliers. As the model is still in a development stage there are not any directives on how to engage with the different segments. What levels of interactions should be held with suppliers in the different segments? However, relationships cannot be made without investing resources. Who should they collaborate with and to what degree with what actions? There is a high value in developing a good relationship with the right supplier but at the same time it is often not a clear-cut decision which supplier is the right one. As an initial stage in this development Alfa Laval has expressed a need to analyze how other companies do this and learn from their experiences.

## **1.3 Purpose and research questions**

### **1.3.1 Purpose**

The purpose of this study is to analyze how companies within the engineered product industry engage in SRM strategies and activities.

### **1.3.2 Research Questions**

RQ 1: What characteristics are important for strategic, preferred and approved suppliers?

RQ 2: How do companies within the engineered product industry work with:

- a) Supplier Performance Management?
- b) Supplier Improvement and Development?
- c) Supplier collaboration?

## 1.4 Delimitations

The study will only include Swedish multinational enterprises (MNE) within the engineered product industry in order to find the most applicable and accurate findings for the host company Alfa Laval.

The time limit of 20 weeks has influenced the number of companies analyzed in the case study. Additionally, only buying companies have been analyzed. A less limiting time scope would have allowed a more multi-faceted analysis including the supplier perspective. The study is limited to the analysis of direct purchasing of products.

A further limitation of this master thesis is that the focus of the supplier value creation is restricted to performance and innovation (Figure 1). Risk and effectiveness have been omitted due to time and scope limitations. The omitted criteria provide a business-critical dimension and are focused more on maintaining and optimizing business, while performance and innovation are more focused on providing a strategic competitive advantage, which is of bigger interest to Alfa Laval. The model (Figure 1) is further explained in chapter 3.2.

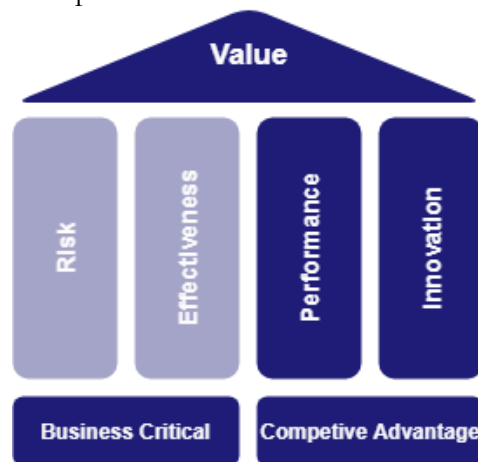


Figure 1: Model that defines possibilities from the supply base. Adapted from O'Brien (2014)

## 1.5 Target Audience

The target audience for this report is Alfa Laval's Global Sourcing department, employees within the purchasing organization at Alfa Laval. This thesis is also aimed at researchers and master thesis authors within the field of supply chain management who want to deepen and develop their knowledge in the area of supplier relationship management. Readers are assumed to have a basic knowledge of purchasing theory.

## 1.6 Structure of Thesis

1. **Introduction** – This chapter introduces the reader to the background of this thesis. It also introduces the reader to the purpose, research questions, delimitations and structure of the report.
2. **Methodology** – This chapter describes the research philosophy and strategy which the researchers have followed. The different methodologies used are presented and set in context for this thesis. The validity and reliability of this report is also discussed.
3. **Theoretical Framework** – The theoretical foundations for this study are set in this chapter. The suitable theories and frameworks that are applicable for the case study are listed in this chapter.
4. **Empirics** – This chapter presents the findings from the data collection in the conducted case studies.
5. **Analysis** – The analysis chapter compares the theoretical frameworks and findings with the practices and findings from the different cases in the case study. Firstly, a with-in-case analysis of each company is presented. All the cases are then compared in a cross-case analysis in order to identify similarities and differences.
6. **Conclusions** – This chapter presents the key findings regarding each of the research questions, the theoretical implications and lastly a proposal for further research is discussed.

## 2 Methodology

*This chapter describes how the thesis has been conducted and how academic quality has been ensured. The research philosophy and strategy which the research has followed is presented and the choice motivated. The different methodologies used are presented, motivated and set in context for this thesis. The validity and reliability of this report are also discussed.*

### 2.1 Structure of research

This study's way of conducting research is explained in five layers, using Saunders and Tosey's (2013) research onion as a foundation for the research model (Figure 2). Firstly, the research philosophy is explained, followed by the research approach, the selected research strategy, research design and an explanation of the research methods used in this study. This is followed by a discussion about the quality of this research and its limitations.

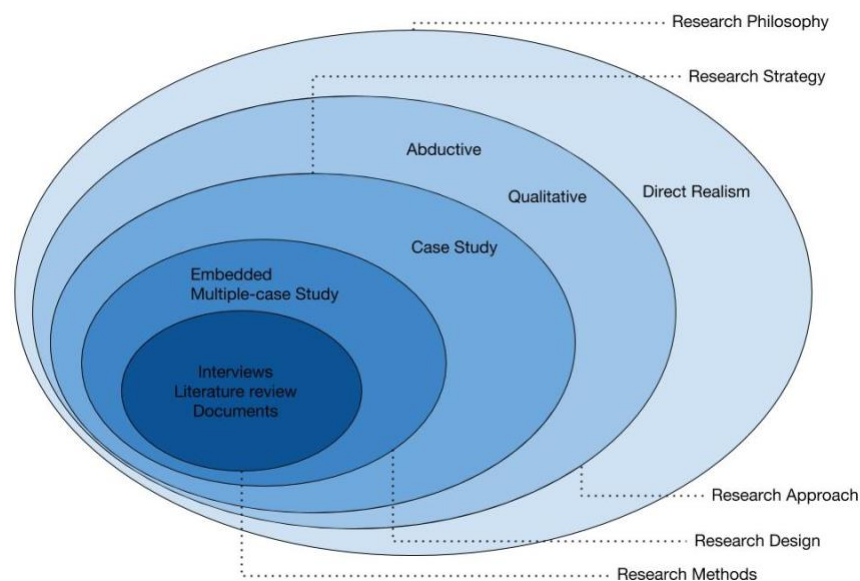


Figure 2: The research logic, inspired by the research onion (Saunders & Tosey, 2013)

### 2.2 Research philosophy

*“How a researcher views the world, her or his taken-for-granted assumptions about human knowledge and the nature of the realities encountered, inevitably shape how a research question is understood and the associated research design” (Saunders & Tosey, 2013).*

A researcher's philosophy is often the main influence on what knowledge he or she deem to be acceptable and what processes that are adequate ways to develop it. Saunders and Tosey (2013) suggest that there are four main philosophical positions within scientific research: positivism, realism, interpretivism and pragmatism. Positivism is related to studies which are focused on observing and predicting outcomes, generating cause and effect relationships (Bechara & Van de Ven, 2011). The data should be quantitative, highly structured, and measurements should allow no room for interpretation. Realism on the other hand, acknowledges that reality is interpreted by the researcher and filtered through his or her mind dependent on past experiences and worldview. There is a further distinction between direct realism and critical realism. The direct realist considers

his or her experiences as an accurate representation of the world whereas the critical realist acknowledges that what is experienced by the researcher is subject to a subjective processing by the mind. When the researcher strives to gain rich insights and uses qualitative data in small samples, he or she probably adopts an interpretivistic approach. The interpretivist sees the world as subjective and only accessible to us by sharing each other's ideas of the world (Bechara & Van de Ven, 2011). Saunders and Tosey (2013) further explain that the pragmatic research approach emphasizes the importance of the practical consequences of the findings.

This study aims to map existing SRM (Supplier Relationship Management) practices and extend existing knowledge based on qualitative real-world observations. The aim is not to create law-like generalizations, and neither to exclusively view the problem from a subjective view. Therefore, a direct realist approach is taken in this study.

## 2.3 Research Approach

### 2.3.1 Inductive, deductive and abductive research

The inductive and deductive approaches are two ways of conducting research on a phenomenon. The inductive approach is often used when the phenomenon is new or complex and no literature on the subject exists. Therefore, the inductive approach starts with data collection and builds a substantive theory based on empirics. It is important to note that it is not always possible to generalize the substantive theory since it is only rooted in empirics, which might be flawed due to sampling etc. (Ghauri & Grønhaug, 2002).

The deductive approach starts in existing literature where a hypothesis is formed which is later tested with empirics (Ghauri & Grønhaug, 2002). The purpose of the deductive approach is often to refine existing theory. Research is however rarely purely inductive or deductive (Kovács & Spens, 2005), but contains parts from both. A third research approach is the abductive approach which is a mix between inductive and deductive. The abductive approach often starts with real-life observations which is then followed by theory. Researchers can then go back between empirics and theory, combining induction with deduction, in an iterative approach. The purpose is often to extend an existing theory (Kovács & Spens, 2005).

As the phenomenon which the research is focused on has hitherto been researched, an inductive approach would be the least suitable research approach for this thesis. As the study aims to apply the general theory of SRM to specific firms and understand the practices within the industry, an abductive approach has been chosen for this study. This allows the research to go between theory and empirics which is necessary in order to develop a coherent and relevant theory.

### 2.3.2 Quantitative and qualitative research

Qualitative and quantitative research are two types of research methods. The type of study being done determines which of the doctrines that is most appropriate to follow. The different stages are not mutually exclusive (Höst, et al., 2006; Denscombe, 2010).

**Quantitative** research is designed to collect numerical data. In general, quantitative data are statistical, structured and associated with research strategies, such as experiments and surveys, and follow methods such as observations and questionnaires. Methods such as interviews, which are often seen as a qualitative method, can be used for quantitative research by following a more structured approach or content analysis of transcripts. The method of research is not central when



defining quantitative data. The nature of the data that are produced is the key issue (Denscombe, 2010).

**Qualitative** research is in general more descriptive than quantitative research. There is no general single method for the analysis of qualitative data. It is to a larger degree more exploratory and is used to gain a deeper understanding of underlying reasons. The collected data, in general, takes the form of visual images and words (written or spoken) for example through interviews, observations and documents. Qualitative research is primarily associated with research strategies such as grounded theory, case studies, phenomenology and ethnography (Denscombe, 2010).

In this study, the literature review and the case studies with interviews and documents from the case companies are the primary data source. The aim of this study is to get an in-depth understanding of the research questions and the purpose. Thus, this study is following a qualitative approach.

## 2.4 Research Strategy

According to Yin (1994), when choosing research strategy, one should consider the three following aspects: (1) the type of research question posed, (2) the extent of control an investigator has over actual behavioral events, and (3) the degree of focus on contemporary as opposed to historical events (Yin, 1994). In Table 1, the five most common research strategies and the suitable answers for each of the three aspects are shown. As the study aims to answer a “how” question and as the question is asked about a contemporary set of events, over which the researchers have little or no control, a case study is the most suitable research strategy. Additionally, Ellram (1996) argues that research within the domain of logistics and purchasing may benefit from using case study as the selected research strategy as they are “...*excellent for theory building, for providing detailed explanations of “best practices”, and providing more understanding of data gathered.*” As we aim to identify “best practices” among the cases, it further supports using case study as the selected research strategy. Höst, et al. (2006) also suggest that case study is a great way to undertake within an organization in order to understand how people within the organization work.

The strength of the case study is the ability to put multiple sources of information to use. The case study can include interviews, observations, documents and artefacts (Yin, 1994). Critics of case study as a research strategy often mean that the case study is weak as it provides little basis for generalization. However, a multiple-case study makes this critique less applicable (Yin, 1994).

Strategy	Form of research question	Requires control over behavioral events?	Focuses on contemporary events?
Experiment	how, why	yes	yes
Survey	who, what, where, how many, how much	no	yes
Archival Analysis	who, what, where, how many, how much	no	yes/no
History	how, why	no	no
Case Study	how, why	no	yes

Table 1: Relevant situations for different research strategies (Yin, 1994)

## 2.5 Research Design

The unit of analysis defines the cases in the study. The unit of analysis is adapted to each case study and can be individuals, organizations, communities, decisions and projects (Yin, 1994). The purpose of this study is to analyze how companies within the engineered product industry engage in SRM strategies and activities. As SRM has been identified to consist of Supplier Performance Management (SPM), Supplier Improvement & Development (SI&D), Strategic Collaborative Relationships (SCR) and supplier segmentation for the purpose of this study, these four areas were used as units of analysis.

When constructing the research design for a case study, there are two parameters which the researcher has to take into account. First of all, the researcher has to decide whether to perform a single-case or a multiple-case study. Secondly, the choice stands between a holistic and an embedded design. A single-case design is often chosen when the case itself is considered to be an unusual, rare or critical case (Yin, 1994). As the study intends to understand practices of Supplier Relationship Management, a multiple-case study is therefore considered to be more relevant. Both single-case studies and multiple-case studies can be holistic or embedded. The embedded approach is used when more than one unit of analysis is part of the case. In the holistic approach no such sub-units are identified and therefore a single unit of analysis is used in the holistic approach. Since multiple units of analysis were identified in this study, an embedded approach has been used.

An overview of the research design can be found in Figure 3. Each of following steps is thoroughly explained through-out this chapter. The current model for supplier classification used by Alfa Laval is used as a starting point in this thesis.

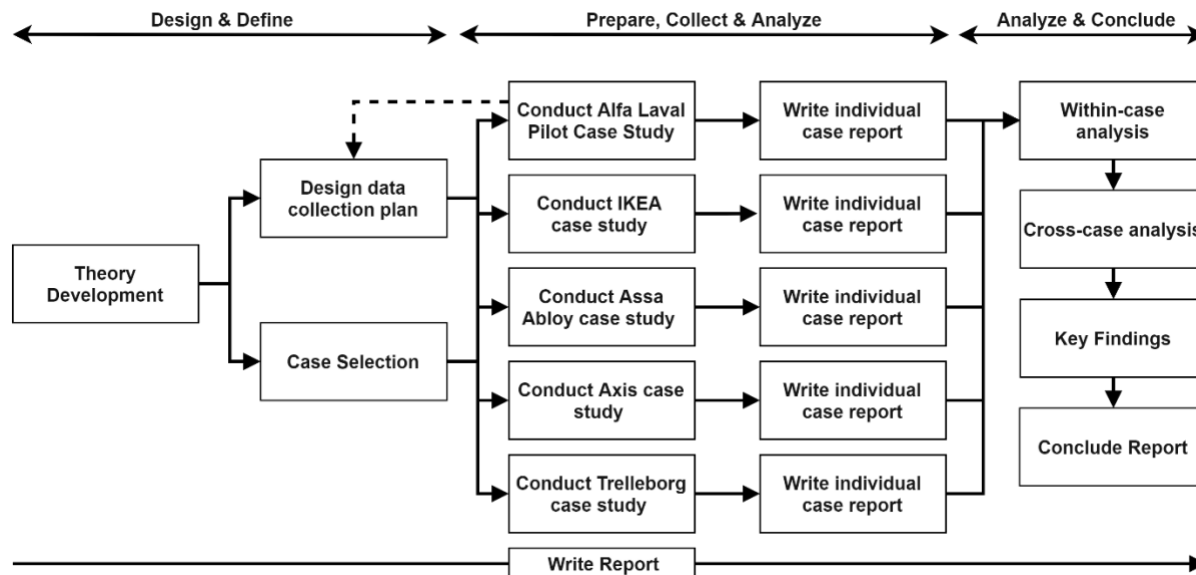


Figure 3: The case study method adapted for this case study from Yin (1994)

### 2.5.1 Theory Development

A common misconception regarding case studies is that “field contact” should be made as quickly as possible without any prior construction of a theoretical framework. According to Yin (1994) a case study should always start with developing an understanding of what is being studied. Therefore, a thorough literature review is conducted in the beginning of the case study in order to develop a sound theoretical framework. This framework is then used not only to better understand the topic

itself but also helpful when conducting the analysis (Rowley & Slack, 2004). In order to identify key concepts related to the area of SRM as well as clarifying the structure of the literature review, a conceptual map is developed (Figure 4), as suggested by Rowley & Slack (2004). This is the first phase of the case study method illustrated in Figure 3.

The literature review started with the conceptual map in order to identify search terms for the literature search. These search terms were then used to identify a set of initial articles and/or books which acted as the foundation for the literature search. After the initial relevant literature was identified, the citation pearl growing approach was used in order to grow the bibliography and to find more relevant literature in order to improve the academic depth. The citation pearl growing approach starts from one set of literature and uses any appropriate terms in that literature to retrieve more literature (Rowley & Slack, 2004).

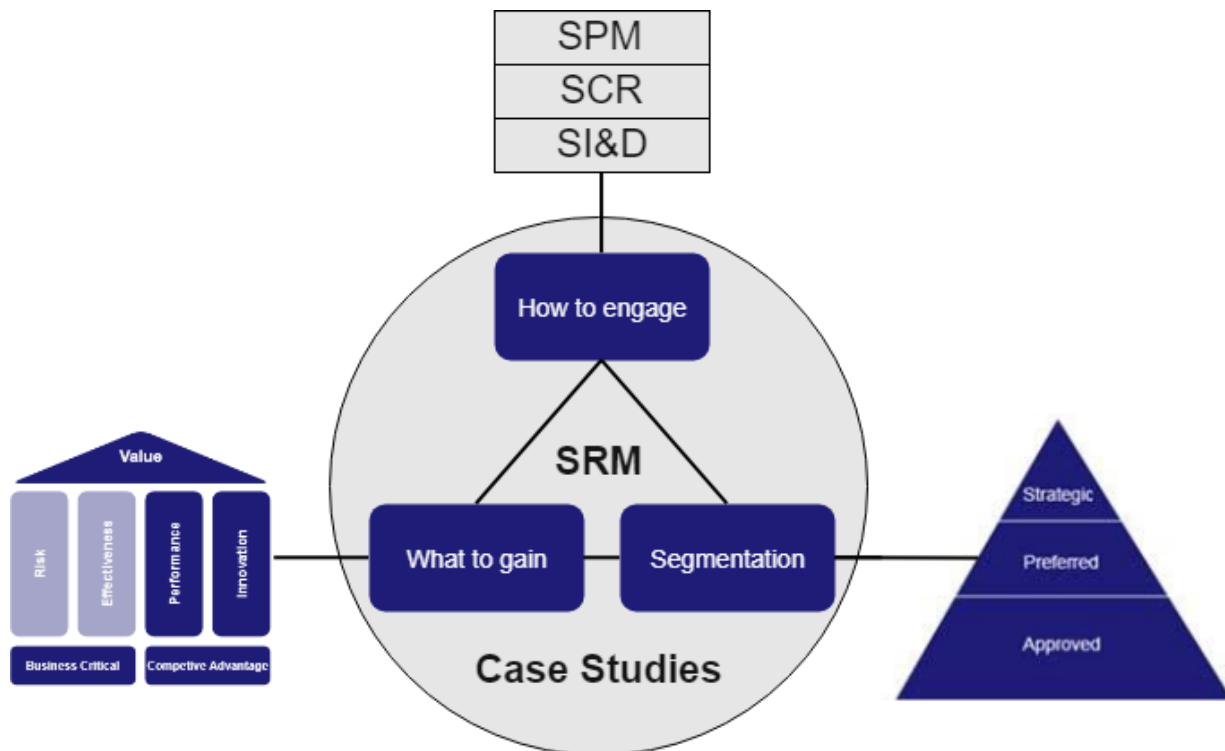


Figure 4: Conceptual map for this case study

### 2.5.2 Case selection

There are two different strategies to choose from when conducting a multiple-case study. The researcher can either choose to select cases in which similar results are predicted, called replication. The other option is to choose cases where contrasting results are predicted, but for explainable reasons. This technique is called theoretical replication (Yin, 1994). As this study aims to identify typical practices, it is desired to find patterns among the selected cases. Therefore, the cases were chosen according to the replication strategy. A number of criteria was developed in order to select the cases for this study. The organization should:

1. produce highly engineered products
2. view purchasing as a strategic activity
3. have a high value-add to their products

4. have a well-established purchasing organization
5. be a business with global operations

With regards to the above criteria the following cases were selected:

1. Alfa Laval
2. Trelleborg
3. Assa Abloy
4. Ikea
5. Axis Communications

### **2.5.3 Data collection plan**

As one of the steps in preparing the case study, an interview protocol was designed, based on the data collection protocol suggested by Yin (1994). Its purpose is to increase the reliability of the multiple-case study and act as a guide when conducting the case studies. The interview protocol included a short introduction with field procedures, followed by interview questions.

### **2.5.4 Data collection**

The data collection for this case study was performed using multiple sources of evidence. The rationale for using multiple sources of evidence is data triangulation. By using multiple sources of evidence, any findings which are supported by multiple sources of evidence, are much more convincing (Yin, 1994). This study uses both interviews and documentation as data sources. Refer to Appendix 2 for a detailed overview of the case study data sources. In addition to the formal data sources, informal impressions and information was received when visiting the case companies which have nuanced the analysis and the conclusions of this study.

### **Interviews**

The interviews were conducted with people at central positions within the purchasing organization within each case company. The candidates who were chosen all had a holistic view of their organizations purchasing processes and practices. Interviews were chosen as one of the data sources as it allows for a targeted and focused data collection as well as the provision of additional insights from the interviewee (Yin, 1994). The interviews were scheduled to take up two hours and cover four major areas: supplier segmentation, SPM, SI&D and SCR. The interviews followed a semi-structured approach as described by Höst, et al. (2006). A semi-structured interview was chosen in order to provide a good foundation for a cross-case analysis while allowing room for open questions. An interview guide (Appendix 1) which was developed during the data collection plan stage (Figure 3) was used throughout the interviews. A pilot study was conducted at Alfa Laval in order to refine the data collection plan with regards to both the content and the process, as recommended by Yin (1994). The pilot interview was conducted prior to the second interview in order to provide time for feedback to adjust and improve the data collection plan. The remaining interviews were carried out during the following weeks. All the interviews were recorded for future reference. Following each interview, a report was written in order to summarize what had been said during the interview. The report was sent to each interviewee to allow for adjustments and approval.

### **Documents**

The strength of using documentation within a case study is primarily due to its stable nature (Yin, 1994). Documents can be reviewed repeatedly to enhance the understanding. Additionally, documents are often exact and contain exact names and descriptions. However, it can be discussed

whether documents should be viewed as an unbiased source of information, but it is considered to contain less bias than interviews (Yin, 1994). Disadvantages includes limited accessibility and retrievability. The documents collected and used for the case studies were mainly internal documents describing structures, processes and practices as well as public annual reports. The case companies' different websites were used to obtain an initial overview.

### **2.5.5 Case analysis**

Analyzing data is the heart of building case studies and requires high attention in order to allow for correct conclusions (Eisenhardt, 1989). The case analysis in this study is split into two major parts: a within-case analysis and a cross-case analysis.

#### **Within-case Analysis**

Eisenhardt (1989) argues that a case study analysis always should start with a within-case analysis. The idea is that the within-case analysis allows the researcher to become familiar with the case and it allows the patterns in each case to emerge before the researcher tries to identify cross-case patterns. The key findings in each case was compared to theory and analyzed from the perspective of the research questions.

#### **Cross-case Analysis**

As previously stated, the purpose of the cross-case analysis is to identify patterns among the cases included in the study. In order to assure that no premature and false conclusions was being reached, Eisenhardt (1989) suggests that the data should be examined from multiple perspectives in a structured manner. She suggests three different strategies: (1) The first strategy proposed is to select categories and dimensions and then examine within-group similarities and intergroup differences. (2) The second strategy is to make pairwise comparisons between cases and identify similarities and differences. (3) The third strategy is to divide the data by data type, meaning that data from interviews is to be compared with data from other interviews, and not from that of documents. This study has applied the first strategy proposed above by analyzing the cases from the perspective of the research questions.

## 2.6 Quality of Research Design

When conducting research, it is critical to pay attention to the validity and reliability of the results especially when performing case studies. It is important that the conclusions and results drawn from this study address the issues being researched and that the results are accurate and generalizable (Höst, et al., 2006). Validity and reliability have multiple dimensions that can be broken down into four tests when doing case studies (Table 2) (Yin, 1994).

Tests	Case Study Tactics	Phase of research which tactic occurs
<b>Construct Validity</b>	Use multiple sources of evidence	Data Collection
	Establish chain of evidence	Data Collection
	Have key informants review draft case study report	Composition
<b>Internal Validity</b>	Do pattern-matching	Data Analysis
	Do explanation building	Data Analysis
	Do time-series analysis	Data Analysis
<b>External Validity</b>	Use replication logic in multiple-case studies	Research Design
<b>Reliability</b>	Use case study protocol	Data Collection
	Develop case study data base	Data Collection

Table 2: Case study tactics for four design tests (Yin, 1994)

### 2.6.1 Construct validity

Construct validity is about the extent of which correct measures have been used for the studied concept. This can be problematic in case studies. It is often pointed out that measures used in case studies are not sufficient enough and that subjective judgement is used during the data collection (Yin, 1994). The way this study has ensured that sufficient validity is reached is through having multiple sources/data collection methods to minimize any bias. Interviews, documents and an extensive literature study were used. The case studies have also been reviewed by the interviewees to guarantee the quality of the data.

### 2.6.2 Internal validity

Internal validity has received the most attention in quasi-experimental and experimental research. It is primarily relevant for casual and exploratory studies. The risk to the validity is that the researcher may draw hasted conclusions as the entire picture has not been explored (Yin, 1994). To ensure the highest validity, this study uses multiple sources of information from each of the case companies to minimize confounding. However, due to the nature of a case study, it is difficult to ensure the causality of influencing factors. This has been considered in the analysis. In order to maximize the internal validity, further deeper analysis would have to be done.

### 2.6.3 External validity

The purpose of assuring external validity is to establish the domain where the findings from the study can be generalized beyond its own limits. Some studies such as case studies rely on analytical generalizations and surveys, for example, rely on statistical generalizations (Yin, 1994). A general concern though is that case studies provide a low degree of generalization. This is primarily a

concern when looking at single case studies. (Kennedy, 1976) One method of ensuring replication of logic i.e. external validity is to have multiple cases, which is the modus in this study. (Yin, 1994)

#### **2.6.4 Reliability**

Reliability refers to the repeatability of the found results. Future researchers doing the same case study should be able to reach the same conclusions and results. A well-established methodology ensures that this is possible. Correct and efficient documentation of procedures and results minimizes any bias errors (Yin, 1994). To ensure that this thesis follows an academic standard of reliability a rigorous methodology, appropriate for a case study, has been used. This study also contains an interview guide with the interview questions outlined in order to facilitate the repeatability of the study.

## 3 Theoretical Framework

---

*The theoretical foundations for this study are set in this chapter. The suitable theories and frameworks that are applicable for the study have been thoroughly researched. Supplier relationship management, value creation from supplier relationships, supplier segmentation and how to interact with suppliers are the key areas covered.*

---

### 3.1 Supplier Relationship Management

Supplier Relationship Management (SRM) is an umbrella term which encompasses how a company should interact with suppliers, which supplier they should interact with and to what extent (O'Brien, 2014). However, there is no clear definition to what SRM is and there are a large number of different scopes and extensions of the term (Schuh, et al., 2014). For this thesis the following definition is used: SRM is a strategic, organization-wide philosophy, that brings together a series of discrete supplier and supply chain approaches including Supplier Performance Management (SPM), Supplier Improvement & Development (SI&D), Strategic Collaborative Relationships (SCR) and supplier segmentation (O'Brien, 2014). With this definition, SRM is a means to integrate and apply core components of relationship and supplier management on a supply chain or on different suppliers to add the highest value possible to the targeted business. It is the process of developing, maintaining, creating new and phasing out relationships with suppliers to improve the value generated from them (Moeller, et al., 2006).

The ISO standard 44001 defines collaborative business relationships management systems (International Organization for Standardization, 2017). The standard is a framework in place to define responsibilities and roles to facilitate collaborative decision making. However, the scope is much wider than SRM, thus only being a limited aid in fully defining the term. Also, things such as a linkage to category management are not included and the framework is very procedural and linear which does not always reflect practice in reality (O'Brien, 2014).

When SRM is well-executed it can provide brand development, reduce costs, improve effectiveness and efficiency, reduce supply risk, fuel growth, be a platform for joint development and innovation, improve capacity and provide a competitive advantage (Schuh, et al., 2014; O'Brien, 2014). This is further discussed in chapter 3.2.

SRM demands a selective approach. It is key to select the right supplier with whom the company wants to increase the degree of engagement. Among a company's suppliers a large part is purely transactional, and the relationship should be kept this way (Schuh, et al., 2014). Efforts should solely be focused on ensuring an easy purchasing process at the lowest transactional cost possible (van Weele, 2014). It is not possible to have a relationship with every possible supplier as it is very costly in terms of resources and there is also little value to be made out of it (O'Brien, 2014). This is further discussed in chapter 3.3.

SRM is an organization wide philosophy that needs to be properly embraced and it cannot be applied haphazardly. If SRM is to have a significant and beneficial impact it must be an integral component of an organization and be integrated into the entire value chain, connecting everything from sourcing to the way a company satisfies the needs of its end customers (O'Brien, 2014). This is further discussed in chapter 3.4.



O'Brien (2014) breaks down SRM into three pillars that should encompass an effective SRM approach: *what*, *whom* and *how*:

- *What* the organization demands from its supply base to meet its strategic goals.
- *Whom* the organization should interact and intervene with to realize its strategic goals.
- *How* the organization should act and intervene with its supply base to meet these goals.

This has been broken down into a conceptual map which has been used as a framework for this study. The *whom* has been adapted to solely encompass the segmentation of suppliers (Figure 5).

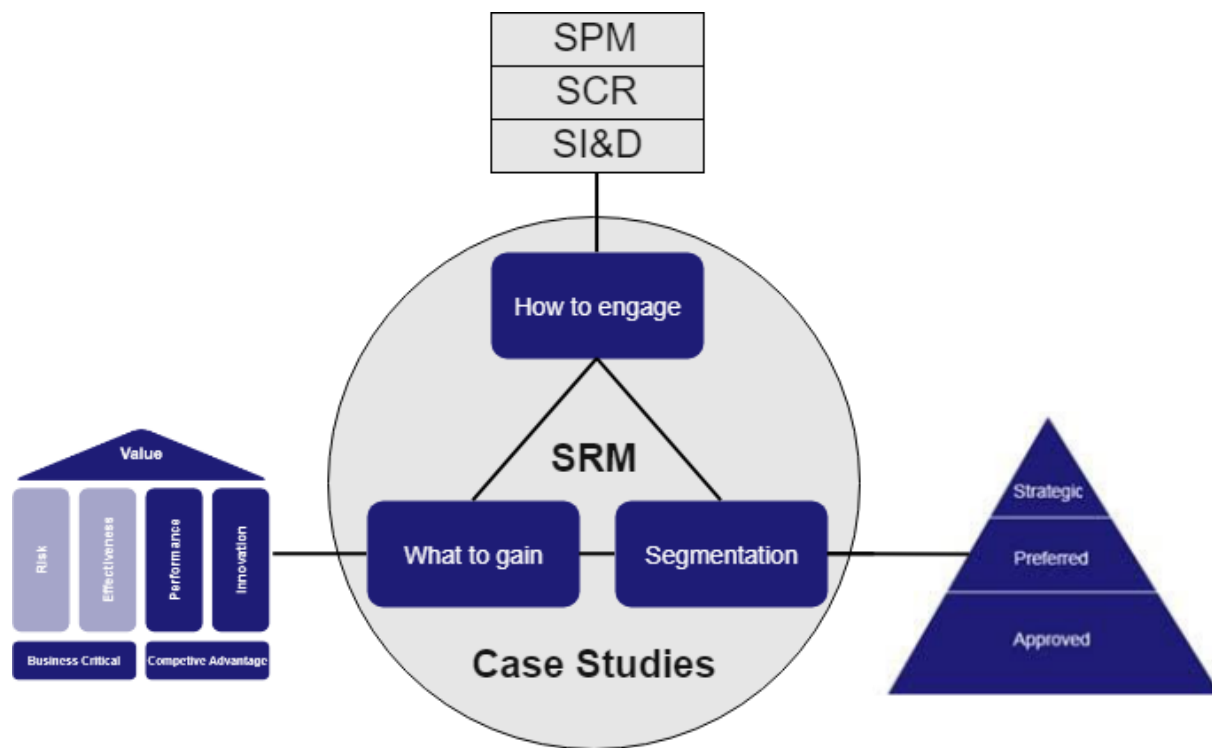


Figure 5: Conceptual map for this case study

### 3.2 What to gain from a Supplier Relationship

Organizations have the need and the potential to gain from having the right relationship with the right partner. Suppliers have the potential to deliver much more than reasonably priced items on the request from the buyer (Gadde & Snehota, 2000). Most companies today spend over half of their sales turnover on purchasing services and parts (van Weele, 2014). Well-established relationships are fundamental for a company's competitive position in both the long-term and short-term perspective (van Weele, 2014; Kluge, 1996; Monczka, et al., 1993). In the all more competitive markets, it is no longer enough to solely focus on market-shares to maintain profitability, the competitive space has been redefined (Bovet & Sheffi, 1998). According to the perspectives presented by Gadde & Snehota (2000) a company's competitive advantage no longer resides internally within a company's in-house abilities. They state that the advantages rather reside in the linkages and relationships that companies have with external organization, i.e. their suppliers.

As a result of this, it is no longer possible to follow an antagonistic purchasing model as it solely leads to short-term savings. The competitive pressure forces companies to increase their innovativeness and provide higher quality and more reliable solutions at a competitive price. For this

to succeed the support of suppliers is essential (Matthyssens & Van de Bulte, 1994). Businesses are increasingly depending on their supply-base to help develop new products and processes and to increase the speed that they reach the market while at the same time improving quality and reducing costs (Liker & Choi, 2004). When establishing relationships with suppliers it is important to understand why one would want a relationship and what should be the result of it. For example, what problem is being tackled, what opportunity is created or what additional value is reached (O'Brien, 2014). To some degree relationships are held with all suppliers. The relationships can be everything from purely transactional to deep partnerships with huge potentials. With transactional relationships, the focus is more at a level of risk mitigation and to ensure smooth operations. The more impactful relationships can provide benefits that can be game changing through innovation and the value created from working together (O'Brien, 2014).

The model presented in Figure 6 is adapted from O'Brien's (2014) VIPER model. The components of this model are the theoretical foundation for the value creation from a supplier relationship and will be discussed further in the rest of this chapter. It describes the range of the different supplier outputs, from must-do activities to opportunities that can have an impact on an industry as a whole. Risk and effectiveness have, as mentioned in the delimitations, been omitted due to time and scope limitations. Both these criteria follow a more business critical dimension and are focused more on maintaining and optimizing business. The criteria performance and innovation are more focused on providing a competitive advantage and are value adding from a strategic perspective.

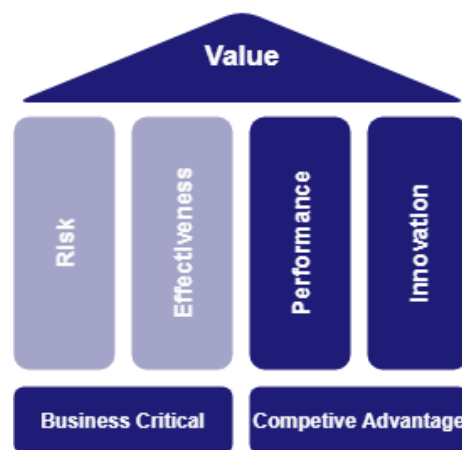


Figure 6: Model that defines possibilities from the supply chain. Adapted from O'Brien (2014)

### 3.2.1 Value from supplier relationships

All supplier relationships are of different degrees of importance, but the goal with all of them is to provide value. This value is not always easy to define as the role of each relationship has to be set in context. For example, a relationship can not only be assessed by the content of the product or service provided (Gadde & Snehota, 2000). Value created from some relationships can be easy to measure, quantify and expose, but in many cases, it can be a lot less obvious by being less tangible and less quantifiable but still very important (Gadde & Snehota, 2000).

The main reason for applying supplier relationship strategy is the creation of additional value that can be channeled from suppliers. A valuable relationship can have a major impact on the business as a whole. The term value is very broad and can encompass everything from innovation, improved quality, lowered costs and prices amongst other things. For example, when a company decides to

outsource non-core competencies and activities, there is a value created from the potential improvements through the delivery by a company that has the activity as a core-competency, but also through the improved ability to focus on the company's remaining in-house activities. (O'Brien, 2014)

However, value is not entirely easy to define as there is a large diversity of different views that implies it may be a multi-dimensional construct (Moser, 2006). For example, Jackson in her work from 1985 (as cited by Moser, 2006) focuses her definition on cash benefits, Anderson (1999) on financial and social benefits and Wilson (1995) on competitive advantages. By using financially focused definitions many aspects such as innovation, incremental quality improvements and technology transfer may not be accounted for due to them being difficult to quantify (Moser, 2006). There are ways to measure cost in a more value-based holistic way, one which relates to the total costs of a product over the lifetime of the product which is purchased, rather than the purchasing price. This method of cost measurement is referred to as Total Cost of Ownership (TCO) (van Weele, 2014).

### **3.2.2 Innovation from supplier relationships**

The importance of innovations contribution to business is widely agreed upon (Hult, et al., 2004). Suppliers are recognized as an important source of product and process innovation (Klioutch & Leker, 2011). Supplier innovation aids companies in improving quality, cost and the delivery of their products and processes (Azadegan & Dooley, 2008). When innovation is successful it can in turn have a big impact on a brand, differentiate a company's value proposition and create new business and growth (O'Brien, 2014). The innovation from the supplier is generally seen as low risk in a comparative sense and can provide faster payoffs than in-house innovation (Lynch & Rogers, 2007).

Since the 1990's there has been a major shift on how companies work with innovation. Historically, innovation has been done internally, but there has been a move towards working with, and including external partners (Roberts, 2001). There has been a change towards a larger network approach and more open innovation. By harnessing external ideas and at the same time leveraging in-house R&D operations, it is possible to seek new ways of developing new ideas and markets. As knowledge has become all the more widespread it is more important than ever to use novel ways to innovate and create more value. Organizational prosperity demands differentiation and innovation. Turning to suppliers and other knowledge bases is an important help to find these breakthroughs (Chesbrough, 2003). Buying organizations are all the more dependent on their supplier for new innovations and suppliers increasingly affect companies' ability to develop own innovations (Monczka, et al., 1993). It is important to note that these breakthroughs are not only through new products and ideas but equally much on how products are produced, and processes are performed (O'Brien, 2014).

According to Lynch and Rogers (2007) if a buyer wants to access the innovativeness, certain base criteria have to be met as shown in Table 3.

**Accessing supplier inventiveness requires:**

- a mature view of supply relationships
- a mutual understanding of what innovations are considered valuable
- a broad view of value in all its facets
- a set of interactive processes to mine innovative value
- a shift in rewards for supplier and purchaser to align on the new metrics of innovation

*Table 3: Criteria that has to be met to access supplier inventiveness (Lynch & Rogers, 2007)*

There is always a potential for misalignment. For example, if purchasing staff solely focus on easily measured criteria, such as price, the long-term health of an organization can suffer. Arguably, criteria such as capabilities and potential within innovation are much more important for a business to meet long-term goals. However, such criteria are often difficult to measure (Gunday, et al., 2011).

Innovation in relation to supplier relationships is omnidirectional as it is not only about the supplier bringing innovation to the buying company. For buying firms, there is a large potential in providing innovation to their suppliers (O'Brien, 2014). Innovation has the potential to transform but can also be difficult to harness and unlock. There is always a risk of misalignment which adds a degree of difficulty to the process. Working together with key suppliers are crucial to find true innovation (O'Brien, 2014). There is also the arduous challenge task of converting promising innovation to actual products that can satisfy market needs and demands (Chesbrough, 2003). Furthermore, some buyers hesitate to work with supplier development as there is a possibility of competitors using the same supplier also benefiting from the improvements. This type of issue can be counteracted with contracts that provide exclusivity for a limited time (Monczka, et al., 1993). Also, in some cases, where the benefits are large enough for the supporting company, it can outweigh the possibility of competitors also benefiting from the improvements.

### **3.2.3 Performance improvements in supplier relationships**

One thing that can be said in common for supplier performance is that it is an operational measure of a company's competitive success factors. Supplier performance can be measured in anything ranging from price, delivery performance, service, responsiveness to changes in quality. A supplier's performance has a direct influence on the buyers and therefore it is a critical factor to measure and follow up on (Prahinski & Benton, 2004). It is fairly simple to chase performance improvements as it is often quantifiable, however it is not always worthwhile. The value created from performance improvements is often rooted in developing supplier relationships and interventions to improve results. If these interventions do not yield results and there is little potential or development in the suppliers where they are applied, buying firms should reconsider their improvement efforts in these relationships. Cases where such interventions can be used is when suppliers do not deliver what is agreed upon, where there is untapped potential in the supplier relationships, or when developing interventions are efficient in specific supply situations that aid in pursuing improvements and deliver worthwhile results. The search for performance is not only limited to first-tier suppliers, even second- and third-tier can be assessed. However, it is much more difficult with lower tier suppliers as direct contractual obligations may not exist limiting the possibilities on making an impact (O'Brien, 2014).

What can make the drive for performance improvements worthwhile is to identify situations where supplier intervention can yield beneficial results or minimize risks. There are also situations where there are few options. For example, if the buyer is locked into a relationship where there is little other supply and therefore difficult to switch supplier it may still be worthwhile to drive improvements (O'Brien, 2014).

<p><b>Supplier performance improvements can potentially add value when:</b></p> <ul style="list-style-type: none"> <li>- performance is not what was agreed or expected</li> <li>- greater value can be secured if performance can be improved above what is agreed or expected</li> <li>- there are unacceptable supply chain risks that must be addressed</li> </ul> <p><b>For each of these, effort to drive improvement is worthwhile if and when:</b></p> <ul style="list-style-type: none"> <li>- there is a risk to gain or lose significantly</li> <li>- intervention is likely to yield a result</li> <li>- there are few alternatives</li> <li>- the supplier is unable to improve without help</li> </ul>
--

*Table 4: Value potential and conditions (O'Brien, 2014)*

Metrics can be adapted to capture other dimensions such as innovation. As brought up in chapter 3.4, innovations can also be performance improvements through for example supplier improvement and development.

### 3.2.4 Effectiveness from supplier relationship

Another key reason for having relationships and interactions with suppliers is to ensure effective and smooth-running business operations. Like most supplier interactions, the degree of the relationship varies. Some operations where suppliers are integral for the performance of the delivery of a product, a higher degree of interaction is required (O'Brien, 2014). Key characteristics of operational relationships which are dependent on well-structured and deliberate close working relationships, according to O'Brien (2014), are shown in Table 5.

<ul style="list-style-type: none"> <li>- Achievement of the required outcome is only possible with good interaction between parties.</li> <li>- Suppliers are typically providing some sort of capability or capacity that the organization does not have or chooses not to have; they may well be specialists in their area.</li> <li>- Suppliers might work as if part of, or an extension of the business as opposed to a supply scenario where goods are handed over, or a simple service executed.</li> <li>- Suppliers tend to gain know-how about the work that, over time, can give them a unique advantage making it difficult to switch suppliers creating a situation of dependency.</li> </ul>
--

*Table 5: Characteristics of operational close relationships (O'Brien, 2014)*

A relationship with the purpose of maintaining and ensuring effectiveness carries some degree of risk. All working relationships are dependent on mutual terms to avoid the risk of exploitation or nuisance dealings. The position of the buyer and the seller are in most cases different with one of the parts being more dominant. Only relations where both parts find an attractiveness are appropriate for long-term partnerships (van Weele, 2014).

### **3.2.5 Risk reduction in supplier relationships**

One of the most important and critical reasons for buying firms' intervention and management of a supply chain and supply base is to minimize risk (Nguyen, et al., 2017). Supplier related risk can have a major impact on the entire supply chain as supply networks are very vulnerable to disruption with domino style failures, where one element can disrupt the entire network (Rice & Caniato, 2003). Preparedness is one of the greatest sources where value can be secured and maintained from the supply base. Failure in minimizing risks can have a tremendous impact on everything from ensuring production to the value of a company's brand. Something that could be easily prevented before it happened can become extremely costly and resource demanding (O'Brien, 2014). It has been suggested that brand reputation risk and supply chain disruptions have been increasing in both impact and frequency, but many companies are still not effective in managing their supply chain risks (Marsh Inc., cited in O'Brien 2014). In the 1990's there was a large drive for cost efficiency in supply chains. This led to a heavy reliance on common-parts, centralized inventories and sole-sourcing, leaving supplies more exposed to disruptive risk. Also, longer lead times from low-cost offshoring was an efficient move out of a cost perspective, but it leaves companies exposed to a large supply risk with long periods of shutdown (Chopra & Sodhi, 2014).

When discussing risk there is always a balance between maximizing efficiency and minimizing risk. Restructuring supply chains to better handle disruptions is in many cases very costly but may often be a necessity to be prepared. When looking at large companies, building resilience does not have to be too expensive and can often be done without increasing costs. For example, segmenting a supply chain based on demand uncertainty, volumes and variety can minimize the impact of disruptions, but at the same time it can help in increasing profits (Chopra & Sodhi, 2014).

Chopra and Sodhi (2014) further argue that estimating risks can be very difficult as there is a lack of data for applied calculations. Overestimating the likelihood of a disruption can be economically beneficial in the long run compared to ignoring or underestimating the likelihood. It helps build up a resilience in the supply chain with a higher degree of preparedness. Through analysis of potential impact and likelihood of issues in a Business Continuity Planning or Corporate Social Responsibility perspective, it is possible to develop preemptive responses that can prevent the risks from being realized or minimize the damage of the outcome (O'Brien, 2014).

## **3.3 Segmentation in Supplier Relationship Management**

Segmentation is the categorization of suppliers for the goal of distributing and allocating resources to monitor and manage them (Gordon, 2008). Some suppliers are, as most purchasing managers are aware of, more important than others. A selective approach is needed when looking at relationships with suppliers (Liker & Choi, 2004). It is simply not possible to have more than an "Arm's Length" relationship with all one's suppliers. From some suppliers it is only needed that they deliver what is promised on time for the right price making them purely transactional (O'Brien, 2014; van Weele, 2014). Kraljic (1983) famously shows this segmentation through his "Kraljic Model" where the products/suppliers are categorized into four categories based on their financial impact and the supply risk. Even at a first glance, this can almost seem simple, but it is in most cases a daunting task. O'Brien (2014) describes it as one the most challenging steps when getting started with SRM. However, if done correctly, the resources of an organization will be used where it has the largest impact. If an organization manages to get it wrong, it is a large waste of energy and resources and it can also lead to company missing valuable opportunities (O'Brien, 2014).

The segmentation process can be made into complex mathematical models. However, in most cases the models are not completely effective. There is a large risk that important knowledge from the staff that actually interacts with the suppliers is missed, thus leading to potentially faulty conclusions (O'Brien, 2014). There are probably as many different theories on how to segment as there are academic papers written on the subject. Selecting suitable suppliers for the different segments requires holistic qualitative and quantitative criteria (Ho, et al., 2015).

It is often suggested that high-volume suppliers should be treated with high involvement and low-volume suppliers with low involvement. However, Gadde and Snehota (2000) argue that this does not always have to be the case. The degree of involvement in a relationship should be based on the potential gains from further involvement, and if there is motivation from the supplier for a more involved relationship. Gadde and Snehota also argue that the longevity of a relationship should not either be a basis for the degrees of involvement with a supplier.

It is important that companies have a balance between low and high-involvement relationships as there are different benefits that can be sourced from both sides. Different degrees of supplier involvement lead to different benefits depending on the type and situation that surrounds each relationship (Gadde & Snehota, 2000). This balance is important as over- and under-designed relationships can be a risk as mismanagement of resources can negatively impact the business. However, it is important to note that there is no general rule. Each relationship needs to be determined out of the intersupplier-buyer context. The view of treating each supplier as a close partner is a common over-simplification and has a negative impact on purchasing performance (Gadde & Snehota, 2000).

Partner relationships should aim for building long term relationships and have a high degree of mutual trust. As mentioned, different suppliers mandate different degrees of interactions and partnerships should only be held with a select few (van Weele, 2014). Ellram and Hendrick (1995) define a partnership as: *“An on-going relationship between two firms that involves a commitment over an extended time period, and a mutual sharing of information and the risks and rewards of the relationship.”* However, in most cases the supply base for a company is made up of mostly transactional suppliers and a different focus and goals should be held with these suppliers (O'Brien, 2014). Van Weele breaks down the underlying objectives in supplier corporations into four different levels applied to different degrees of supplier relationships (Table 6).

Aspects	Transactional Supplier	Preferred Supplier	Supply Partner	Design Partner
<b>Relationship Characteristics</b>	Operational	Operational	Tactical/Strategic	Strategic
<b>Time Horizon</b>	From order to order	1 year	1-3 years	1-5 years
<b>Quality</b>	As requested by producer	As requested by producer	Sign-off by supplier	Sign-off by supplier
	Quality control by producer	Quality control by producer and supplier	Quality Assessment by supplier (process quality)	Early supplier involvement
<b>Logistics</b>	Orders	Annual agreement + call-off orders	Periodical scheduling of materials requirements by producer	Electronic document interchange
				Quality Assessment by supplier (design quality)
<b>Contract</b>	From order to order	Annual agreement (1yr)	Annual Agreement (>1yr)	Design Contract
			Quality agreement	Life of type responsibility (product liability)
<b>Price/Cost</b>	Price	Price + rebate	Price + cost-reduction targets	Price based on open calculation
				Continuous improvement (Design, quality, cycle time)

*Table 6: How buyer supplier relationships may change over time (van Weele, 2014)*

### 3.3.1 Strategic suppliers

With one's strategic suppliers, an organization should want to work together to aim for mutually beneficial goals which aim beyond the immediate requirements for the satisfaction of the short-term goals of any deal. In general, strategic relationships are characterized by well-established and regular contact with the supplier (Cox, et al., 2005). Cox, et al. (2005) also describes the value generated from collaborative relationships is through deploying "non-fungible investments" by both the supplier and the buyer. Suppliers in this category should have particular capabilities or skills that are fundamental or represent large potential to the buying company's competitive advantage or offerings (Gadde & Snehota, 2000; Gordon, 2008).

One large benefit that can be accessed through strategic relationships is the supplier's innovation potential discussed in 3.2.2. However, through the more interactive relationships there are also the possibility of the creation of a culture which aids innovation, providing benefits for the buyer's own innovation as well (Lii & Kuo, 2016).

One case that often motivates a supplier for having higher degrees of involvement, thus being strategic, is that they are associated with a single sourcing policy. However, increasing involvement also increases the risk of conflict if the right prerequisites do not exist. The increased risk is also partly due to the increased complexity as there is more at stake for both the buyer and the supplier (Gadde & Snehota, 2000).

The selection of strategic suppliers should involve multiple stakeholders (e.g. manufacturing, quality, finance etc.) instead of just being a decision originating from the purchasing department (Ho, et al., 2015). This leads to a more holistic selection process which mirrors the business needs better. If all the stakeholders that the decision impacts have not been consulted it can have a negative impact on the supply chain and the company's performance (Ho, et al., 2015). The number of suppliers that should be classified as strategic should be a limited few. To reap the benefits from this type of relationship it is in most cases required to have non-standardized solutions and high supplier specific adaptations (Gadde & Snehota, 2000).



### **3.3.2 Preferred suppliers**

There is an important middle ground between being a transactional supplier and being a strategic one. For this thesis they are titled preferred suppliers. Other terms such as “important suppliers” or “leverage suppliers” is used relatively equivalently (O'Brien, 2014; Gordon, 2008). The purpose of this group of suppliers is to leverage some of the benefits of medium and long-term relationships without the same degree of interaction as one would have with a strategic supplier (Halley & Nollet, 2002). For example, one method would be to leverage purchasing volumes to one supplier to improve prices and lower transactional costs involved with the purchasing (Gordon, 2008). The level of intervention with these suppliers is above the level of a transactional supplier but not to the same degree as a strategic supplier (O'Brien, 2014). In general, it could be suppliers with good performance and where there is potential for new business.

### **3.3.3 Transactional suppliers**

A transactional relationship is generally more of an arms-length type where there is a low level of interaction between the supplier and the buyer. The value created from these relationships is simply through the utilization of the purchased products (Cox, et al., 2005). This category should make up a vast majority of one's suppliers and should consist of suppliers where no special intervention is needed (O'Brien, 2014). These relationships are in general low involvement and can be very cost effective (Kraljic, 1983).

In the cases of preferred and strategic suppliers, it is common to take proactive measures to improve supplier performance and decrease supply risk. However, in cases of transactional suppliers, this is often not needed to the same degree. A simple corrective measure may be enough, or if the products are more commoditized it may be better to simply switch supplier (O'Brien, 2014). The main focus should be on improving operational efficiency. Suppliers in this segment should not need a large amount of performance management (Kraljic, 1983). Methods for this could be to standardize the purchasing process through catalogue buying, e-commerce solutions and systems contracting (van Weele, 2014).

## **3.4 How to engage with suppliers in Supplier Relationship Management**

A central decision within SRM is what specific interventions and interactions the buying firm should have with their supply base in order to achieve strategic goals. However, there is no best practice type of relationship which applies to all categories of suppliers. Therefore, interactions need to be adapted to the type of relationship the buying firm wish to establish and maintain with the different suppliers in their supply base (O'Brien, 2014). O'Brien (2014) divides interactions into five different categories, three of those can be found in Figure 7. The different types of interactions recommended depends on the risk involved in the supplier relationship, the potential gain from a supplier relationship and the degree of business impact. In the following sections, SPM, SI&D and SCR will be described and explained. Thus, are not all suppliers suited for all types of interactions, for example you should not have a SCR program for transactional suppliers.

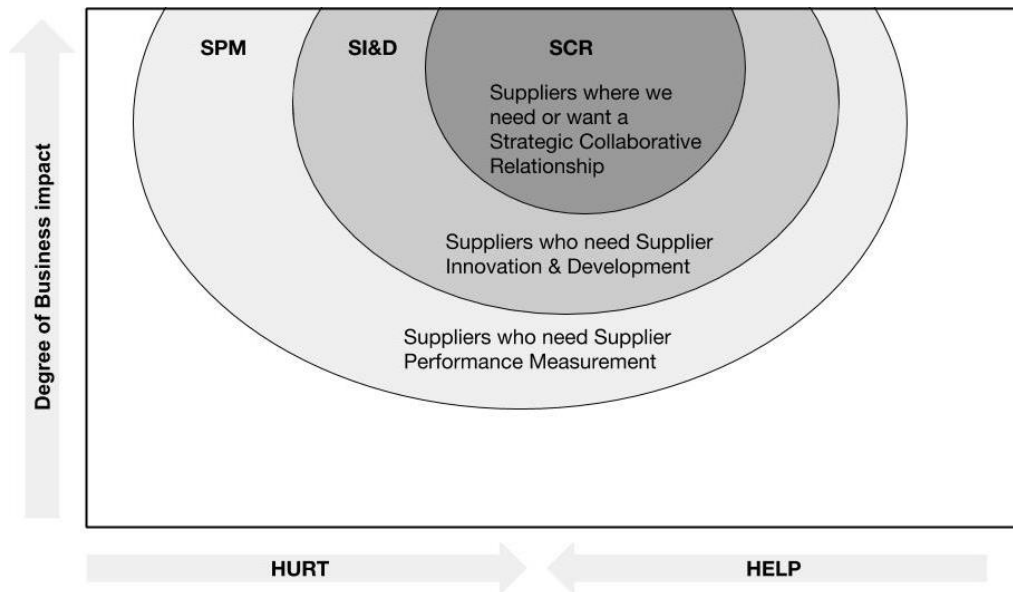


Figure 7: Supplier interactions based on their relative importance and capacity to hurt or help. Adapted from O'Brien (2014)

### 3.4.1 SPM – Supplier Performance Management

SPM is designed to measure both individual and collective supplier performance. It is an important tool in modifying managerial behavior and the results can be used to improve supplier performance in order to align strategic and operational targets (O'Brien, 2014; Cousins, et al., 2008). Cousins, et al. (2008) further state that performance measurement is a core activity for successful management of the buying company's supply chain and is an important tool for monitoring and evaluating individuals and work groups. Neely, et al. (1995) define performance measurement in organizations as "the process of quantifying both the efficiency and effectiveness of actions".

In general, when managing supplier performance there are several dimensions buying companies should include. Such dimensions include cost, time, quality and technology/innovation (Gordon, 2008). Hahn, et al. (1997) states that quantifiable or "hard" criteria such as price, delivery, quality and service routinely are used in selection and evaluation of suppliers. O'Brien (2014) adds supplier management systems and relationship to the list of important measurement dimensions. Naturally, some of these measures are of a quantitative nature, but to fairly judge the performance of a supplier, buying companies should include qualitative measures as well (Cousins, et al., 2008; O'Brien, 2014). Such "soft", qualitative factors are particularly important in the context of strategic buyer-supplier partnerships (Ellram, 1990).

As mentioned in chapter 3.3, the supply base is often segmented and will thereof consist of groups of suppliers with varying importance for the buying firm. According to O'Brien (2014), the level of usefulness for different measurements vary according to the importance of the suppliers. Therefore, different measurements and measurement approaches should be implemented depending on the strategic importance of the supplier. O'Brien (2014) further suggests that there are five degrees of measurement which can be adopted, which often correlate with the degree of importance (Figure 8):

1. **Do not measure** – Interaction with supplier is only transactional and no performance is tracked.
2. **Measurement by exception** – Only measure when perceived supplier performance is poor.

3. **Compliance measurement** – Regular measurement on one or more KPI's to ensure compliance towards agreed performance level or service level agreement (SLA).
4. **Multiple parameter, past performance** – Suppliers are measured on multiple parameters which provide a holistic view of a supplier's performance. Tracks performance over time, mostly lagging parameters.
5. **Measuring progress towards joint goals** – Measurement of performance towards goals set by the supplier and the buying firm in collaboration. Often leading indicators, showing trends and expected future performance.

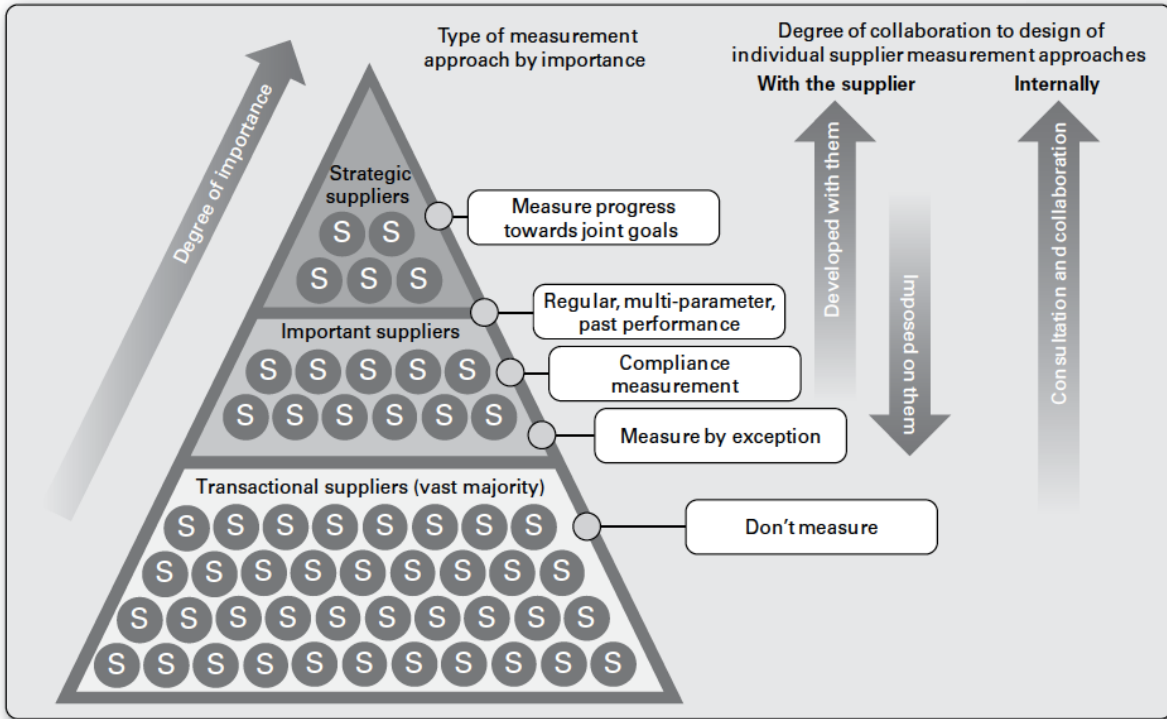


Figure 8: Measurement approaches according to supplier importance (O'Brien, 2014)

As displayed in Figure 8, strategic suppliers should be measured on progress towards joint goals and/or with a regular, multi-parameter, past performance approach. Gordon (2008) argues that strategic suppliers should be measured on cost, quality, delivery, responsiveness, business practices and processes, technology capabilities, lean assessments and continuous improvement results. Regarding important suppliers, Gordon (2008) makes a further distinction between strategically important suppliers (collaborative) and suppliers regarded as important due to supplier dependency (custom). The collaborative suppliers should be measured on cost, quality, responsiveness and financial results whereas the custom suppliers should be measured on service, delivery and responsiveness.

The theory above indicates that a supplier should be measured more thoroughly and on a wider variety of parameters if the supplier is considered strategic or important. Also, the measurements for the more important suppliers should be developed in cooperation with the supplier to be more customized as those relationships are more unique.

### ***SPM Follow up***

SPM is rarely effective if results are not shared with the supplier, as they will not be able to improve. In Cunningham and Fiume's study from 2003 (as cited in O'Brien 2014), they suggest that *"if it is worth measuring, it should be displayed in a way that everyone can see"*. Gordon (2008) suggests that SPM should be considered as a two-way relationship where information and understanding are exchanged between the buying firm and the supplier. The process of sharing performance results is fairly simple, but O'Brien (2014) mentions several obstacles which might obstruct buying firms from sharing performance results:

- Not making the time to meet and share
- Fear the supplier will try to take an advantage from positive performance data
- Knowledge is power
- Assuming no need to share anything other than a problematic result
- Avoiding conflict with suppliers

In practice, the act of sharing can happen during a review meeting with the supplier or through scheduled, regular digital distribution.

### **3.4.2 SI&D – Supplier Improvement & Development**

Supplier improvement and development (SI&D) is a key component of SRM. SI&D has a broad implication and range from small interventions to actively work with a supplier to develop their capabilities. SI&D requires the buying firm to be flexible since every supplier requires unique efforts (O'Brien, 2014). Krause, et al. (1998) defines supplier development as *"any set of activities undertaken by a buying firm to identify, measure and improve supplier performance and facilitate the continuous improvement of the overall value of goods and services supplied to the buying company's business unit"*.

Furthermore, Krause, et al. (1998) argues that SI&D consists of two major types of activities: strategic and reactive. O'Brien (2014) argues similarly and labels supplier improvement as reactive measures, and supplier development as proactive (strategic) measures. Reactive measures are often aimed at reducing costs, improving performance and reducing or eliminating a known risk, while proactive and strategic measures aim at developing new capabilities and enabling the supplier to work towards joint goals (O'Brien, 2014). Monczka, et al. (1993) suggest using supplier performance improvement rewards as a way of improving the suppliers of a buying firm. The idea behind it is that suppliers will be motivated to improve if they see direct benefits of doing so. Rewards can include promises of contracts for related parts or worldwide purchase contracts. This type of measure should be viewed as an improvement rather than a development effort since it does not require high involvement of the buying firm. Another more strategic approach is to engage in direct supplier development which can involve capital injections, provision of technology, equipment, know-how or personnel. This could be crucial for firms who wish to reduce their supply base as supply base improvements will have to come from supplier development rather than switching suppliers (Monczka, et al., 1993). Krause (1997) adds to this theory and categorizes SI&D efforts in direct involvement, incentives and enforced competition (e.g. no commitment/involvement). He also emphasises that the types are not mutually exclusive and can and should be used in parallel in order to increase supplier performance and improve their capabilities. Continuous supplier development and performance improvements require that there is a mutual recognition and interest by both the seller and the buyer otherwise little effort and progress will be made (Monczka, et al., 1993). Effective relationships provide the benefit of being able to contribute to performance improvements in important attributes such as price, cost, delivery, quality and innovation (Liker &

Choi, 2004; van Weele, 2014) Regarding the effects of SI&D, Krause and Ellram (1997) found that the buying firms who were most satisfied with the results of their supplier development initiatives were to a higher degree committed to invest in activities such as supplier evaluation, training and award programs. They also managed to maintain a more effective communication with their suppliers.

Based on these studies, there is a clear indication that supplier development and strategic, proactive measurements with a high degree of collaboration are mainly intended for the strategic suppliers, while improvement and reactive efforts with lower supplier involvement mainly are intended for lower-tier suppliers.

### **3.4.3 SCR – Strategic Collaborative Relationships**

Collaboration between the buying firm and its suppliers can be divided into two types, product development collaboration and collaboration towards operational excellence (Park, et al., 2009).

In many industries, companies encourage suppliers to be involved in seeking ways to shorten the development time, improve quality, reduce cost, and release new products smoothly. O'Brien (2014) suggests four reasons for collaborating with a buying firm's strategic suppliers:

1. The supplier has a potential to change something in the business that makes the share price increase.
2. The two firms have some sort of shared destiny and mutual dependency.
3. Partnering in joint development and new innovation.
4. High risk and business critical suppliers.

The feasibility of a collaboration initiative depends on the dyadic dependency between the buyer and the supplier. Not all suppliers wish to devote the resources required for a collaboration between the two parties. A buyer may have the resources and the motives to develop a collaborative relationship, but the supplier may have other priorities (Cox, et al., 2003). As mentioned above, only relations where both parts find an attractiveness are appropriate for long-term partnerships, which most collaborations are (van Weele, 2014). Some researchers have suggested four different types of buyer-supplier power relationships. Buyer dominance, interdependence, independence and supplier dominance (Frazier & Antia, 1995; Campbell & Cunningham, 1983). The collaborations will look different depending on what type of power relationship exists between the buyer and the supplier and differ both in behaviour and results (Cox, et al., 2003). However, both parties need to be able to profit from the collaboration in comparison to acting independently, regardless of the degree of relational symmetry (Wilson, 1995).

Schiele (2015) shows in his study that effective innovation collaboration requires the buying firm to be a preferred customer of the supplier. Being a preferred customer means that the buying firm receives preferential resource allocation from the supplier and that the buying firm is seen as more attractive than other customers (Steinle & Schiele, 2008). This has become more important over time due to the limited availability of high quality suppliers and that suppliers' role in innovation tasks is becoming more important (Schiele, et al., 2012). This has in turn led to firms developing specific procurement strategies in order to secure collaborations with key suppliers. These strategies include pooling volumes or negotiating exclusivity agreements. It is also advised to train purchasers, R&D managers etc. to treat those suppliers in an adequate way. Schiele also acknowledges that a

preferred customer status also could lead to successful early supplier integration in product development and operational excellence in the production phase (Schiele, 2015).

***Early Supplier Involvement***

Van Weele (2014) suggests that involving suppliers early in the development process might yield several benefits such as reducing time-to-market and start-up costs. This is due to the supplier bringing product and process engineering knowledge and experience to the buying firm. This is supported by Ragatz, et al. (1997) who showed in their study that early supplier involvement in new product development resulted in shorter development lead times, higher product quality and a shorter time-to-market. By involving suppliers, they can provide input on future designs, suggest materials and help improve the efficiency in manufacturing, at a time when changes can be made at a lower cost (van Weele, 2014). The level of responsibility that the supplier takes, and the level which the buying firm allows in the product development process affects the level of involvement. Early Supplier Involvement (ESI) is nuanced and can take many different forms and levels. Ragatz, et al. (2005) categorizes ESI into three types with varying supplier responsibility in Table 7.

<b>White Box</b>	<b>Grey Box</b>	<b>Black Box</b>
Discussions are held with suppliers about specifications/requirements but the buying company makes all design and specifications decisions.	The buyer and supplier enter into an informal, or sometimes a formal joint development effort, which may include information and technology sharing and joint decision making regarding design specifications.	The supplier is informed of customer requirements and then is given almost complete responsibility for the purchased item, with only review and concurrence on the purchased item's specifications by the buying company.

*Table 7: Description of ESI types adapted from Ragatz, et al. (2005)*

***Innovation from suppliers***

Innovation from a supplier cannot come from simply asking them to innovate. If a supplier is instructed to innovate they will probably do what they are paid to do, but no more than needed, since they might lack incentives and motivation to deliver above expectations. Therefore, a close relationship between the two parties with mutual interest and benefits is required in order to lay a foundation for exchange of innovation (O'Brien, 2014). O'Brien (2014) further suggests that the type of innovation from suppliers depends on the motivation of the availability of the innovation (Figure 9).

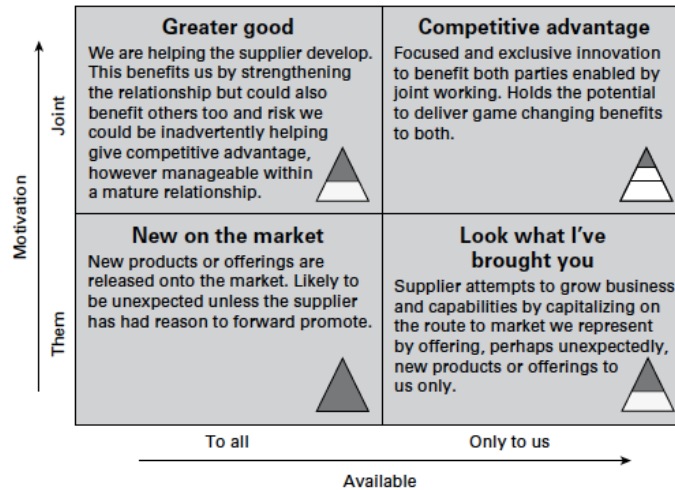


Figure 9: The different types of supplier innovation according to how the supplier is motivated and how innovation is made available (O'Brien, 2014)

In addition, there are several factors that might encourage and prevent supplier innovation. O'Brien (2014) divided the factors into four types: reason, realization, reward and risk (Table 8).

Factor	Prevent	Encourage
<i>Reason</i>	No perceived alignment of the supplier's innovation with the buyer's business and how they understand the future direction.	Clear alignment of the supplier's innovation with the buyer's business, wider corporate goals and future direction.
<i>Realization</i>	Lack of traction – perceived inability to turn the innovation into reality. If the supplier is to share their next big thing exclusively with the buyer they need to be confident that something will be done with it.  The supplier believes the buyer is unable to collaborate with them.	Route to market – the buyer holds the ability to enable the supplier to realize the potential of their idea through the buyer's route to market or distribution channels or unique ability to connect with certain customers.  Track record of implementation – the buyer can offer and can demonstrate the ability to turn ideas into action.
<i>Reward</i>	Expectations to innovate for no or little incremental return.  Failure to appreciate the value of the idea.	Willingness to create an engagement model that allows both parties to benefit.
<i>Risk</i>	Risk of theft of idea or Intellectual Property.  Risk of indiscretion.	Confidence in the value and ownership of the idea being preserved.

Table 8: Factors that prevent and encourage supplier innovation (O'Brien, 2014)

## 4 Empirics

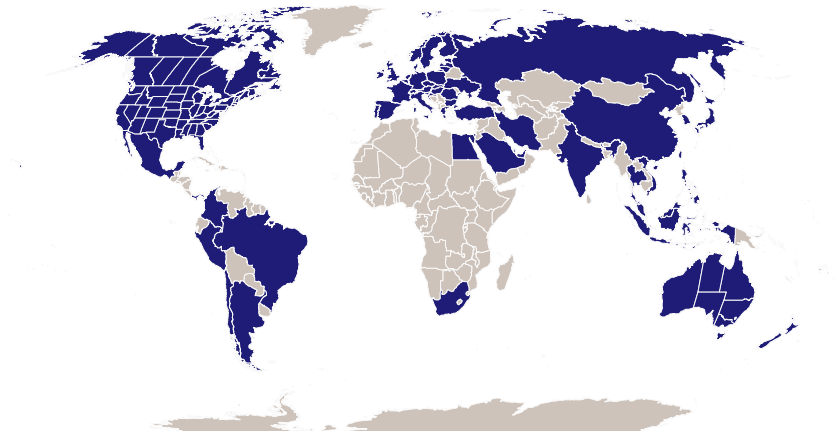
*This chapter presents the findings from the data collection in the five conducted case studies. Each of the case companies are structured similarly in order to make it as clear as possible. The same structure is followed in the analysis.*

### 4.1 Case 1 – Alfa Laval

#### 4.1.1 Company Description

Alfa Laval AB (referred to as Alfa Laval in this report) is a global provider of engineered solutions and specialized products. The company is a global leader within its core technology areas; fluid handling, heat transfer and separation. Alfa Laval has a wide range of applications for its products in everything from the pharmaceutical industry to the oil and gas industry and has a large global presence (Figure 10). Its global headquarters is in Lund, Sweden, where it also has its largest production facilities.

Oscar Lamm and Gustaf de Laval founded the company in 1883. Alfa Laval has since then gradually expanded its target markets, grown through in-house R&D and through many acquisitions of competitors, suppliers and companies. Alfa Laval has since then gradually expanded its target markets, grown through in-house R&D and through many acquisitions of competitors, suppliers and companies.



*Figure 10: Map indicating Alfa Laval's Global Presence (Alfa Laval, 2018)*

Alfa Laval's diverse portfolio of products has led to Alfa Laval having a large supply base from a wide range of suppliers. A lot of its products have advanced technical requirements and long product life cycles which further adds demands on the relationships with its suppliers and the longevity of the relationships.

Alfa Laval focuses on its core activities where it can provide the highest value added to the end-product and to the lowest cost. For example, a look at one of its core products, the brazed plate heat exchangers, shows that the only parts of the manufacturing process that is performed by Alfa Laval is the pressing of the plates that are inside the heat exchanger. Alfa Laval use its patented patterns, perform the painting of the base plates and does the final assembly of the product. As most of the production activities are outsourced, it has the side-effect of the entire organization being dependent on suppliers.



At Alfa Laval, purchasing is a key activity as it stands for over 60% of the Cost of Goods Sold (COGS). This has been acknowledged by the executive leadership and in 2017 Alfa Laval went through a major re-organization, where the global purchasing department was a key part (Figure 11). The global purchasing department is part of the Operations division. The purpose of re-organizing the purchasing department is to leverage the buying power of the different business units and commodity groups, and to pool volumes to preferred suppliers to increase Alfa Laval's buying power.

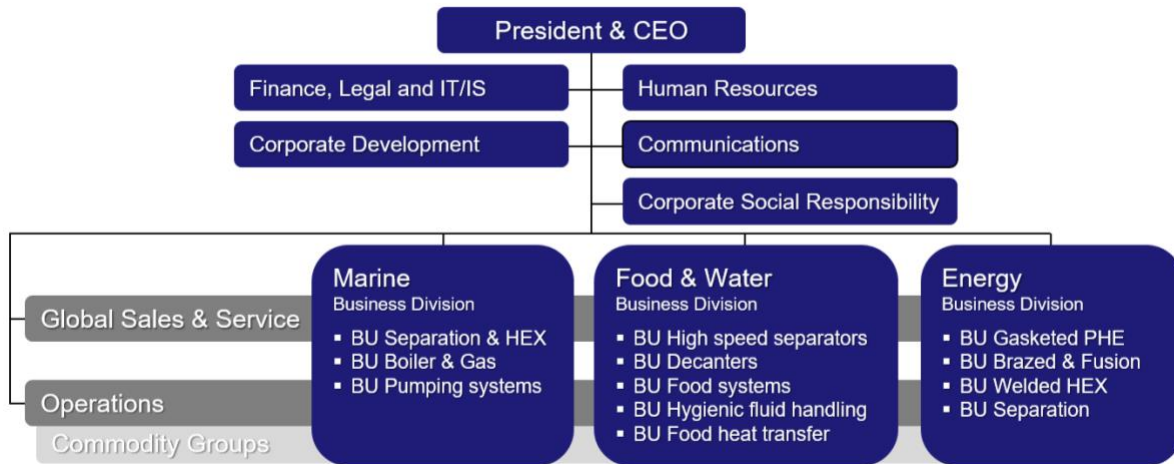


Figure 11: Alfa Laval's new organizational structure (Alfa Laval, 2017c)

The Alfa Laval purchasing organization follows a matrix structure divided into 12 business units (following different product groups) and six commodity categories (Figure 12). The purpose of the different commodity groups is to pool purchases to get cross-business unit synergies.



Figure 12: Alfa Laval's 6 different commodity groups (Alfa Laval, 2017c)

However, there is a large degree of autonomy in most of the buying units. This is partly due to past practice but also to a large degree due to the growth of Alfa Laval. Alfa Laval has grown both organically but also through a large number of acquisitions. The acquired organizations have had their own supply bases which have remained independent. Another influencing factor is that Alfa Laval has not had a trans-organizational Enterprise Resource Planning (ERP) system, which has made it difficult to get a clear insight in activities at the many different sites throughout the entire enterprise. This has made it difficult to follow up that recommended purchasing practices have been enforced and led to the supply base at Alfa Laval growing to over 7000 different suppliers. Table 9 shows key figures for Alfa Laval.

Alfa Laval	2016
Revenue	35 634 MSEK
Operating Margin	15.6%
Employees	16941

Table 9: Alfa Laval's key figures (Alfa Laval, 2017a)

#### 4.1.2 Procurement Organization

##### *Procurement & SRM strategy*

The ultimate goal of Alfa Laval's procurement strategy is to develop a supply base which is sustainable and competitive for all business needs. Previously, Alfa Laval had little focus on risk, sustainability and consolidation of supplier volumes, and instead a sole focus on cost. Today, the focus has somewhat broadened. Another important aspect of its current procurement strategy is ensuring that suppliers clearly understand Alfa Laval's quality and technical requirements and can manage a reasonable price development.

Alfa Laval believes that its procurement organization is working proficiently and that it is able to put pressure on its suppliers. However, it is not harnessing the full potential of its global supply base. It is not using the infrastructure to its full capacity as many sites mainly source locally. There are many equivalent products throughout the supply base which are bought from different suppliers depending on what site is buying. This is mainly due to tradition and old agreements rather than an active decision to use parallel sourcing. However, there are some situations where parallel sourcing is actively chosen due to differences in quality and supply risk reduction. Consequently, Alfa Laval has a very large supply base and low leveraging power in negotiations by being a small volume customer in many of its supplier relationships. Alfa Laval also believes that it should be able to increase the efficiency and effectivity in its procurement organization by improving relationships with key suppliers that exist within its network.

##### *Organizational Structure*

Alfa Laval currently has over 7000 suppliers. Theoretically, the Global Sourcing Office is responsible for all those suppliers. Although, in practice, as they are a small group of purchasers, they delegate the supplier responsibility for some suppliers to local purchasers in the larger global purchasing organization. The supplier responsibility for some suppliers remains with local purchasers in agreement with, and support from, a global purchaser. Nonetheless, in all but low-spend supplier relationships there is someone in the Global Sourcing department that is formally responsible for the relationship. The local purchaser is responsible for representing all the sites that are buying from the supplier as well as negotiating the total Alfa Laval business, depending on the frequency that has been agreed upon.

#### 4.1.3 Supply base

##### *Supplier Activities*

For Alfa Laval, the number and the type of interactions depends on several factors. First of all, if a supplier delivers products to multiple business units (product categories), it will receive higher attention and more frequent interactions. Secondly, the size of the contract, the speed and criticalness of product development also affects the number of interactions. However, the

complexity of a product does not necessarily affect the number of interactions with a supplier. The type of interactions can be split into four distinct categories:

1. Operational interactions between a buying unit (a site) and suppliers: This type of interactions often regards orders, deliveries and quality.
2. Product development: When developing products in cooperation with a supplier, interactions regards prototypes, quality and producibility.
3. Deviancies: If Alfa Laval experiences that a supplier has technical or administrative issues which affect them in a negative way, Alfa Laval will act to improve the situation. In most cases this is identified through a supplier continuously underperforming in its measured KPI's.
4. Supplier Audits: Alfa Laval regularly audits its suppliers on quality, environmental impact and compliance to code of conduct.

### ***Supplier relations***

Today, Alfa Laval has a fair share of long relationships with suppliers in its supply base. This is mainly due to the long lifespan of its products, the high degree of testing required and the demand of being able to supply spare parts for a long time. Therefore, changing supplier is often expensive, and sometimes impossible without risking the supply of spare parts. Additionally, the current mentality seems to be “change by exception”. However, Alfa Laval's sourcing work strives to move towards more proactive supplier relationships.

As a strategy to increase the share of the supplier's revenue or volume, it gives new projects and orders to top performing suppliers. This helps Alfa Laval in multiple ways: it elevates suppliers with whom it has healthy relationships, but also it aids Alfa Laval to increase its buying leverage.

The longest partnership that Alfa Laval has held is currently 91 years and counting. SKF has been supplying Alfa Laval with ball bearings for a long time and has been able to continue to do so due to a number of reasons. First of all, SKF has managed to keep up with the rapid globalization and managed to supply internationally. Additionally, it has managed to continuously deliver new technology and high-quality products.

Very few suppliers come to Alfa Laval with new ideas and innovations and there is no formal incentive program or program that drives this. On an individual level, an employee that has been in contact with a supplier who has suggested a new innovation or improvement can elevate the idea to his/her manager. Alfa Laval has a project system where suggested ideas and improvements are evaluated in regular intervals to find those with high potential. When those are identified, project task forces are created and work in cross-departmental teams to develop the ideas and realize them.

#### 4.1.4 Segmentation

##### **Segmentation Strategy**

One of the main reasons for the development of a supplier classification model is to understand which suppliers Alfa Laval should work with and which it should phase-out. As Alfa Laval has a significant number of suppliers, it is important to deploy a systematic approach to enable supply base reduction and volume pooling to the right suppliers.

##### **Alfa Laval Supplier Classification Model**

Alfa Laval uses a supplier categorization model as the cornerstone of its SRM (Figure 13). The implementation of this categorization model took place relatively recently and is used to a limited extent throughout the supply base. The model classifies suppliers into eight different categories following set criteria. The ambition is that each level should represent a structured approach on how each relationship is maintained and nurtured. Before this approach there has not been a common standard through-out the organization. As mentioned above, the procurement is divided into different commodity groups. Each commodity is responsible for handling the business relationship with all of its own suppliers.

The different levels are defined as followed:

**Strategic** – This category is reserved for suppliers that are of high strategic value and with whom Alfa Laval aims to develop its business in close cooperation. The target is to have one or two suppliers per business unit and this should aid to meet both business and product development goals. Each supplier has a member from senior management who is responsible for the relationship. Both business- and technical reviews are held in regular intervals. Each relationship is connected to specific KPI's and measurable outcomes. The aim is mutual gains from the relationship and that there should be a cross-functional cooperation across different business units and the strategic supplier community. Through this closer cooperation Alfa Laval hopes to increase the cooperation, the pace of innovation and improve the technical development it has in its products.

**Preferred** – High-performing suppliers with signed agreements. The goal with these suppliers is to pool volumes and improve Alfa Laval's buying power towards them.

**Approved** – Suppliers which are active and approved according to Alfa Laval's business principles and are qualified to deliver to the different business units in the organization.

**Potential** – Suppliers that comply and agree with Alfa Laval's business principles. In this segment suppliers are not active but potentially a part of the supply base.

**Customer Mandated Suppliers** – Certain customers have regulatory demands that limits Alfa Laval's choice of suppliers. Re-occurring suppliers in this segment need to go through the same approval steps as approved suppliers.

**Probationary** – Suppliers who perform poorly or have issues with their compliance and demand close monitoring are allocated to this category. All suppliers in this segment should have an action plan in place which the supplier is committed to follow.



Figure 13: Alfa Laval Supplier Classification model (Alfa Laval, 2017b)

**Phase out** – All suppliers that Alfa Laval wants to end its relationship with are categorized into this segment. Purchasers should not place any orders with these suppliers.

**Terminated** – Suppliers that Alfa Laval no longer do business with.

This supplier classification model is relatively new and not fully implemented. The segmentation criteria that suppliers will be evaluated by have not been fully developed. Currently, most of its strategic suppliers are former “key” suppliers that it has worked with before.

#### **4.1.5 Performance**

##### ***Key Performance Indicators***

On a basic level, all suppliers receive the same treatment regarding performance measurements. First of all, there are fundamental requirements which all suppliers need to adhere to in order to supply to Alfa Laval. These standards include quality management systems, environmental management systems, anti-corruption and anti-bribery policies, quality and service levels. Secondly there are four KPI's which all suppliers are measured on:

- Compliance to business principles
- Quality (%)
- Delivery precision (SDOT)
- Price development (PPV)

Additionally, there are product specific demands such as food classifications and other types of certifications for pressure vessels. However, it is always the customers' and different markets' demands and requirements that determine the final requirements on the suppliers, rather than the preferences of the individual buying unit at Alfa Laval. For example, when selling a similar product to both the oil and pharmaceutical industry, different demands are placed on the products with different requirements of certification. This can have a large impact on which suppliers that can be used.

There is a plan to develop unique measurements for the strategic and the preferred suppliers. The strategic suppliers will be measured on innovation. This KPI will likely be developed using a cross-functional team including global sourcing and people from Alfa Laval's R&D department. The exact details of how this will be done is however yet to be decided. The preferred suppliers are to be measured on Alfa Laval's share of the supplier's total business, as well as pooled volumes from approved suppliers to preferred suppliers. But there is a struggle to find time, resources or systems to measure them differently.

##### ***KPI Follow-Up***

Supplier performance is checked at least once a month. Each sub-commodity group identifies the non-performers and they are discussed in monthly meetings. In some cases, under-performance is due to internal issues rather than supplier issues and is investigated. For example, this could be if a new delivery time has been agreed upon with a supplier and this has not been changed in the ERP system. The delivery can then automatically become marked as late causing an incorrect poor performance indication for a supplier. Every week each site goes through supplier statistics to make sure they are correct, and a weekly performance report is sent to all major suppliers. If a KPI deviancy turns out to be a supplier issue, they are informed. This is done primarily from the individual sites but if the issues persist or is major it is moved up to global sourcing to be handled centrally. It is the specific purchaser who is in charge of supplier relationships who is responsible of

sharing the performance results with the supplier. There are also quarterly reviews which are done with the larger suppliers with global contracts. These reviews often include reviews of past performance as well as future estimates and possible improvements.

As mentioned, if supplier issues are continuously repeated, an employee at the production facility where the issue has occurred will elevate the issue to global sourcing who is responsible for the supplier contract. Global sourcing will contact the supplier and request an action plan. If little or no action has been taken, Alfa Laval will send a team to the supplier. If there is still no improvement, a decision has to be made if continued business should be given to the supplier. If not, Alfa Laval will commence a resourcing project.

The choice of specific actions depends on the product's financial impact on the business as well as the supply risk. For products with low supply risk, competition is a great way of boosting performance. For products with high supply risk or high financial impact, other measures are required. At most sites through-out Alfa Laval, few suppliers make up the majority of the KPI deviances and therefore tailored actions plans are often efficient.

#### **4.1.6 Improvement & Development**

##### ***Overall strategy***

Alfa Laval's interactions with suppliers vary depending on the importance of, and the current situation, with each supplier. The different improvement and development activities are also largely dependent on which business unit or site the supplier is working with. Each business unit is responsible for its own products, customers, sales and profits. It does not use a standardized approach for the entire supply base, making all actions adapted to the situation. For example, some business units keep most of its suppliers in a classic arm-length relationship, while other units engage in more complex and developed relationships. This is influenced by the volumes produced by each of the business unit as some produce highly customized products and others mass-produce in the thousands.

Alfa Laval's ultimate goal of SI&D is to be able to provide more competitive products to the market. This is done through short-term KPI improvements, minimizing supply risk and long-term capability building.

##### ***Activities and Interactions***

Alfa Laval works with a toolbox of different methods and actions. Briefly, it can be summarized in the following four approaches:

1. Quick fixes: For short-term solutions, "Firemen" are used in a reactive approach to quickly dispatch employees to suppliers to ensure continued delivery. These are usually local purchasers and engineering teams.
2. Continuous SI&D: Most suppliers have a purchaser who is responsible for the relationship. He or she needs to be aware of the current situation and what needs improvement.
3. Project based improvements: When bigger changes are desired and continuous improvements and quick fixes are not enough, Alfa Laval works with project-based improvements. These projects are often aimed at achieving larger improvements at suppliers and the teams working with it are often cross-functional.
4. Initial SI&D: For new suppliers, if they are generally performing well, they can be aided in areas that are falling behind. For example, help in understanding blueprints and improving

stability in internal processes. This is often in coordination with the responsible purchaser, global sourcing and quality engineers.

Each approach requires different competencies, thus a wide range of employees are involved in the process. For example, when resolving issues with suppliers who provide bottleneck components and products, Alfa Laval utilizes specialized teams to quickly identify the root cause and improve the situation. This can be in both one-off scenarios in case of major issues, or as an effect of long-term repeating issues. If a supplier would have financial issues, Alfa Laval sometimes work with temporary price increases or special contacts which aims to improve the line of credit with the suppliers. In few cases, it might help suppliers to find additional business thus improving the supplier's financial situation. However, there is never a standardized solution, every case requires a unique approach.

Each year, Alfa Laval nominates a number of suppliers of the year, based on different criteria, in each region. These criteria can differ from region to region and from year to year depending on Alfa Laval's focus. Some examples are:

- Best delivery performance
- Best quality performance
- Best performance improvement
- Best improvement within Corporate and social responsibility compliance

The awards are handed out during a yearly supplier conference where a large number of suppliers and representatives from Alfa Laval's local and global sourcing organizations and from each local site in the region and the regional director participate. These events are used for spreading important information to suppliers, giving an overall picture of Alfa Laval's current situation, performance and focus, training workshop sessions in different topics and recognizing supplier efforts.

### ***Reactive vs. Proactive***

As most of its activities aims at improvement of under-performing suppliers, its actions are almost exclusively reactive. It has an ambition to move towards a more proactive approach, but this is difficult due to its large supply base.

## **4.1.7 Collaboration & Innovation**

### ***Overall strategy and activities***

R&D and innovation are two major activities which are primarily performed in-house. Annually, it launches around 35-40 new products, it currently has over 2500 patents and Alfa Laval's annual R&D spend exceeds €85 million. Alfa Laval primarily has three methods of innovation:

1. In-House – Where a majority of innovations stem from and where it also has a lot of competence.
2. Supplier R&D – Often rooting in an in-house idea, it works with one or several suppliers to create new ideas and compare the different solutions to get best outcome. It consults with suppliers on feasibilities and ways to optimize designs in terms of production.
3. Joint-Partnership – In areas where Alfa Laval lacks expertise, such as digital solutions, it collaborates with external actors to develop joint solutions.

Suppliers are usually not a part of the conceptual development of new products and are often included at a later stage. Therefore, most of Alfa Laval's products are produced according to

technical specifications, it does not work with suppliers by using functional specifications. It has no formalized process to capture supplier's ideas or proposals for improvements. This type of exchange of innovation is done at an individual level. However, this is something it wants to achieve with the new SRM initiative.

Most suppliers which Alfa Laval has a close relationship with, are long-term relationships. Most of its products are based on old principles with only small changes over time, making long standing collaborations beneficial. The product life cycle for most of Alfa Laval's products is often tens of years. However, it states that this tradition may be changing with new products. Due to the major trend of digitalization and connectivity, it has started collaborating with new companies in more tech-oriented sectors. For example, Alfa Laval has engaged in collaborations with small IT companies that only have single ideas instead of traditional industrial conglomerates.

For Alfa Laval's strategic suppliers, they often have extra meetings to disclose the suppliers' and Alfa Laval's current situation. They also disclose future plans etc. Alfa Laval plans to formalize and develop these meetings with suppliers classified as strategic.

### **Contact points in a supplier relationship**

There are several contact points in the relationship between Alfa Laval and a supplier. The main ones are listed below:

1. Contact point at factory (Site-Supplier relationship)
  - Handles operational issues and day-to-day operations.
2. The purchaser who is responsible for each supplier (Global Sourcing-Supplier relationship)
  - Handles strategic and tactical components of the supplier relationship as well as larger issues stemming from all business units. This responsibility may be delegated to a local purchaser on agreement with and support from Global Sourcing.
3. R&D department (R&D-Supplier relationship)
  - Product and process development projects.
4. Engineers (Engineer-Supplier relationship)
  - Product and process development projects. Aid suppliers in understanding technical specifications. Design improvement.

There is however no clear division of responsibility and code of conduct for the different roles in the interaction with suppliers.

### ***Being a preferred customer***

As previously mentioned, Alfa Laval is trying to gain a preferred customer status with a selection of its suppliers. Alfa Laval is in many cases a rather complicated customer with high technical demands which can often be a hassle for the suppliers. Simply put, in most cases Alfa Laval will need to have a substantial share of the supplier's total revenue in order to be considered a preferred customer. This is achieved by pooling volumes to fewer suppliers, an initiative believed to be simplified by the implementation of the segmentation model. In some situations, Alfa Laval manages to achieve a preferred customer status by simply having a well-renowned brand. Currently, there are no standardized practice for interactions between key suppliers and the senior management at Alfa Laval.



### ***Early Supplier Involvement***

Alfa Laval’s in-house R&D department is the main source of innovation. Suppliers are often involved in the product development process, but such involvement often regards producibility or choice of materials. It adapts a type of closed innovation practice, mainly due to the nature of the products rather than a fear of industrial espionage.

## **4.2 Case 2 – Trelleborg**

### **4.2.1 Company Description**

Trelleborg is global engineering group primarily focused on polymer technology. Trelleborg describes its business as “*We seal, damp and protect critical applications in demanding environments*”. Trelleborg’s headquarters is in its namesake, Trelleborg, and was founded in 1905 by Henry Dunker and quickly became Scandinavia’s leading rubber production company with car and bicycle tires, raincoats and other rubber industrial goods as its main products. Table 10 shows the key figures for Trelleborg.

<b>Trelleborg</b>	<b>2017</b>
Revenue	31581 MSEK
Operating Margin	13.9%
Employees	23152

*Table 10: Trelleborg's key figures (Trelleborg, 2018b)*

Trelleborg is today one of the world’s largest polymer producers and has grown into a major international enterprise. It has operations in 50 countries and it has around 130 different production sites around the world. In many of its business segments it is regarded as a world leader. Its growth has been a mixture of both organic and a large number of acquisitions. Since 1994, the organization has acquired over 100 different companies. The large range of acquisitions are well-aligned with its business strategy: “*To secure leading positions in selected segments. This means that we seek niches that – by virtue of our applications knowledge and range of advanced products and solutions – provide market leadership.*”

Trelleborg’s organization is divided into five different business areas which can be found in Table 11.

<b>Business Area</b>	<b>Description</b>	<b>Share of Revenue</b>
Trelleborg Coated Systems	Polymer coated fabrics	8%
Trelleborg Industrial Solutions	Antivibration, hose systems and industrial sealing systems	18%
Trelleborg Offshore & Construction	Polymer based solutions for infrastructure and offshore Oil & Gas	9%
Trelleborg Sealing Solutions	Precision seals for vehicles, aviation and industry. Trelleborg’s largest and most profitable business area	31%
Trelleborg Wheel Systems	Wheels and tires for forestry, agriculture and materials handling vehicles	28%
Rubena Savatech	Integrated as of 2018 in Trelleborg Coated Systems and Trelleborg Industrial Solutions	6%

*Table 11: Trelleborg's business areas and their share of revenue (Trelleborg, 2018a).*

Each of the business areas are further broken down into the different business units which are further split into different product areas. There is also a cross-organizational division containing all

of the group functions. Each business area has some functions centralized but most of its functions are decentralized and controlled by each business unit. The units are responsible for their own sites, sales organizations and procurement.

#### **4.2.2 Procurement Organization**

##### ***Procurement & SRM strategy***

Trelleborg works with a systematic approach in its strive for purchasing excellence, an area which has received high attention during the past two years. Trelleborg is focusing on its SRM strategy and the goal is to provide tools and education to its purchasers and to implement a uniform approach through-out the entire organization with standardized processes. This is due to market dynamics where competition has increased, and many markets have switched from a buyer's market to a seller's market. Prior to the purchasing excellence focus, resources were spent on increasing its performance on the left side of the Kraljic matrix, such as RfQ's and rapid repricing.

Trelleborg's procurement strategy is based on the Kraljic matrix. Each unit segment its suppliers in order to create its procurement strategies for each of its segments. As Trelleborg has a large number of materials which are critical for its business, it works with multiple sourcing for these goods. This does not only minimize supply risk, but also provides a certain degree of protection to price hikes and fluctuations. Its vision is that it should have at least two suppliers for each purchased good. Due to the booming economy, the demand for many of its raw materials has increased making supply security increasingly difficult.

For commoditized products and raw materials which are (1) purchased by more than one business area and are of significant value or (2) where Trelleborg identifies possible business unit and group level benefits, Trelleborg works with lead buyers. The business units which has the largest spend for each good gets the responsibility to negotiate a common price list for all business areas. However, it is voluntary to be part of this and units can still buy independently if desired.

##### ***Organizational Structure***

Trelleborg's procurement organization is primarily decentralized with most of its sites responsible for its own procurement. The way it is done varies to a certain degree between the different business areas. For example, Trelleborg Wheel Systems buys mainly commoditized goods where there is a larger benefit of common procurement practice, whereas Trelleborg Industrial Solutions deals with more specialized products where there is little commonality in the purchasing activities within its business units and different sites. This goes hand-in-hand with Trelleborg's focus on being market leader in niche markets where specialized products are more common. Each of the different business areas has a Vice President who is responsible for its areas of purchasing. The purchasing department at each site answer directly to the site manager or similar and indirectly to the Vice President for purchasing in each business area.

Trelleborg's annual cost of procurement of services and materials in 2017 amounted to 15.365 billion SEK. It has a total of roughly 23000 suppliers and are primarily concentrated in North America, Europe and Asia. However, most of these are indirect suppliers, the direct material suppliers are roughly 3000-4000.

### 4.2.3 Supply base

#### *Supplier Activities*

The types of interactions with Trelleborg's suppliers is dependent on several factors. Primarily, it depends on the supplier's potential impact on Trelleborg's business. Secondly, it depends on the type of product being purchased. A lot of its purchased products are processed chemicals which are highly commoditized and of standardized quality, limiting the need for a lot of supplier activities. The complexity of the product purchased also has a large influence on the degrees of interaction. The larger influence a product has on the end-product's performance, the more meetings and reviews are needed.

1. Price Negotiations – Depending on the spend with the supplier, Trelleborg either has monthly or quarterly price reviews and negotiations.
2. Technical Meetings – Held by local cross-functional teams directly with suppliers.
3. Quarterly to Annual Business Reviews – A review of the business as a whole and the suppliers KPI's.
4. Supplier Days – Trelleborg's largest suppliers are invited to its headquarters in Sweden where they experience presentations by different suppliers, networking, presentations about Trelleborg's business and its future strategy. Takes place every 2-3 years or by demand.
5. Supplier Auditing – Trelleborg regularly audits its suppliers on quality, environmental impact and compliance to code of conduct.

#### *Supplier relations*

Trelleborg's goal is to find and work with suppliers that can provide both solutions to its complex product requirements and also adhere to its code of conduct. Most of Trelleborg's suppliers are either transactional or commoditized products which limits the time horizons of its relationships. In general, Trelleborg deals with price lists without volume commitments rather than contracts, and most of the price lists does not last longer than a year. However, for some products there is a limited global supply-base thus leading to longer deals. There are also suppliers that continuously outperform other suppliers, for example drastically shorter lead times, thus leading to longer relationships. As most of its purchasing spend is in commodities, Trelleborg has a relatively small share of most of its suppliers' total volumes.

### 4.2.4 Segmentation

#### *Segmentation Strategy*

Trelleborg's segmentation strategy is built fully around the Kraljic Model. There are no standardized activities for each of the four different segments, but principles of the models have a large influence of the enforced strategies. The model is primarily used to enable Trelleborg's purchasers to develop a clear understanding of its supply base and to visualize the other functions and management.

The different business areas are all managed by different strategies, with some focusing mainly on costs, others on security of supply. All the business areas have different factors and circumstances influencing the ways that they do business. Thus, utilizing a standardized approach for the activities in each of the Kraljic segments for all its suppliers has little benefit as it would need to be significantly customized by business areas using it. After purchasers have segmented the suppliers into the Kraljic matrix, they compare what activities are currently done with them and see if these reflect their placement in the segmentation model. If not, the activities are adjusted to better reflect the relationship and its placement in the segmentation model.

**Supplier Classification Model**

Trelleborg uses the Kraljic matrix (Figure 14) to segment suppliers into four different quadrants based on their supply risk and financial impact. A large majority of Trelleborg’s suppliers are in the categories Routine Products and Leverage Products. The categories are as follows:

**Partner Products** – High-tech, high-value products which in many cases are customized by Trelleborg. The products are critical and there is a limited supply from potentially only a single supplier.

**Manage Risk Products** – Products which has a relatively low impact of the financial results of the business but there is a limited supply base or monopolistic market.

**Leverage Products** – Standardized products with a homogeneous quality amongst suppliers. These products have large financial impact on the COGS however, they have a large potential supply base.

**Shop Products** – Products with a large supply base and have a low impact on the COGS

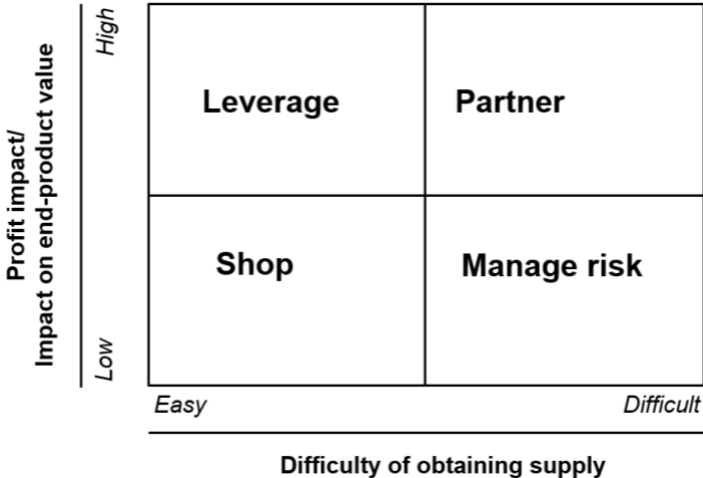


Figure 14: Trelleborg’s Kraljic Segmentation (Trelleborg, 2018c)

**4.2.5 Performance**

**Key Performance Indicators**

All of Trelleborg’s KPI evaluation is done locally by the different sites. However, Trelleborg still utilizes a standardized set of KPI’s for all its suppliers. They are as following:

- On Time Delivery
- Quality
- Corporate Responsibility
- Payment Terms
- Price Level (PPV)
- Service – Overall feeling of soft values such as availability to communicate, willingness at the supplier to make an extra effort, etc.

However, many business areas utilize additional KPI’s which provide extra dimensions to understand its current situation and business. Quality is also measured differently by the different business areas. For most of its process-manufactured goods such as chemicals, Trelleborg receives a quality certificate from the supplier which guarantees its quality. Other business areas use what suits its business best.

### ***KPI Follow-Up***

Data on supplier performance is gathered continuously by the sites during the year in order to be able to act immediately if issues arise. Otherwise, performance reviews are distributed once per year for the majority of the suppliers. The larger suppliers receive feedback quarterly, and transactional suppliers are measured but does not receive feedback on their performance. The sites are fully responsible for compiling the performance reviews and have independence to decide the weights of the different KPI's. In addition, the sites send the data monthly to the central procurement organization to enable them to get a holistic view of the suppliers' performance. This is not automated since the business areas and business units currently use different ERP systems. This is a direct consequence of the many acquisitions throughout the past years.

## **4.2.6 Improvement & Development**

### ***Overall strategy***

Trelleborg has limited resources dedicated to supplier development, which is an active strategy aligned with its overall business strategy and its procurement strategy.

### ***Activities and Interactions***

From time to time, Trelleborg invites its suppliers to participate in a supplier conference. The main purpose of the conference is to develop the suppliers' understanding of Trelleborg and its needs. The CEO or CFO of Trelleborg often participates in the conference. Additionally, potential improvements are discussed in the yearly business review meetings with its strategic/bottleneck suppliers, but the discussions rarely aim to develop specific capabilities. There are two types of situations when Trelleborg would try to develop a supplier's capability. Firstly, if Trelleborg has sole sourcing on a product and need to increase competition, secondly if it is impossible to source a product in a specific region. In these situations, it needs to develop an existing or find a new supplier.

When Trelleborg's suppliers underperform, it first sends a warning to the supplier stating the need for improvement. If the warning is not responded to or little improvement is noted more drastic actions are taken. Depending on where the supplier is segmented into the Kraljic Supplier segmentation, different actions are taken. For its "Leverage" and "Shop" it usually seeks new potential suppliers. For its "Partners" and "Manage Risk" suppliers, it often tries to create an action plan to help with the supplier's improvement. If that does not work, Trelleborg evaluates other options such as replacing the critical components. Trelleborg has a continuous strategy to evaluate and test alternatives for components and raw materials with a high supply risk.

### ***Reactive vs. Proactive***

By design, Trelleborg's improvement and development efforts are mainly of reactive nature, except for the proactive actions mentioned above. It is worth noting that Trelleborg quite rarely experience major issues with its suppliers.

## **4.2.7 Collaboration & Innovation**

### ***Overall strategy and activities***

Trelleborg's focus in collaborative relationships is to gain knowledge in technical areas where it lacks expertise. They also engage in collaboration with suppliers of bottleneck products in order to minimize supply risk and secure supply. It is achieved by creating relationships with regular meetings including local top management. It is important that its partner suppliers understand Trelleborg, its business plan and its long-term ambitions.

### ***Contact points in a supplier relationship***

Due to the decentralized organisation, the sites in each business unit manage the supplier relationship to a great extent. The business unit purchasing managers or the business area purchasing managers participate in the yearly business reviews and are engaged in supplier relationships with suppliers which supply for multiple sites.

### ***Being a preferred customer***

In general, Trelleborg is a small customer to its suppliers, which makes it hard to receive preferred customer status. However, Trelleborg tries to achieve preferred customer status through volume pooling and through its supplier conference. The purpose of the supplier conference is to sell Trelleborg to its suppliers, show that it is a growing business which sells niche-products, i.e. an attractive customer with high margins.

### ***Early Supplier Involvement***

Suppliers are rarely involved early on in the product development phase. Often, Trelleborg's R&D department uses existing products when it creates/improves a product. Trelleborg is often a too small customer for suppliers to be interested in innovation collaboration. Additionally, a large share of Trelleborg's supply base are commodity suppliers which often lacks innovation potential. Trelleborg wants to include suppliers earlier in the process in order to gain access to the most recent technology and to make sure it does not include obsolete technology in its new products.

## **4.3 Case 3 – Assa Abloy**

### **4.3.1 Company Description**

Assa Abloy AB (referred to as Assa Abloy in this report) is a Swedish door opening solution provider and is by volume the world's largest manufacturer of locks. The organization's head office is in Stockholm however, a large portion of its Swedish activities are located in Landskrona. Assa Abloy has multiple renowned brands such as Besam, Lockwood, Sargent and Yale however, 70% of the sales are under the master brand, Assa Abloy.

Assa Abloy is a product-driven organization where product development and innovation have a central role. It has a large product portfolio with a complete range of door opening solutions. The organization has a global presence serving over 70 different countries. For several years, the organization has been focused on increasing its market presence in developing economies and emerging markets. Assa Abloy's share of group sales can be seen in Figure 15.

The business strategy of Assa Abloy focuses mainly on:

1. Exploiting the strength of the brand portfolio
2. Increasing growth in core businesses
3. Expanding into new markets and segments

Assa Abloy has grown significantly since its founding in 1994 where it was created through a merger between ASSA AB and the finish high security lock manufacturer Abloy Oy. It has grown from a regional company with only 4700 employees (1994) to the global company it is today with over 47000 employees (Table 12). Its growth has been partly organic, but also through a large amount of acquisitions.

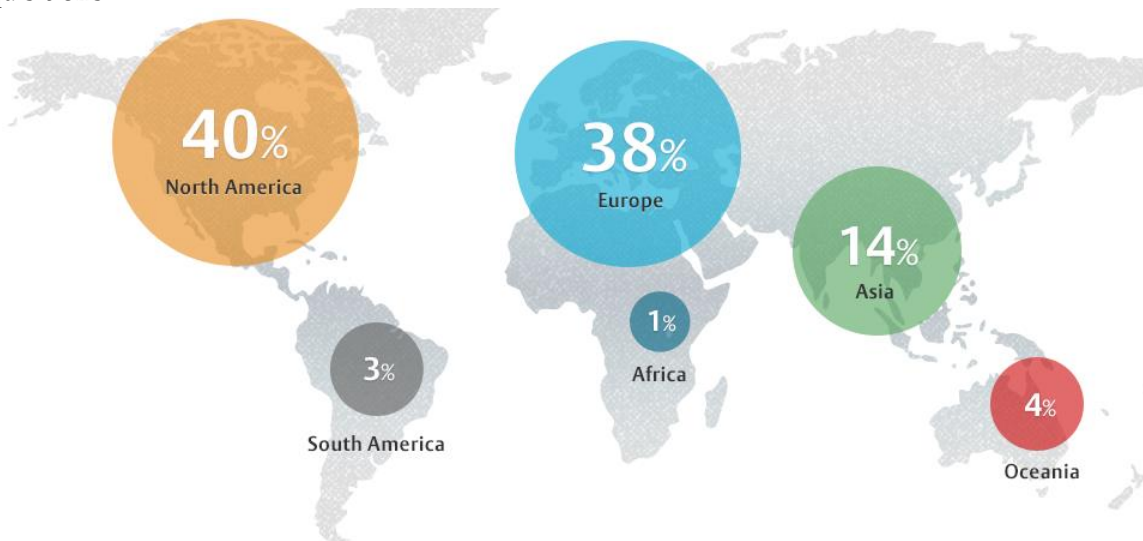


Figure 15: Share of group sales by region 2017 (Assa Abloy, 2017a)

Assa Abloy	2016
Revenue	71000 MSEK
Operating Margin	16.3%
Employees	47000

Table 12: Assa Abloy key figures (Assa Abloy, 2017a)

Assa Abloy’s organization is split into five divisions by region or/and product type (Figure 16). The business areas that sell electro mechanical and mechanical locks, digital door locks, cylinder and security doors is divided into three regional divisions: EMEA, Americas and Asia Pacific. These divisions consist mainly of a number of local companies that are mainly active in respective local markets. This is largely due to local market security requirements and standards. There are two global divisions that are responsible for the manufacturing and distribution of identification products, electronic access control and entrance automation. These divisions are Global Technologies and Entrance Systems. For this report Assa Abloy Entrance Systems (referred to as Assa Abloy in this report) has been interviewed and therefore the empirics does not necessarily represent the entire organization. Entrance Systems’ products are: entrance automation products, components and service. The product range includes automatic swing, gate automation, hardware for overhead sectional doors industrial doors, high-performance doors, docking solutions, garage doors, sliding, revolving doors and hangar doors.

Product offering	Organization		
Mech & elmech locks, cylinders & security doors	Americas	EMEA	Asia Pacific
Electronic access and identity	Global Technologies (HID and Hospitality)		
Entrance automation	ASSA ABLOY Entrance Systems		

Figure 16: Assa Abloy divisions (Assa Abloy, 2017b)

### 4.3.2 Procurement Organization

#### *Procurement & SRM strategy*

Assa Abloy states that professional sourcing is growing in importance. This is largely due to a switch in focus from its own production and customization close to the customer towards a more problem-solving market steered approach. Strategic partners are increasingly involved in collaborations and development projects. Assa Abloy's current sourcing organization has been developed from a professionalization of its procurement work.

Assa Abloy sourcing strategy is focused around having a limited number of large, high-quality suppliers in low cost countries (Figure 17).

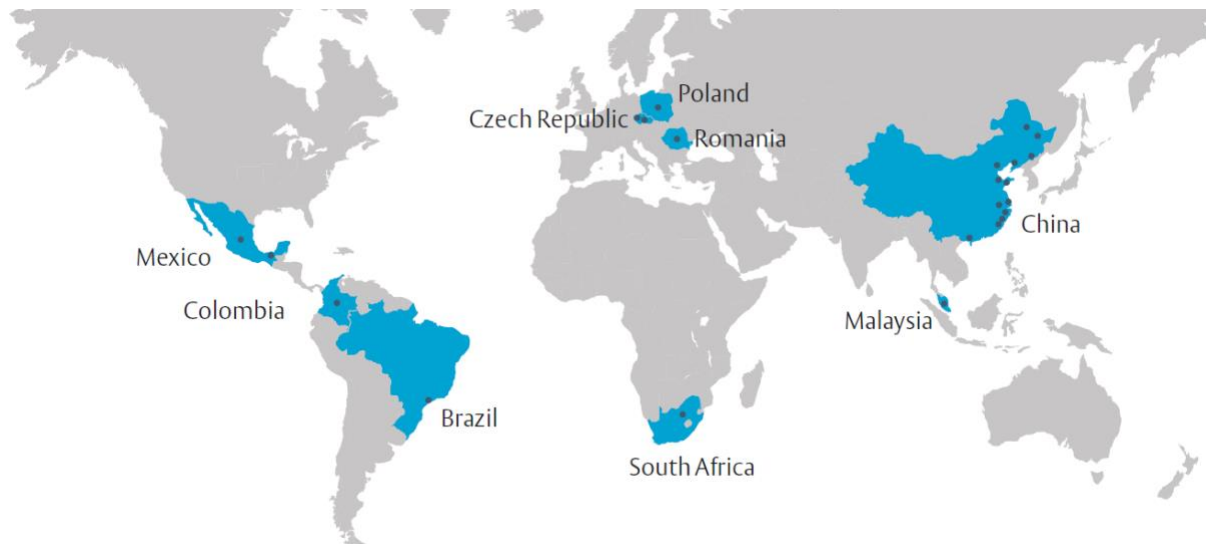


Figure 17: Production sites in low-cost countries (Assa Abloy, 2017a)

#### *Organizational Structure*

Assa Abloy's procurement organization is primarily decentralized with a number of strategic activities occurring centralized. It has a corporate sourcing department at their main office in Stockholm that works with standardizing procurement practice and creating standardized systems for business intelligence that can be used through-out the entire organization. There is also a central procurement organization in each of the different divisions. The procurement organizations in the



divisions coordinate procurement efforts through-out their divisions. It is responsible for the follow-up of supplier performance, supplier improvement activities, value engineering and the development of new supplier relationships. Each of the production sites are responsible for their own purchases utilizing their own teams of strategic purchasers. There is little coordination on a more central level between the different business areas as there is a high degree of autonomy.

The number of suppliers has been reduced over the last five years by 29% thus currently amounting to around 7500 suppliers globally. Most of their suppliers are situated in low-cost countries. The reduction of their supply base is a major activity and Assa Abloy strives to halve it over the next couple of years.

### **4.3.3 Supply base**

#### ***Supplier Activities***

Assa Abloy tries to meet almost all of its suppliers a few times a year. The frequency of the interactions is often based on the type of relationship. Relationships with suppliers that provide products with a low complexity or are commoditized are generally more of an arm's length relationship with only annual visits primarily focused on price negotiation. In other relationships, the activities are tailored after the needs of Assa Abloy and the supplier. In general, this is more of an ad-hoc approach where underperforming suppliers get most of the attention.

#### ***Supplier relations***

Most of Assa Abloy's suppliers are long-term. A large part of the supply-base has been described as legacy relationships acquired through its many acquisitions. In general, it is almost exclusively underperforming suppliers that have their relationships terminated. For a limited number of transactional products, the relationships are more of single contract base. With these products Assa Abloy tries to find the suppliers that have the lowest costs and still meets its quality and compliance demands. For other than transactional products it has the goal that all new relationships are long-term. It does not have any designated employees with the responsibility to find new suppliers.

As previously mentioned, Assa Abloy has had supply base reduction as one of its primary objectives over the last five years. This has mainly been done by analyzing all the production sites' supply-bases and identifying commonality and pooling the volumes at each site to a single best performing supplier. Its current strategy is to pool volumes and increase the buying power and thus increase the relative amount of resources that can be spent on working with each supplier. In general, Assa Abloy is a low volume buyer and makes up a relatively small share out of its supplier's total volume.

### **4.3.4 Segmentation**

#### ***Segmentation Strategy***

Assa Abloy segments and categorizes its suppliers after the needs in the organization. The segmentation model was developed by the central procurement organization in Stockholm. However, this model is not yet fully utilized by the business area interviewed for this case study. The purpose of its supplier segmentation is to make it an integral part of its category management and to aid strategy alignment and supplier communication.

**Supplier Classification Model**

To help with the classification of supplier Assa Abloy uses a classification tool. This tool is a standardized questionnaire where each question has a set of prerequisites that need to be met. The cumulated score is compared to other suppliers in the same segment. Top-performers in each segment are proposed by the tool to become higher-tiered supplier. The tool for the segmentation decreases the subjectivity when categorizing.

The different levels are defined as followed:

**Partner** – This category is reserved for suppliers that have a proven track record of meeting and exceeding the legal (Assa Abloy’s Code of Conduct) and commercial requirements. The partner relationships are in general long-term relationships where Assa Abloy focuses on integrating business processes and the suppliers should almost act as an extension of Assa Abloy. For each supplier in this category a risk analysis is conducted with a mitigation plan for identified risks. It is expected that suppliers make their own value propositions on how to improve the value created in the relationship and should show a high degree of commitment to Assa Abloy. It is expected from the suppliers to provide price transparency.

**Preferred** – Suppliers that meet or exceed operational, commercial and legal requirements are potential members of this category. Assa Abloy also expects a high degree of responsiveness from the supplier. Business processes for this category should be integrated to a higher degree than the suppliers in the lower tiers of the supplier ranking. For each supplier in this category a risk analysis is conducted with a mitigation plan for identified risks.

**Approved** – Suppliers who meet the minimum operational, commercial and legal requirements belong to this category. These suppliers are generally not very integrated into Assa Abloy’s business processes, not engaged in product development and do not receive new business.

**Conditional** – When a supplier does not meet one or many of the operational, commercial and legal requirements. All suppliers in this category should have an agreed upon action plan. A supplier remains conditional until the supplier has recovered in the agreed upon time frame. If this has not been achieved further business with supplier is terminated.

**Eliminate** – Suppliers that Assa Abloy wants to end the relationship with.

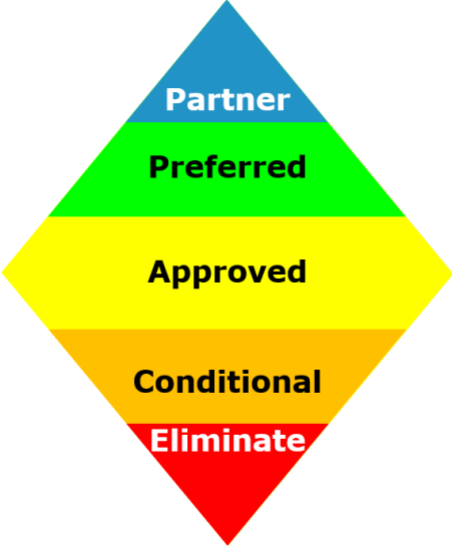


Figure 18: Assa Abloy Supplier Classification Model (Assa Abloy, 2016)

#### **4.3.5 Performance**

##### ***Key Performance Indicators***

Assa Abloy has a Business Partner Code of Conduct which is the foundation for all of its supplier collaborations and in many cases result in the long-term development of its suppliers. This is business critical code of conduct and in cases of non-compliance, collaboration with the supplier is terminated. In addition to the Code of Conduct and the supplier sustainability audit coverage, Assa Abloy measures its suppliers on two KPI's: Delivery in Delivery on Time(DOT) and Quality in parts per million (PPM). However, there is no system that continuously and automatically measures supplier performance. The KPI for quality was previously measured in percent but is currently measured using PPM. The reason for switching was to make it easier to communicate demands on performance improvements as percentage was too crude as quality issues with large volume supplier could easily go unnoticed. PPM is nonetheless an impractical measurement for low-volume suppliers as it can cause skewed quality performance indications as the values can have a high variability. All suppliers are currently measured on the same criteria.

##### ***KPI Follow-Up***

Assa Abloy reviews supplier performance on a monthly basis. The purchasing team goes through their suppliers and identify issues and their causes. The KPI scores are not automatically communicated with its suppliers, only if there is reason for intervention. With its most important suppliers, regular meetings are held where among other things KPI performance is discussed. If Assa Abloy experiences continuous issues with a supplier, experts will visit the supplier to help improve the situation.

#### **4.3.6 Improvement & Development**

##### ***Overall strategy***

Historically, Assa Abloy has worked in a reactive manner towards its suppliers. It has however started to work with supplier quality management which aims to follow up on performance and deal with the worst suppliers.

##### ***Activities and Interactions***

Apart from the reactive measures taken in response to immediate issues, Assa Abloy has a value engineering team who are dispatched to suppliers in order to help reduce waste in their processes. In addition to the value engineering team, there is a "Lean-team" who is dispatched to important suppliers. Value engineering is often a feasible and applicable way of developing suppliers and lowering costs as it aims to reduce costs without significantly changing the construction or the design of the product. It might be anything ranging from packaging optimization, design changes to streamlining of administrative functions. Visits from these teams are generally appreciated by the suppliers as they often provide mutual benefits. Assa Abloy also lets site representatives from its production sites meet its suppliers to develop an understanding of each other's processes in order to improve processes and products. The most effective tool Assa Abloy utilizes to increase short-term performance is personal meetings that aim to identify root causes for issues where the supplier and Assa Abloy agree on corrective action. When no response, or poor response/repetitive issues Assa Abloy will reduce business allocated to the supplier. Assa Abloy does not have a systematic way of differentiating the SI&D work for different suppliers.

### ***Reactive vs. Proactive***

Despite increasing work with supplier quality management, Assa Abloy's work with SI&D is almost exclusively reactive. It has recently started a couple of initiatives aimed at improving its proactive work, but the work is still in its cradle and no significant direct effects have been noted.

### **4.3.7 Collaboration & Innovation**

#### ***Overall strategy and activities***

Overall, the collaboration with suppliers is limited. Most of Assa Abloy's suppliers are kept in an arm's length relationship. Assa Abloy does however have some degree of collaboration with its largest suppliers where the relationship is more transparent and in return, expect the supplier to regularly make value propositions, e.g. on cost, delivery, quality, lead times, new product development, etc., and show highest level of commitment. There is an ambition to develop joint-business plans together with its most important suppliers, however, it is not done today.

#### ***Contact points in a supplier relationship***

As the procurement organization is decentralized, there are multiple points of contact between Assa Abloy and the supplier. If a supplier is supplying to multiple sites, each site has a separate relationship with the same supplier. The strategic purchaser at each site is responsible for that relationship. In addition to the strategic purchaser, there are some additional contact points:

- Business Area Sourcing Manager – overarching responsibility with responsibility for quarterly reviews.
- Material Planner – responsible for day-to-day operations at each site.
- Supplier Quality Manger – responsible for supplier quality and SI&D.
- R&D – responsible for product and process development with suppliers.

#### ***Being a preferred customer***

Assa Abloy views preferred customer status as something which goes hand in hand with high volumes. Therefore, it has few relationships where it regards themselves as a preferred customer. Its supply base reduction initiative is however an effort to become one of the two or three largest grossing customers at many of its suppliers, gaining a preferred customer status. However, some of Assa Abloy's suppliers are working against them, trying to treat the different divisions within Assa Abloy as separate customers, also known as “divide and conquer”. This gives the suppliers the benefit of being able to negotiate the prices individually with each site. This prohibits them from leveraging the benefits of a large volume share.

#### ***Early Supplier Involvement***

In the product development stage, suppliers are involved when the technical specifications are already set to a large degree. Assa Abloy often invites multiple suppliers to look at its blueprints and provide input regarding the choice of material and producibility. The reason for inviting more than one supplier is to decrease the risk for a technological lock-in with a single supplier.

## 4.4 Case 4 – Ikea

### 4.4.1 Company Description

Ikea is a global furniture retailer and producer with its roots in Sweden. It is currently the world's largest furniture retailer and has retail sites at 340 locations in 28 countries (there are over 40 more stores run by franchises). Ikea's head offices are located in The Netherlands, however, a large amount of its R&D and product development, along with its global procurement department, is in Älmhult where the company was originally founded.

Ikea's concept is to sell low-priced home furnishing products that helps contribute to people having a better life at home. This is clearly reflected in the Ikea vision: *“To create a better everyday life for the many people”*. Over the last couple of years there has been a large focus on multichannel retailing to try and get a strong foothold on the e-commerce market. Ikea's product portfolio has a large turnover rate as approximately 2500 out of its product range of 9500 products is renewed each year. This increases the demands on the supply base forcing suppliers to be more flexible and adaptive. Table 13 shows the key figures for Ikea.

Ikea	2016
Revenue	35074 MEUR
Operating Margin	12.3%
Employees	163600

Table 13: Ikea's Key Figures (Ikea Group, 2017)

Ikea's product design starts with understanding its customers' everyday needs and demands. To meet this need, Ikea follows a design mindset it refers to as “democratic design”. The five dimensions that it follows through-out the product development phase and the entire value-chain are:

- Focus
- Quality
- Function
- Sustainability
- Low Price

### 4.4.2 Procurement Organization

#### ***Procurement & SRM strategy***

*“First of all, we try to be the good link between our suppliers and our customers. We keep all our costs low and handle goods efficiently. Secondly, and this is the unique part, is that we take an interest in production where by having our own designs and construction we find production solutions that are cost-efficient.”* – Ingvar Kamprad, Founder of Ikea

At Ikea, sourcing and procurement has a large strategic importance and is clearly acknowledged by its executive leadership. Ikea's procurement department and its work is generally perceived as being amongst the market leaders in Sweden. Since the company's formation in 1943, procurement has had a central role in Ikea's business model by removing the middle men in the supply chain and working directly with suppliers. With almost all of Ikea's suppliers, the ultimate goal is to develop the relationships into close partnerships with a high level of supply chain integration. Ikea's procurement strategy is influenced of a long-term Total Cost of Ownership (TCO) approach. The cost of having the production in-house is compared to the prices of its different suppliers and then

choose the option that both satisfies Ikea's requirements and provides the lowest total cost. An overview of Ikea's supply strategy can be seen in Figure 19.



Figure 19: Overview of Ikea Supply Strategy (Ikea, 2017)

An important aspect which Ikea promotes is that it wants its suppliers to take responsibility and strive to improve themselves. Ikea works with finding suppliers who want to be transparent and do open-book business as Ikea wishes to understand the entire value chain in order to help identify potential savings or improvements. Ikea believes value engineering to be more effective than simply pressuring suppliers on pricing. Ikea aims to develop all of its suppliers who perform well and have a good strategic fit. It believes that its industry leadership is founded by ensuring constant development and a strong knowledge transfer to its suppliers. Ikea defines a strategic fit as organizations that meet the following criteria:

- Want to develop and grow
- Have strong production capabilities and capacity
- Deliver high customer value at low cost
- Deliver with everyday quality
- Fulfil social and environmental standards
- Are entrepreneurial with a passion for home furnishing solutions
- Shares our values, vision, business model and enthusiasm for the future

A prerequisite for working with Ikea at a larger scale is being able to provide low costs. Ikea believes in having large volumes with low margins for its products rather than selling few products with high margins. Ikea believes by lowering costs it can lower its prices thus increasing its volumes and still maintain a healthy profit and sticking to its vision. With this approach it also aims to shorten the time-to-market through the integration of its suppliers into the supply chain and including them in the development of services and products. The business model that Ikea follows in its procurement work is presented in Figure 20.

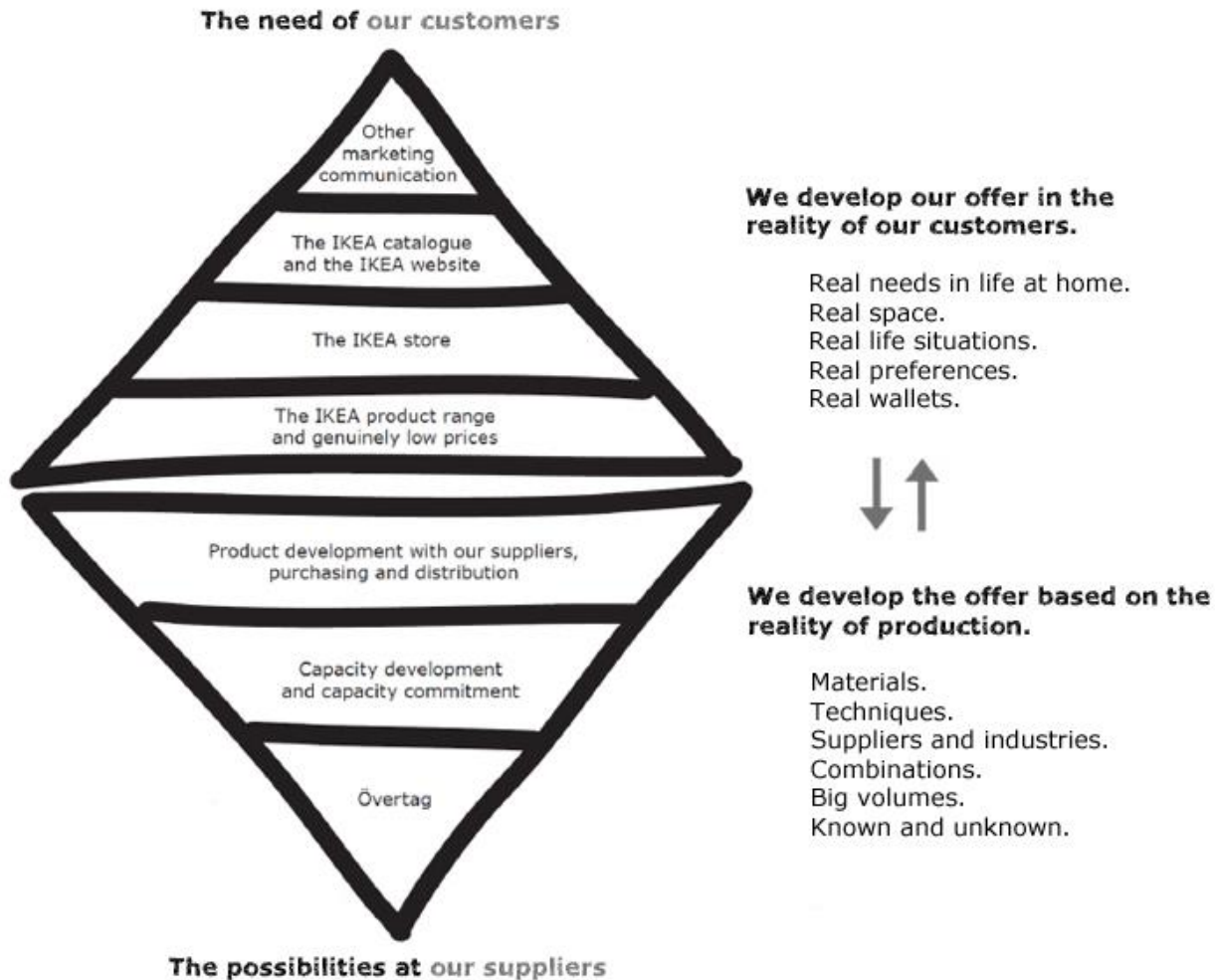


Figure 20: The Ikea business model aiming to shorten the distance between the possibilities of its suppliers and the needs of its customers (Ikea, 2013)

Ikea's business model describes high volumes, low costs and low prices as the fuel for its growth which provides its competitive advantage referred to as "Övertag".

### **Organizational Structure**

Ikea has a total of approximately 1200 suppliers including furnishing and components suppliers. Ikea's strategic procurement organization is a strictly centralized organization situated at Ikea's procurement office in Älmhult. The procurement organization is divided into 34 different categories by industry and material (Figure 21). Each of the categories has a category manager who is located in Älmhult. The purchasing and purchasing development is based on this approach with each of the individual categories having its own action plans and goals. The operational purchasing is however decentralized and is the responsibility of the different regional markets in order to increase the closeness to the different suppliers. However, the operational purchaser's management is at the head-office in Älmhult. The procurement organization used to be decentralized, but in 2014 the organization was restructured into its current form. This has greatly improved the operational

efficiency and the work done by the department. Roughly 1700 employees work with procurement at Ikea today.

Category Area	Categories	
Flat line	Foil-on-board Board veneer & Pigment	
Wood & Fibers	Chairs and hardwood Layer-glued Pine/spruce	Bamboo industrialized Natural fibers Paper
Comfort	Mattresses Upholstery frames	Filled products Working chairs
Textiles	Textile carpets Textile products Synthetic textiles	Furniture fabrics and covers Blinds
Electronics	Appliances Light Engines & Power Solutions	Luminaries
Metal, Plastic & Float glass	Open & close Metals aluminum Metals carbon steel Metals stainless steel	Plastic products Mirrors & Float glass Taps
Specific Home Furnishing Business	Paraffin/Stearin Glass, tableware & deco Green plants Frames	Toys Ceramic Custom made work tops
Food	Meat, poultry, seafood Vegetables & beverages	

Figure 21: Grouping of categories within purchasing development (Ikea, 2017)

#### 4.4.3 Supply base

##### **Supplier Activities**

Ikea has a set of activities which it does with most of its suppliers, but to different extents depending on the type of supplier and relationship. The most important activities are listed below:

1. Operational interactions between suppliers and categories: These types of interactions are mainly regarding orders, deliveries and quality.
2. Supplier Development Process: A program aimed at developing supplier capabilities and performance. Ikea and the supplier agrees on a focus area and a set of goals. The areas focused on can be anything ranging from internal logistics to quality.
3. Annual development meetings: Every year Ikea has a development meeting with almost all of its suppliers. The KPI's are run-through, the relationship is discussed, evaluated and a common business plan is developed with goals for the coming year.
4. Annual supplier conference: Every year, Ikea invites all their prioritized suppliers to Älmhult where it has seminars and networking. Highly performing suppliers receive the opportunity to present their achievements and the related success factors.
5. Regular performance reviews: Many suppliers receive direct performance feedback through extranet portal. However, monthly and annual review meetings are still held where the supplier performance and common goals are discussed.
6. Supplier auditing: Compliance to the Ikea code of conduct (IWAY) is very important. To ensure this Ikea has both announced and unannounced audits with internal and external auditors. The internal auditors are fully independent from the procurement department to minimize any bias and potential conflicts.



7. Product Development: It is common for Ikea to include its suppliers into the product development but the stage where this happens can vary from prototypes, quality to producibility.

### ***Supplier relations***

In general, Ikea aims to have long relationships which develop into partnerships with most of its suppliers. The current average length of a supplier relationship is 11 years. Ikea even have some supplier relationships stretching back to the 1970's. The share of supplier capacity utilized by Ikea varies a lot from supplier to supplier, ranging from only a few percent to being some suppliers only customer. However, Ikea is often one of the largest customers. There are scenarios where Ikea is such a big influence on the global market it keeps additional suppliers to ensure that there is a healthy competition in the market even if it would have been more profitable in the short-term with fewer suppliers.

Each supplier relationship is owned by the category that has the largest interaction with the supplier, where a purchaser is responsible for the relationship functioning as a lead buyer. Ikea has a high internal staff turnover which sometimes effect the continuity in the supplier relationships. To limit the effect of this on a supplier relationship the most important relationships are managed by senior staff where there is a lower turnover.

Most of Ikea's products are either parallel or dual sourced. The volumes allocated to each supplier is determined by their performance and supplier classification. The way Ikea ensures its "Övertag" (Competitive advantage) is by ensuring that it can provide large volumes to suppliers that perform well to benefit from the economies of scale. This is further elaborated on in section 4.4.4 (Segmentation).

Ikea avoids safety stocks and warehouses outside its stores. 65% of its goods are delivered directly from its suppliers to the different stores. This puts high pressure on its supply chain as Ikea has high demands on ensuring product availability.

## **4.4.4 Segmentation**

### ***Segmentation Strategy***

Ikea has a clear segmentation strategy where a supplier belongs to one out of five segments. Ikea has developed a standardized way of classifying each supplier, something that is done on a regular basis.

### ***Supplier Classification Model***

The supplier classification model consists of five segments:

**Ikea Prioritized Suppliers** – The most coveted supplier classification – best performing suppliers and closest partnerships. These suppliers get the largest share of dual sourcing.

**Ikea Potential Prioritized Supplier** – Close to becoming a prioritized supplier but does not have all of what it takes to become a prioritized supplier.

**Ikea Product Development/Innovation Suppliers** – These suppliers are involved in the product development phase.

**Ikea Suppliers** – Transactional suppliers.

**Ikea Critical Suppliers** – Suppliers with issues.

The segmentation process has a distinct method and workflow which is used regularly and globally. A set of criteria and weights are used to evaluate a supplier. The supplier's score in each criterion is inputted into an Excel template and a recommendation about which segment the supplier should belong to, is generated. However, the recommendation is not set in stone, a discussion is held thereafter, and a classification is decided. This is followed by the development of an action plan, which describes how the classification will affect the partnership. The criteria used in the classification are:

- Lowest price vs comparable suppliers/products
- Price development
- Cost of poor quality
- Availability
- Strategic fit

#### **4.4.5 Performance**

***Key Performance Indicators*** All of Ikea's suppliers are measured on the same KPI's, however the way the KPI's are measured, for example service level required, vary depending on the product and the type of relationship. The most important of Ikea's requirements is making sure that a supplier complies to the IWAY. The IWAY is a long set of extensive requirements however the guiding principles are as follows:

- What is in the best interest of the child?
- What is in the best interest of the worker?
- What is in the best interest of the environment?

Suppliers who do not comply can be immediately terminated as Ikea takes these requirements seriously. Other criteria that suppliers are measured on are:

- Quality (Cost of poor quality)
- Availability
- Cost
- Sustainability
- Customer perception of product (Perceived quality, through both customer feedback and workshops/panels)

Additionally, there are also product specific demands for categories such as electronics and children's toys. Every year a third-party organization performs a supplier survey where suppliers are contacted to provide anonymous feedback on how Ikea is to work with and how it is as a customer. When a supplier relationship is terminated a survey is sent to the supplier where the supplier is able to provide feedback and critique to Ikea.

#### ***KPI Follow-Up***

As mentioned, suppliers receive feedback on their performance directly through an extranet-portal. However, the main form of follow-up is through monthly run-throughs with each supplier. Deviancies in a suppliers KPI's are always checked and the root cause is identified. In cases, where internal issues are to blame for the deviancies, the supplier is not notified.

#### **4.4.6 Improvement & Development**

##### ***Overall strategy***

Ikea is in general heavily involved with its suppliers. Ikea views its suppliers more as partners and its improvement and development efforts are substantial. For most of Ikea's suppliers, it engages in a supplier development process which aims to improve the standards of the supplier in one of several improvement areas. Ikea, together with the supplier, decides what area is most feasible to focus on, and design an action plan. Ikea's improvement and development efforts are systematic and use a standardized approach for all of its suppliers. The efforts are mainly aimed at capability building as Ikea seek to have long-term relationships with its suppliers. Ikea believe supplier development is key to realize growth as well as lower cost. The activities done with each supplier are primarily steered by their performance and if there is a strive for the supplier to become higher tiered. The classification of a supplier does not generate the selection of activities with each supplier.

##### ***Activities and Interactions***

Ikea's systematic way to improve and develop its suppliers is called the "supplier development process". The purpose is to systematically improve the business and help the business team to (1) find new business possibilities, (2) work in a fact-based way, (3) improve consistency, enable a better cooperation and increase professionalism, (4) enable better performance for both Ikea and the supplier. A supplier development process consists of: (1) a project owner, (2) a clear target, (3) allocated resources from Ikea and the supplier, (4) a clear plan according to the DMAIC (Define, Measure, Analyze, Improve and Control) methodology, (5) an agreement on how to share the savings delivered by the project. Timewise, the supplier development process is synced with Ikea's overarching goals and time plans in order to connect to the business plan and create value throughout the cycle. The process is split into two phases: identification and execution. The identification phase produces a set of outcomes. These outcomes help Ikea design an action plan which contains specific business improvements. In the next phase these improvements are then executed using resources from both Ikea and the suppliers. It is the business developer in each category who is responsible for the supplier development program and the improvement efforts required for each supplier.

##### ***Reactive vs. Proactive***

Ikea's supplier development program is a proactive effort aimed at increasing the performance and consistency of the supplier, and therefore minimize the number of reactive actions. Additionally, as the business developers in the different categories use leading indicators to spot negative trends in the different KPI's in order to take action before it becomes an issue. There are however situations where Ikea need to take reactive measures when supplier performance is unsatisfactory.

#### **4.4.7 Collaboration & Innovation**

##### ***Overall strategy and activities***

Collaboration is key for Ikea's business model as it needs its suppliers to be highly integrated into the value- and supply chain. Each year, it meets with most of its suppliers for a review meeting where a shared business plan is created for the coming year and the future of the partnership is discussed.

### ***Contact points in a supplier relationship***

As Ikea works closely with many of its suppliers, there are multiple contact points between the parties which vary over time and depend on product life cycle etc. However, there are four individuals who manage the continuity in the relationship:

- Business Developer + team – Responsible for multiple supplier relationships
- Business Developer Manager – Responsible for multiple regional teams
- Category Manager – Responsible for an entire category and its staff
- Category Area Manager – Responsible for multiple categories

### ***Being a preferred customer***

Ikea manages to maintain a preferred customer status even among suppliers where it has a low share of the supplier's total revenue. This is due to its well-renowned supplier development program. Suppliers where Ikea's purchasing volume is only a few percent of the supplier's total volume still dedicate large resources to Ikea. Suppliers are often able to improve the margins on the rest of their business thanks to Ikea's supplier development efforts. For other suppliers, the sheer volume gives Ikea a preferred customer status. However, since Ikea demands its suppliers to adhere to the "IWAY", some suppliers find it too demanding and will simply decline the offer to work with Ikea.

### ***Early Supplier Involvement***

Both Ikea and its suppliers have a mutual interest in involving the suppliers early on in the product development phase. The Innovation suppliers and the Prioritized Suppliers are most often involved. The Ikea suppliers are often invited to participate in the "explore" phase when the initial concept and idea have already been developed. For example, when examining how changes to the design would affect certain cost drivers. There are however some trusted suppliers who are invited from time to time to participate in the concept development stage. When suppliers are not involved at the start, purchasing categories and supplier developers get involved to act as the voice of the supplier, providing input regarding producibility and choice of materials.

The Innovation suppliers, with which Ikea have far-reaching collaborations, are selected differently. These suppliers do not have the same KPI requirements as the rest of Ikea's supply base, the most important aspect to be labeled as an Innovation supplier is to be able to provide innovation, product quality and product development. Some suppliers are also classified as innovation suppliers due to historical reasons. For example, the supplier has proved to be suitable for projects with new techniques, materials or newsworthy products. Innovation suppliers rarely continue to be the high-volume producer of the invented product. In most cases it gets a short-term contract and the production is later moved to a high-volume supplier.

## 4.5 Case 5 – Axis Communications

### 4.5.1 Company Description

Axis Communications AB (referred to as Axis in this report) is a Swedish manufacturer of network cameras and a developer of network-based security solutions. Axis is the market leader in network video and it invented the world’s first network camera in 1996. Axis has a global presence with Axis employees in 50 countries and partners in 179 markets. Its major markets are the Americas, EMEA and Asia where the Americas make up 52% of the total revenue, EMEA 36% and Asia 12%. Axis is targeting a wide variety of industries spanning from critical infrastructure and healthcare to retail and casinos. It sells both products and end-to-end solutions. Table 14 shows the key figures for Axis.

Axis	2016
Revenue	8603 MSEK
Operating Margin	11.8%
Employees	2865

Table 14: Axis's Key Figures (Axis Communications AB, 2017)

In Axis’ 2017 annual report, it states its business concept to be “*Axis enables a smarter and safer world by creating solutions that combine intelligent technology with high-quality products and services. As the industry leader in network video, Axis drives development and continuously innovates to provide its customers with the benefits of improved safety and optimized business performance. Carried out in close cooperation with a global network of partners.*” (Axis Communications AB, 2017)

Axis is characterized by its long-term partnerships and its continuous development of innovative products. It has long-lasting relationships with its distributors, partners and suppliers and this is a central part of the company’s business model. Axis spent 18% of its revenue on R&D in 2017 and 120 new products were launched the same year. Axis has an indirect sales model where it only sells its products and solutions through resellers and system integrators (Figure 22).

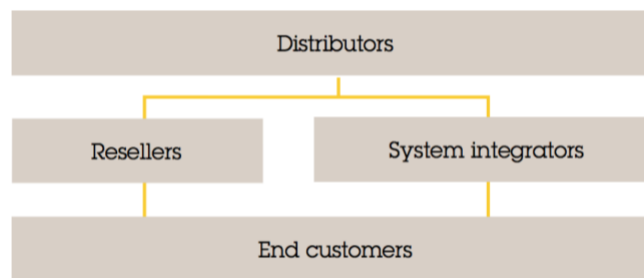


Figure 22: Axis’ indirect sales model (Axis Communications AB, 2017)

### 4.5.2 Procurement Organization

#### ***Procurement & SRM strategy***

Axis’ procurement strategy goes hand-in hand with its business concept mentioned above. It describes its vision as facilitating Axis to be able to design, develop and produce the products it wants. Innovation is a critical factor for Axis and as the company is still growing fast, it is important to facilitate this. Many of its products have a large number of critical components where there is a lot of competition on the global market. Some of the biggest critical components are silicon wafers and semiconductors. There is only a handful of wafer manufacturers in the world and demand for these products has been increasing significantly over the last couple of years. This has led to the

procurement organization following a dynamic approach where Axis in regular intervals performs a situation analysis and adjust its strategy according to it. As an aid in this process Axis regularly uses the Kraljic matrix to improve the understanding of its supply base and what interactions should be used with its suppliers. To further help facilitate the innovation process, the procurement team works closely with R&D to aid in creating products where there is a steady supply of components. R&D often consults procurement to receive input on component selection to secure future supply for new products.

### ***Organizational Structure***

There is a central procurement department at Axis which is responsible for sourcing critical components as well as managing production with contract manufacturers. It also coordinates the purchasing of all direct materials: some of the commodity groups are responsible for their own purchases. However, it is the procurement organization which officially is the owner of the relationship from a strategic perspective. For Axis it is important that it maintains a healthy share of the supplier's production and the procurement organization coordinates the different divisions to ensure that volumes are pooled. Purchasing of indirect materials is done by the receiving business unit. Axis' procurement department is part of the division called operations. Production preparation is also situated in this division and are responsible for product testing, industrialization i.e. responsible for moving products from the design phase to launch and production.

### **4.5.3 Supply base**

Axis' supply base consists of 269 suppliers located around the world. The type of suppliers includes both contract manufacturers as well as strategic component suppliers. All production and almost all assembly is outsourced to the contract manufacturers. Axis nurtures close relationships with its contract manufacturers in order to enable good insight and to facilitate the quality assurance processes. Axis only does some simpler assemblies for its products which are primarily for adjustments and packaging for local markets. Axis has these assembly facilities close to its major markets. The strategic component suppliers cast chassis and manufacture camera lenses and electronic components.

### ***Supplier Activities***

All of Axis' suppliers has to sign and comply with Axis' Supplier Code of Conduct and the UN Global Compact's ten principles. If a supplier fails to comply with the code of conduct, especially the bribery and corruption section, all business is terminated with the supplier immediately.

The following list is a summary of the most important interactions between Axis procurement organization and its suppliers:

1. Operational Interactions between suppliers and categories – These types of interactions are mainly regarding orders, deliveries and quality.
2. Business reviews – Yearly development meetings with strategic and preferred suppliers.
3. Supplier Academy – Education program to teach the “Axis way”.
4. Supplier Conference – Biannual conference for key suppliers.
5. CTO supplier meetings – Axis' CTO meets the strategic suppliers on a regular basis.
6. Technology Road map meeting – Every spring, Axis reviews its own and its suppliers' technical road map (three-year plan) with its important suppliers.
7. Business road map meeting – Every fall, Axis reviews its business road map (three-year plan) with its important suppliers.

8. Supplier Auditing – Axis regularly audits its suppliers on quality, environmental impact and compliance to code of conduct.
9. Product Development – Cooperation in the product development phase.

### ***Supplier relations***

Axis has a small supply base with close relationships to its suppliers. Axis believes in growing together with its suppliers. In general, Axis aims to have long relationships with its competitive suppliers and to develop them into strategic partnerships. In many of its more innovative product areas, it often works in close cooperation with a single supplier. For the rest of the products, Axis tries to work with a multiple sourcing approach to minimize supply risk. Axis has had a number of its suppliers suffer natural disasters and to mitigate this risk, the procurement team try to spread its supply base geographically.

In general, Axis is a relatively large customer to its contract manufacturers. However, for raw material and component suppliers it is the opposite. There is a large demand for many of its components and raw materials from global electronic manufacturers where Axis is not big enough and therefore realistically Axis cannot compete. For most of its suppliers, it aims to have 5-35% of the supplier's total volume.

#### **4.5.4 Segmentation**

##### ***Segmentation Strategy***

The segmentation is managed according to each of the commodity groups' own sub-strategies. Each commodity group has different demands and factors to take into account. For example, with some products, time-to-market is very important and is therefore weighed heavily when evaluating suppliers. Even though each commodity follows its own segmentation strategy, it is primarily based on the Kraljic matrix. The underlying philosophy for Axis' supplier segmentation is that there are more benefits to obtain from collaborative and long-term relationships with a limited number of suppliers than many arm's length supplier relationships. Axis segmentation strategy aims to be a supporting activity for that philosophy and aims to:

- Optimize the supply base for Axis needs and demands
- Drive supplier performance in products and to enable allocation of new business opportunities to suppliers which deserve it
- Make sure Axis places volumes where it gets maximum contribution from suppliers every time it makes a supplier selection

##### ***Supplier Classification Model***

Axis supplier segmentation is reviewed biannually, often in connection to road map reviews. The segmentation follows a set of standardized criteria set by each commodity group. The different segments in its classification model are as follows:

**Strategic** – The strategic category exists since Axis strives to access products and technology that strengthen its competitive edge. When a candidate is identified, it is evaluated to see whether the company is able to provide unique technology to Axis. Similar to approved suppliers, they are prioritized when allocating new business. For these suppliers Axis believes it to be important that it is one of the supplier's largest customers.

**Preferred** – The preferred category is a reward category. Examples of rewards are priority for an even business load or increased business. Axis has a close collaboration with preferred suppliers for

better cost and/or service. For suppliers to stay in this category it is important that they continuously perform well.

**Approved** – The approved category exists in order to maintain competition and volume flexibility in the supply base. These are preapproved suppliers which have passed the phase-in stage and meet all of Axis legal and practical requirements.

**Phase In** – This is a test category for new suppliers. When a potential supplier is engaged for the first time, it is based on Axis needs and requirements. As no performance data exists, a full-scale evaluation is made, and a decision is taken whether the supplier should be labeled as approved or under observation.

**Under Observation** – This category is for suppliers who are performing below requirements or where the financial situation is of concern. No new business shall be awarded a supplier while under observation.

**Phase Out** – Suppliers who consistently underperform or have made a severe breach of code of conduct will be phased out.

**Potential Supplier** – The purpose of identifying potential suppliers is to be prepared if something happens with existing suppliers.

**Banned Supplier** – A supplier will be banned if a major conflict has taken place or in cases of unethical behavior.

#### 4.5.5 Performance

##### ***Key Performance Indicators***

Axis uses a number of KPI's in order to measure its suppliers. Data is collected quarterly in order to compile performance reports. The KPI's used are:

- On Time Delivery
- Quality
- Price Competitiveness
- Payment terms
- Flexibility
- Closeness to: (1) a contract manufacturer, (2) a configuration and logistics center or (3) a purchasing office.
- Quality Management System
- Environmental Management System
- Code of Conduct

In addition to the quantitative KPI's, Axis judges the suppliers' ability to cooperate, its technological position etc., which is some type of qualitative measurement.

##### ***KPI Follow-Up***

In general, Axis gathers KPI data quarterly but compiles the performance data for distribution once a year. The performance data is distributed to the suppliers prior to the yearly business reviews and is discussed during the meeting. However, if issues arise between the yearly business reviews, it is dealt with directly. Axis' contract manufacturers and its strategic suppliers are evaluated quarterly and have extra quarterly business reviews. If there are necessary improvements to be made Axis expects its suppliers to provide an improvement plan after the business review.



#### **4.5.6 Improvement & Development**

##### ***Overall strategy***

As Axis wishes to nurture partnerships with its suppliers, improvement and development efforts are a fundamental component of Axis' SRM work. Axis performs such activities with a select group from its supply base, mainly strategic and critical suppliers. It is the strategic purchasers themselves or the steering group in each category who decides what improvement or development actions should be taken, there is no standardized procedures in place. If Axis is experiencing issues or discovers non-compliance, it evaluates the potential of the supplier and makes a judgement call whether to develop the supplier or to terminate it. One of the main objectives for Axis' improvement and development efforts is to assist its suppliers to achieve desired quality levels.

##### ***Activities and Interactions***

Axis has three types of regular interactions with its suppliers: business reviews, a supplier academy and supplier conferences. The business reviews are yearly meetings with its suppliers where they discuss areas of development, perform KPI follow-ups and go through business and technical roadmaps. The supplier academy is a tool to educate its suppliers in quality management systems, environment management systems, project management etc. in order to improve the cooperation and to reduce the risk of miscommunication and misunderstandings. Finally, supplier conferences are held every second year and Axis' most important suppliers are invited. They are used to convey important messages to its suppliers and align Axis' conveyed strategy as they will receive the same message from the same people at the same time, and often by people in Axis leadership. During these conferences, a supplier of the year is appointed, and some suppliers get to share their success stories. Value engineering is currently not used as a tool for supplier development, and the main reason for this being the short product cycles. The average product cycle for an Axis product is three years, and it is often more profitable to focus on a new product than investing resources and developing current products and models further.

##### ***Reactive vs. Proactive***

Apart from the yearly business reviews, supplier academy and the supplier conferences, many improvement efforts are of a reactive nature. If issues arise between the yearly business review meetings, Axis tries to resolve these issues directly. Axis does however allocate resources to the start of a project in order to go through the project plan, technical specifications, expectations etc. with suppliers in order to decrease the number of issues due to misunderstandings.

#### **4.5.7 Collaboration & Innovation**

##### ***Overall strategy and activities***

A large share of Axis R&D is done in-house however, Axis has many collaborations with its suppliers where they often have an exchange of technology. The type of collaboration relationships which Axis has, are dependent on the types of project which it is currently focusing on. However, in general collaboration relationships are held with technological industry leaders, often considered as strategic suppliers, in order to exchange knowledge and information in areas where Axis themselves lack expertise or in-house competence. For example, Axis recently engaged in a collaboration with an industry-leading radar manufacturer in order to develop a network radar detector.

### ***Contact points in a supplier relationship***

The commodity managers own the supplier relationships and handle the regular interactions such as business reviews etc. However, in reality, the project managers are often the ones with the continuous contact with the supplier in ongoing projects. Additionally, Axis' engineers are in contact with the suppliers' engineers about issues regarding technical specification or similar.

### ***Being a preferred customer***

As previously mentioned, Axis aims to be 5-35% of the supplier's total volume, which is a range set to ensure preferred customer status. However, Axis does not wish to be a larger customer than 35% as it believes the supplier would become too dependent on Axis. This could lead to Axis having to provide supplier investments or provisions of new equipment or machinery. Axis wants its suppliers to be able to manage themselves independently of Axis. In addition to receiving preferred customer status through volume, Axis often receives preferred customer status simply by being the industry leader, which is highly regarded among many tech companies.

### ***Early Supplier Involvement***

Axis product development process initially consists of two different phases, the initiation phase and the start-up phase. In the initiation phase, a small group of people are part of the project and when it reaches the start-up phase, it is fully staffed. Depending on the criticality of components, the suppliers can be involved in the initiation phase or later on. Axis also has a working group called "New Concepts" which also may involve suppliers early on in the innovation phase.

## 5 Analysis

---

*This chapter compares the findings to the theoretical framework and with each other. First, a within-case analysis of each company identifies similarities and differences to theory. Secondly, all the cases are then compared in a cross-case analysis to identify intra-group patterns, similarities and differences.*

---

### 5.1 With-in case analysis

#### 5.1.1 Alfa Laval

##### ***Segmentation***

Alfa Laval's supplier classification model has a distinct segment for the high-performing (preferred) suppliers and another segment for those suppliers which Alfa Laval views as important innovation partners for the future or has a certain technical expertise within an important area. However, Alfa Laval appears to lack a segment which would translate into the strategic quadrant of the Kraljic matrix. Suppliers which are highly business critical or carry a large supply risk currently do not have a clear position in the supplier classification model. This could mean that such suppliers might get overlooked if too much trust is put into the supplier classification model. The preferred supplier segment is however clearly in line with its supply base reduction objective. If purchasers adhere to the rule of thumb and prioritize preferred suppliers over approved suppliers for new business, a reduced supply base should be a direct consequence. This could possibly also lead to increased global sourcing and reduced local sourcing as local sites have to purchase from the globally approved suppliers instead of the locally favored ones. However, if no clear guidelines or criteria are established of what distinguishes a high-performing (preferred) supplier, it might have a limited effect. Many of its customers also have high demands on things such as certification which limits flexibility in the choice of suppliers.

Additionally, the desire to develop a clear set of criteria for the segmentation model, might be related to the size of Alfa Laval's purchasing department and its spread global presence. In order to implement a new work method in an outspread organization, clear instructions are probably important for success. However, there is always the challenge of having too rigid criteria that are not collectively exhaustive and do not reflect the true nature of the supplier relationship and therefore risk misclassifying suppliers. Furthermore, Alfa Laval's initiative to create clear guidelines and standards for interactions with strategic suppliers, instead of activities at the discretion of a senior purchaser, is in line with what Cox, et al. (2005) suggest.

##### ***Performance***

As suppliers vary in importance and their usefulness for Alfa Laval differs, the supplier KPI's should be customized depending on the type of supplier relationship. Strategic suppliers should be measured more thoroughly with customized measures (O'Brien, 2014). However, Alfa Laval uses a uniform approach for all their suppliers. Alfa Laval claims that they lack resources to adapt KPI's to specific suppliers. Additionally, it believes that the four quantitative KPI's are relevant for all of its suppliers. The usage of these KPI's is also likely due to tradition. A side effect of this is that potentially fruitful or damaging relationships may go unnoticed and risk may remain unmitigated.

The KPI thresholds/limits are the same for most of their suppliers. All suppliers are measured by the same quality requirement of a certain percent and so forth. However, this is not always an appropriate way to measure quality. For large volume suppliers, PPM can reflect the actual quality of the supplier's deliveries better, however utilizing this on small volume suppliers can provide volatile

and skewed values. Also, for some products the required quality is not the same. The KPI limits ways to measure suppliers and should be tailored for the relationship and not set by a single standard for all suppliers.

Alfa Laval realizes the advantages of qualitative KPI's, but the reasons for not implementing such KPI's are twofold. First of all, Alfa Laval's inorganic growth strategy with a large amount of acquisitions has resulted in multiple incompatible ERP systems which makes it hard to get a clear overview of all suppliers. Secondly, the large supply base makes such an implementation tough and hard to execute. One of qualitative KPI's purposes are to indirectly apply a purchaser's own judgement and opinion. However, as there is no common system to share this knowledge, any form cross-organizational knowledge or benefit is likely to be lost. A purchaser's bias also has to be considered. However, it is possible to argue that the plethora of different ERP systems and the global spread of operational purchasing in the Alfa Laval organization increases the need for a standardized way to evaluate a supplier's relationship.

### ***Improvement & Development***

As Alfa Laval is generally a small volume customer with a large supply base, it is possible that it does not see enough value in taking proactive improvement and development actions against suppliers. This is also made difficult as the number of suppliers per strategic purchaser is considerable. Improvement activities consist generally of two major types: strategic and reactive. Reactive is of a more short-term perspective and could be a reaction to bad performance from a supplier. Alfa Laval has a limited number of key suppliers with a focus on developing suppliers' long-term capabilities. However, the strategic activities are done on a limited basis and are often reactive in nature. As these types of relationships require a mutual commitment, Alfa Laval faces a big challenge since it often is a relatively small customer. Additionally, with a large supply base it could be difficult to know which suppliers to give most attention to.

Something that is worth noting is that Alfa Laval often interacts with their suppliers using different specialized teams after the suppliers' needs. They have understood the value of integrating multiple functions into its supplier relationships. However, this is often in a reactive manner and little is done proactively. Alfa Laval has had a lot of long-term suppliers, Gadde and Snehota (2000) argue that the longevity of a relationship should not be a basis for the degrees of involvement with a supplier. The degree of involvement in a relationship should be based on the potential gains from further involvement, and if there is motivation from the supplier for a more involved relationship. However, some of these are legacy suppliers where a number of them have stayed competitive. In these cases, Alfa Laval and the suppliers have worked together on improvement and development, rather than simply switching supplier. Thus, it is worth noting the potential value in improvement and development activities for Alfa Laval.

### ***Collaboration & Innovation***

Alfa Laval only has limited potential of capturing innovation from suppliers since no formal processes for this are in place. Traditionally, the need for this might have been small since as their core-technology is well-established. However, areas such as connectivity and IoT are growing fast and have the potential to have a significant impact on the industry, and these are areas which are not core competence for Alfa Laval. Additionally, this means that the type of innovations it will receive from suppliers are "new on the market" innovations (Figure 9) since the motivation will be on the suppliers' side and the innovations will be available to the market as a whole. Thus, reducing the likeliness of a significant and unique competitive advantage through supplier innovation.

Alfa Laval's early supplier involvement strategy is mainly "white box" (Ragatz, et al., 2005). It has discussions with suppliers about specifications/requirements, but it makes all the decisions in house and suppliers are rarely involved in the conceptual phase of the product development. Some of its collaborations with tech companies should probably be denoted as a "grey box" type, however these companies are often small start-ups which might see Alfa Laval as a route-to-market, the "Look what I've brought you" type of supplier innovation (Figure 9) which also works as an encouraging factor for supplier innovation according to O'Brien's (2014) supplier innovation model (Table 8).

### **5.1.2 Trelleborg**

#### ***Segmentation***

There are several possible reasons for Trelleborg to use the Kraljic matrix as its segmentation model. Firstly, as Trelleborg mostly trades with commodity suppliers, it does not have the same need to nurture strategic partnerships for innovation and collaboration, a segment/quadrant which the Kraljic matrix lacks. This segment is better represented in a supplier pyramid segmentation model. However, this might prohibit Trelleborg from viewing its suppliers as potential product development/innovation partners which might lead to missed opportunities. Additionally, Trelleborg analyses what activities that are currently done with suppliers and see if these reflect their placement in the segmentation model and if not, adjust the activities to better reflect the relationship and its placement in the segmentation model. This makes it intuitive how the purchasers should deal with the supplier. This is probably necessary for Trelleborg due to its decentralized structure and the fact that the tools deployed in the organization need to be easy to understand and possible to implement gradually

#### ***Performance***

Similar to what Hahn, et al. (1997) and Gordon (2008) suggest, Trelleborg uses most of the fundamental KPI measurements. However, it is worth noting that it customizes the way and to what degree they are measured. The fact that the KPI's are adjusted for the needs of the business and the products gives it a new level of legitimacy where the KPI's can be more useful as they reflect reality in a better way. The way Trelleborg measures its KPI's is also likely due to the nature of its business. As Trelleborg mainly purchases commodities where the products often are from the process manufacturing industry with a relatively standardized quality, it limits the need of a heavy focus on quality and allows Trelleborg to focus on cost. This is also reflected by its monthly price negotiations which can have a large impact on the financial performance – an indication of good resource allocation. The performance of the other KPI's are discussed at the annual business reviews or after demand. However, it is interesting to note that, since the supplier KPI data are only compounded quarterly, minor supplier issues that continuously occur at multiple sites may go unnoticed and therefore unresolved.

An aspect which reflects O'Brien's (2014) research is that Trelleborg only measures its transactional suppliers "by exception" rather than having continuous tracking of their KPI's. This is likely due to the high resource intensity of KPI measurement which in most cases provide little beneficial value as the products are as mentioned, mostly process manufactured.

#### ***Improvement & Development***

Trelleborg has a reactive approach for improving and developing its suppliers. Trelleborg has limited resources dedicated to supplier development, which is an active strategy aligned with its overall business and procurement strategy. However, the potential value gain with a more proactive

approach is limited as Trelleborg deals a lot with commoditized products where quality is relatively standardized, thus limiting the possibility to make significant changes.

Another limiting factor with its improvement and development activities is that Trelleborg is a comparatively small customer to many of their suppliers. Since it is not a preferred customer for many of its suppliers there is not the same opportunity for development. Instead, a reactive approach is more appropriate for when its suppliers do not meet demands or contractual obligations.

### ***Collaboration & Innovation***

Trelleborg's small number of collaboration relationships have a number of possible causes. First of all, being a low-volume buyer means it is hard to receive a preferred customer status, which is needed in order to engage in fruitful partnerships as mutual recognition and interest need to exist. Secondly, purchasing goods with low processing, mostly dealing with commodities from process manufacturers, provides lesser room for innovation in both directions as Trelleborg has little to offer to large chemical process manufacturers. Finally, as Trelleborg sells niche products, they can retain high margins, reducing the need of purchasing focus which means less resources towards supplier relations.

Considering its early supplier involvement strategy, it is typically a "white box" type (Ragatz, et al., 2005). Discussions are held with suppliers regarding specifications/requirements, but Trelleborg makes all the decisions. There is however a wish to develop towards a "grey box" type of relationship. This could however be challenging as a joint development effort requires interest from the supplier, which as previously mentioned is relatively rare for Trelleborg. This also means that the type of innovations that Trelleborg receives from their suppliers mostly are of "new on the market" type. The innovations will be available to the entire market and the motivation will not be joint.

### **5.1.3 Assa Abloy**

#### ***Segmentation***

As Liker & Choi (2004) suggest, a selective approach is required when prioritizing relationships with suppliers. Assa Abloy has a relatively well-developed segmentation model with standardized criteria, which is a great aid for a generating an objective and feasible supplier classification. Considering the fact that the procurement organization is decentralized, a standardized approach is even more important for strategy alignment throughout the organization. However, Assa Abloy Entrance Systems, the division interviewed for this case study, does not apply the model in practice, thus limiting its effect. The supplier relationships are instead influenced by individual preferences. The struggle to implement the segmentation across the organization is probably due to the decentralized organization structure and tradition of purchasers "doing it in their own way". That in turn, might be due to a lack of resources allocated to procurement and a lack of priority from top management. The decentralized structure possibly affects the ability to coordinate procurement actions as Assa Abloy for example may struggle to further reduce their supply base across business units.

One of the fundamental motives for supplier segmentation is to allocate resources to where they have the biggest impact. Allocating resources to the wrong suppliers is wasteful and can lead to missing out on opportunities. Assa Abloy's model proposes the highest performer in each segment to become a higher-tiered supplier. Even though this is a good approach to decrease subjectivity, it is important to analyze if the supplier has the right strategic fit before partnering – a top performer

is not always a “good” performer. The selection of strategic suppliers should include multiple stakeholders ranging from manufacturing to finance. The decision should not have its roots purely in the procurement department.

Furthermore, Assa Abloy’s partnership model is relatively self-centric. They do not recognize the need for mutual exchange in strategic partnerships. The criteria defining if a supplier should be classified to the highest tiers in their segmentation model are mostly defined along the lines of the supplier providing solutions to Assa Abloy. As quoted in theory, Ellram and Hendrick (1995) define a partnership as: “*An on-going relationship between two firms that involves a commitment over an extended time period, and a mutual sharing of information and the risks and rewards of the relationship*”. Only relations where both parts find an attractiveness are appropriate for long-term partnerships.

### ***Performance***

Assa Abloy uses the most fundamental of KPI measurements, similar to those which Hahn, et al. (1997) and Gordon (2008) suggest a company should use. However, Assa Abloy differs in the sense that those KPI’s are used homogeneously throughout their entire supply base and that no qualitative measures are used. It is suggested that measurements should be used differently for different types of suppliers to better suit the relationship. O’Brien (2014) suggests that a uniform approach for performance management can be misleading and may not reflect the true nature of the relationship. Aspects such as technology and innovation are not formally measured and there is no qualitative evaluation of the supplier-buyer relationship. However, the qualitative aspects are considered by purchasers using their own personal judgement, which on the other hand means that there is no clear approach to identify the qualitative aspects in a cross-organizational perspective. Potentially fruitful or damaging relationships may go unnoticed, risk may stay unmitigated or potential remain untapped. Regarding a performance indicator for innovation, their product development and innovation mainly happens in-house, the company does not have the same need to measure suppliers on their innovativeness. However, there is a great deal of potential in utilizing supplier innovation. Becoming efficient in tapping into supplier innovation can become a major competitive advantage.

Assa Abloy has no formalized result sharing with suppliers. Even though this information is shared on a more impromptu manner and upon a need for intervention, it greatly limits a supplier’s potential to improve themselves proactively. This is likely to create a more reactive performance management and limits the room for suppliers to improve themselves on their own initiative. SPM is a two-way relationship where understanding and information should be shared.

### ***Improvement & Development***

Assa Abloy works only to a limited degree with supplier improvement and development. As mentioned, most of Assa Abloy’s supplier improvements activities are reactive. A downside of working reactively is that suppliers who underperform receive the most attention. The fact that there is a limited amount of proactive activities limits the effectiveness. Suppliers with high degrees of potential are not likely to get the resources needed to tap the potential benefits. A supply base should be a healthy balance between high and low involvement relationships. However, this high involvement should not only be with suppliers who underperform. Reactive measures should primarily be intended for lower-tier suppliers, and proactive measures should be done with one’s strategic suppliers.

However, it is worth noting that Assa Abloy has staff who work proactively with improving products and processes through value engineering and lean production, and the efforts have been fruitful. Even though the purpose of these actions is relatively self-centric it is often mutually beneficial. The reciprocal improvements and developments are potentially an efficient method to excite suppliers and increase the buyer's status as a preferential customer.

Assa Abloy has worked actively with reducing their supply base which has led to a reduction of 29%. This allows for an increased volume pooling to the remaining suppliers and it frees up resources to increase interactions with the remaining suppliers. It is worth noting that Assa Abloy's supply base is still relatively large and that its procurement organization is decentralized which might limit cross-organizational benefits.

### ***Collaboration & Innovation***

Assa Abloy has only a limited potential of capturing innovation from suppliers since no formal processes are in place. Traditionally, the need might not have been extensive since its core-technology is relatively established. However, areas such as connectivity and IoT are growing fast and have the potential to affect the industry as a whole, and those are areas which are not core competences for Assa Abloy. This means that the type of innovations it probably will receive from suppliers are "new on the market" innovations (Figure 9) since the motivation will be the suppliers' and the innovations will be available to the market as a whole. Thus, reducing the likeliness of a significant and unique competitive advantage.

Its undeveloped collaboration strategy is reflected in their view on strategic relationships. Their approach is rather self-centric as it evaluates strategic suppliers by their ability to provide Assa Abloy with (1) value propositions on how to improve the value created in the relationship, (2) price transparency and (3) high commitment. O'Brien (2014) states that strategic supplier relationships need to be mutually beneficial in order to be viable and feasible. Additionally, their decentralized structure potentially makes it harder for Assa Abloy to set up strategic relationships as there are multiple relationship owners throughout the organization.

Comparing Assa Abloy's actions to the preventative and encouraging factors for supplier innovation (Table 8), there are a few indications that their actions are preventing supplier innovation such as "no track record of implementation" and possibly "no clear alignment of business strategy" due to lack of collaboration. This implies that some of its actions might unintentionally prevent supplier innovation from reaching Assa Abloy.

Assa Abloy's early supplier involvement strategy is "white box". It usually has discussions with its suppliers about specifications/requirements, but it makes all the decisions. However, it seems like there is a wish to develop towards "grey box" involvement and to deepen its relationships with its strategic suppliers. This might be problematic due to its view on strategic relationships.



#### **5.1.4 Ikea**

##### ***Segmentation***

Ikea has a distinct supplier classification model with segments which translate into strategic, important and transactional suppliers as well as a few other segments. However, there are few supplier relationships that would actually be regarded as simply transactional. Gadde & Snehota (2000) and van Weele (2014) suggest that a select few suppliers should be viewed as strategic, but Ikea has a large number of suppliers with strategic relationships. This is probably an imperative for Ikea in order to keep their supply base at its current size and in order to keep product costs down through value engineering. This contradicts the standpoint of Gadde & Snehota (2000) who argues that it is important to keep a balance between low and high-involvement relationships as there are different benefits that can be sourced from both sides. Ikea has differentiated their actions towards suppliers depending on level of importance which is consistent with what O'Brien (2014) suggests. This enables Ikea to allocate resources to the more important suppliers, instead of spending resources on those that would otherwise receive the most attention, e.g. under-performing suppliers.

Additionally, Ikea's development of standardized classification criteria supports their SRM work in several ways. Theory indicates that clear segmentation strategy is critical for efficient supplier segmentation – something which is demonstrated by Ikea's swift and standardized segmentation process. There are also additional potential benefits for Ikea. Its transparency towards its suppliers, together with its clear segmentation criteria, has possibly improved its supplier collaboration relationships as suppliers know what is expected from them as well as they know what is required to reach a certain supplier status.

Furthermore, it is interesting to note that Ikea's segmentation process, which is executed using an Excel tool followed by round-table discussions, is coherent with theory which states that the selection of strategic suppliers should involve multiple stakeholders (e.g. manufacturing, quality, finance etc.) instead of just being a decision originating from the procurement department (Ho, et al., 2015) as this leads to a more holistic selection process which mirrors the business needs better.

##### ***Performance***

Like the other companies in this study, Ikea uses a standardized set of KPI's to measure their suppliers. However, something that is particular for Ikea is that it customizes the way the KPI's are measured. The supplier specific KPI requirements and targets are instead adjusted according to customer demands, product and the type of relationship, thus truly reflecting the needs of the relationship.

SPM is rarely effective if results are not shared with the supplier, as they will not be able to improve, according to Cunningham and Fiume's study from 2003 (as cited in O'Brien 2014). SPM should be considered as a two-way relationship where information and understanding are exchanged between the buying firm and the supplier (Gordon, 2008). As mentioned, Ikea has a supplier portal that allows suppliers to see their performance in real time. Since suppliers know how they perform, it gives them the possibility to adjust and be in line with the service level requirements without Ikea having to interfere. As Ikea works with close partnerships this can likely be an efficient method of ensuring supplier performance as there is a common interest in the supplier's improvement.

Ikea uses Cost of Poor Quality to measure quality amongst their suppliers. The value of this is that the quality provided is likely to reflect the needs of the market a lot better. When striving for a certain percentage of quality, it may not be profitable out of a total cost perspective. Utilizing the

Cost of Poor Quality approach allows for a more proactive and “smarter” approach where improvements are done where there can be a large impact on business.

### ***Improvement & Development***

Its supplier development process is key for Ikea to sustain and nurture their partnerships. In order to keep a small supply base and to have close relationships, Ikea cannot simply switch supplier when it experiences issues. Additionally, Ikea mostly deals with large volumes which also makes it hard to switch suppliers quickly. The only large exceptions for the strive to engage in partnerships are with suppliers who provide one-off buys and many of their indirect suppliers. It aims to develop suppliers by increasing the performance and its consistency, therefore minimizing the number of reactive actions. Additionally, as the business developers in the different categories use leading indicators to spot negative trends in the different KPI's, they improve the possibility to take action before it becomes an issue. Thus, making it an approach with a proactive focus.

These partner relationships are generally high-involvement where Ikea proactively improves the standards of its suppliers. The KPI's are adapted after each of the supplier's achievable goals. It continuously pushes its suppliers to improve with customized action plans. This aligns well with O'Brien's (2014) theory which recommends that proactive and strategic measures should aim for joint goals and that SI&D interactions should be flexible as every supplier requires unique efforts. Even though the activities and goals are supplier specific the approach for the improvement activities is very systematic and standardized. It has a phased structure for the supplier improvement and development where the first phase is identification, solely focused on identifying possibilities. This standardized structure ensures continuity in the activities which is important as Ikea has a large procurement organization with a high internal staff turnover.

Ikea has understood the value of mutual benefits when it develops their supplier's capabilities. Even though Ikea is not always a supplier's largest customer, it is in most cases a preferred customer. This is likely due to Ikea not acting self-centric, it develops entire markets where even competitors sometimes can find benefit. This approach falls well in line with what Krause and Ellram (1997) discuss about commitment to supplier development activities. Ikea is willing commit to invest in supplier improvement where there is mutual sharing of information, risks and rewards of the relationship and therefore are successful with their SI&D.

### ***Collaboration & Innovation***

Ikea's type of innovation which includes both in-house R&D as well as supplier innovation is consistent with what Chesbrough (2003) suggests. It is interesting to note that Ikea manages to receive preferred customer status among suppliers with low spend. This is probably partly due to their supplier development program which attracts suppliers. Additionally, comparing Ikea's strategy to O'Brien's preventing and encouraging factors for supplier innovation (Table 8), it shows that Ikea fulfills the encouragement factors for Reason, Realization and Reward. Ikea offers a clear business plan alignment, has a great track record of implementation, holds a route to market and a willingness to create an engagement model that provides benefits for both parties. This could be an additional factor why Ikea manages to create and sustain viable innovation collaboration relationships. Furthermore, having a dedicated segment for innovation suppliers enables innovative suppliers to be recognized.

A consequence of Ikea's significant resource allocation to innovation and collaboration is the type of innovation which Ikea receives from its suppliers. It is generally of a “competitive advantage” type

in O'Brien's supplier innovation matrix (Figure 9) as it exists a joint motivation and supplier innovations are not available to the entire market.

Ikea's close cooperation with many suppliers is not only with innovation in mind, but cost is also a reason. As Ikea offers products with a mass marketing approach, the market is significantly more price sensitive than a niche market. This implies a greater focus on cost which Ikea has partly realized through value engineering rather than switching suppliers continuously to get the best price.

### **5.1.5 Axis Segmentation**

As Liker & Choi (2004) suggest, a selective approach is required when prioritizing supplier relationships. Axis has a relatively well-developed segmentation model with standardized criteria which is important when generating an objective and feasible supplier classification. Additionally, Axis has differentiated their actions towards suppliers depending on their level of importance which is consistent with what O'Brien (2014) suggests. This enables Axis to allocate resources to the more important suppliers, instead of spending resources on those which otherwise would receive the most attention, e.g. under-performing suppliers. In addition to its pyramid supplier segmentation model, Axis uses the Kraljic matrix to initially segment commodity groups/groups of suppliers. This means that using the Kraljic matrix in combination with the pyramid structure, both types of strategic suppliers, (1) high supply risk + high business impact and (2) potential innovation partners, are recognized in the segmentation process. One of the types of strategic suppliers might otherwise go unnoticed.

Gadde and Snehota (2000) suggest that high involvement suppliers should be selected based on the potential gains from further involvement, rather than high volumes. In Axis' segmentation model, one of the criteria for the strategic suppliers are that they have "*...technology that strengthen the competitive edge*". Axis also believes it is important to be one of the supplier's largest customers, which is in line with what Schiele (2015) discusses about preferred customer status.

Additionally, their objective to reward prioritized suppliers with new business or an even business load and to achieve better cost and service is in line with what theory suggests, as Gordon (2008) suggests that volumes should be pooled to preferred customers to reduce transactional costs and improve prices.

### **Performance**

Axis uses most of the "traditional" KPI's as well as flexibility and closeness as formal KPI's. A likely reason for this is the high demands it has on new product development. As Axis wants to collaborate and partner with its suppliers it is salient that the suppliers are willing to be flexible and that their geographical positioning makes both sense for their integration into Axis supply chain and practicality of visiting.

Axis provides annual feedback to their suppliers unless no fault is identified before the business review. A likely reason that this approach works for Axis is that it has a small supply base which allows for a larger customizability and much more personalized interactions. A unique challenge that Axis has is that in many cases it is both responsible for first-tier (Contract Manufacturers) and second-tier suppliers (Component Suppliers). O'Brien (2014) discusses that it can be difficult with direct contractual obligations to second-tier suppliers as they may not exist, thus limiting the

possibilities on making an impact. However, Axis deals directly with these suppliers and send the orders which are delivered to its contract manufacturers. It may still be difficult to get a clear overview of the performance of the second-tier suppliers as Axis primarily gets secondary data via both the manufacturer and customer claims.

Axis utilizes a standardized On Time Delivery (OTD) limit to all its customers. However, the demands of its customers vary a lot. For many of its large contracts, fast delivery requirements are not as critical. A possible consequence is that orders where fast delivery is critical might end up behind large orders where time is not critical. When all the suppliers have the same service level agreement (SLA) on delivery on all orders this prioritization is not possible. Optimizing the service level agreements of this KPI for individual orders is an efficient way to improve customer satisfaction. The knowledge of what orders should be prioritized should be transferred down to manufacturers who primarily work with a First in, First Out manufacturing principle.

### ***Improvement & Development***

Similar to what Gadde & Snehota (2000) recommends, Axis combines a healthy balance of low and high involvement relationships. Despite not being the actual segmentation model, Axis uses the Kraljic matrix regularly to understand its supply base. As Axis works with improving and developing its strategic and critical suppliers it is important to understand which these are. It utilizes proactive actions for the high supply risk suppliers. For the other suppliers, they work with more reactive and low-involvement relationships. This coincides well with what Krause (1997) and O'Brien (2014) suggest: Improvement and reactive efforts with lower supplier involvement are intended and supplier development and proactive measurements with a high degree of collaboration are mainly intended for strategic and preferred suppliers.

Together with Axis' strategic suppliers, Axis goes through roadmaps at the annual meetings where they discuss where Axis' business is going and what role the suppliers will have. This is an efficient method for aligning Axis and its key suppliers. Axis' proactive and strategic measures aim to secure supply and improve the suppliers understanding and capabilities when working with them. However, Axis does not want the supplier to become dependent on Axis' business or vice versa. It needs to have flexibility in selecting suppliers and moving business. However, it still aims for long term relationships and as Monczka, et al. (1993) state, mutual recognition and interest by both the seller and the buyer is required, otherwise little effort and progress will be made. Axis' strategy and practice slightly contradict what to do according to theory, but this is likely due to demands from its supply base and limited competitive power against major electronics manufacturers.

### ***Collaboration & Innovation***

Being the industry leader in network video solutions has likely affected its supplier relationships as its suppliers often treat Axis as a preferred customer. This, according to Schiele (2015), enables Axis to develop feasible collaborative relationships with its suppliers, which is also the reality for Axis. Regarding the buyer-supplier power relationships between Axis and their suppliers, Axis strives for independence in the relationships, despite being able to exert buyer-dominance in a number of relationships as it does not wish to be a customer with over 35% of a supplier's business.

Axis often includes suppliers early on in the product development phase, the exact timing and nature of the involvement is decided by the criticality of the components as well as Axis' know-how in the area. This implies that Axis have both a "white box" and a "grey box" type of early supplier involvement (Ragatz, et al., 2005), depending on the project. The freedom to choose to what degree

Axis includes its suppliers is possibly a consequence of Axis having a preferred customer status in some cases.

The type of supplier innovation which Axis receives, is of the “Greater Good” type (Figure 9). The motivation is joint as the relationship is mutually beneficial for both parties, but many of Axis’ suppliers are far too large and global to only offer innovation exclusivity to Axis. For example, its cooperation with the industry-leading radar manufacturer, mentioned in chapter 4.5.7.

## **5.2 Cross case analysis**

### **5.2.1 SRM Program**

Comparing the level of refinement of goods purchased (ranging from commodities to finished products) to the relative development of SRM programs, there is an indication that a higher level of refinement of goods purchased correlates with well-developed SRM programs. For example, Trelleborg which mostly purchases commodities, has the least developed SRM program whilst Axis which purchases highly processed goods such as circuit boards and lenses, has a relatively well developed SRM program. The difference is likely due to the potential value which can be retrieved from the companies’ supply bases. As previously mentioned in chapter 5.1.2, commodity suppliers are likely to provide lesser room for innovation as most goods are standardized.

There are also indications from the case studies that the type of marketing approach affects the SRM program. All companies included in the study, except for Ikea, have a niche marketing approach (Table 15). As niche markets are generally less price sensitive than mass markets, the cost focus in the business decreases and resources towards purchasing are potentially reduced, affecting the SRM programs. The need for cost focus in mass marketing companies does however lead to the allocation of more resources towards good purchasing practices. For example, Ikea has a mass marketing approach and also has the most developed SRM program in this study. This approach might have traditionally worked fine for niche marketing businesses as they mainly aimed to procure goods at the best price from their supply base. However, today when other values such as innovation is possible to extract from the supply base, it might not be the optimal approach for niche marketing businesses as they mainly differentiate through the products’ capabilities, which stems from innovation.

When comparing the development of the case companies’ SRM practices, an interesting observation can be made. Ikea and Axis that have the most developed SRM activities and practices are also the organizations with the smallest supply bases. They are also the organizations that have the highest degree of partnerships with their suppliers. Additionally, Alfa Laval and Trelleborg which have relatively embryonic SRM programs, have the largest supply bases. It can also be observed that Trelleborg and Assa Abloy which are perceived as having low-developed SRM programs are the two case companies with decentralized procurement organizations. It was noted that in these companies there was little cross-organizational communication when handling suppliers. However, in the case of Trelleborg, they stated that the decentralized structure works well for them as they mainly purchase commoditized products where there are few synergies between departments. In the cases where synergies exist, they follow the practice of voluntary lead buyers.

<b>Organization</b>	<b>Alfa Laval</b>	<b>Trelleborg</b>	<b>IKEA</b>	<b>Assa Abloy</b>	<b>AXIS</b>
Target Market	Niche	Niche	Mass	Mass & Niche	Niche
Product Complexity	High	High	Low	High	High
Consumer Type	B2B	B2B	B2C	B2B & B2C	B2B
<b>Procurement Organization</b>					
Organization Structure	Centre-led Hybrid	Decentralized	Centre-led Hybrid	Decentralized	Centralized
Independency of buying units	High	High	High	High	Low
<b>Supply base</b>					
Supply Base Scope	Global	Global	Global	Global	Global
Size of supply base (Roughly)	7000	3500	1200	7500	270
Power of Buyer	Low	Low	High	Low	Med
Time frame in relationships	Long	Short	Long	Long	Long
Arm's Length	Many	Many	Few	Many	Few
Close and Collaborative	Few	Very Few	Many	Very Few	Many

Table 15: Overview of case company base facts

### 5.2.2 Segmentation

The study revealed that four out of the five companies (Trelleborg being the exception) included in the case study uses some form of pyramid-based segmentation model with segments that more or less translates into strategic, preferred and transactional suppliers (Table 16). This seems to be the most applicable model and is appreciated in the organizations due to its good representation of the actual distribution of the suppliers as well as being intuitive. However, the organizations which uses the Kraljic matrix alone or in combination with a pyramid model manages to capture a segment which the pyramid model lacks. The case studies have shown that there exist two different types of strategic suppliers, the “innovation partners”, the top triangle in the pyramid model, and the strategic “high impact/high risk product suppliers” from the Kraljic matrix. It is important for companies to acknowledge both types of strategic suppliers and they should be given high attention and high involvement, but for different reasons. Therefore, the strategic segment of the Kraljic matrix adds another dimension to the pyramid segmentation model.

<b>Segmentation</b>	<b>Alfa Laval</b>	<b>Trelleborg</b>	<b>Ikea</b>	<b>Assa Abloy</b>	<b>Axis</b>
Do they work with supplier segmentation?	Yes	Yes	Yes	Yes, in theory No, in practice	Yes
Type of segmentation model	Pyramid	Kraljic	Pyramid	Pyramid	Pyramid
Standardized classification criteria	No	Yes	Yes	Yes	No
Do they have strategic Suppliers?	Yes	No	Yes	Limited	Yes
Segmented supplier interactions	Not formalized	Yes	Yes	No	No
Standardized treatment of Strategic suppliers	No	No*	Yes	Not in practice	No
Standardized treatment of preferred suppliers	No	No*	Yes	Not in practice	Yes
Standardized treatment of transactional suppliers	Low involvement, reactive actions	Low involvement, reactive actions	Low involvement, reactive actions	Low involvement, reactive actions	Low involvement, reactive actions
*Interactions structured around Kraljic but there is no standardized approach					

Table 16: Summary of case companies supplier segmentation

Comparing the selection criteria for strategic suppliers among the case companies, it shows that Trelleborg, Ikea and Axis include a criterion related to unique technology or innovation (Table 17). Regarding high performance, it does not appear to be a general criterion, but case companies seem to find it important for suppliers in order to emerge for consideration. The only case company which includes criticality of products and supply risk in its criteria, is Trelleborg, which uses the Kraljic matrix as its segmentation model. It is worth noting that Kraljic is used as a tool by most of the interviewed purchasers but at a more impromptu manner.

	<b>Strategic supplier criteria</b>
Alfa Laval	<i>No set criteria.</i>
Trelleborg	Supplier of high-tech, high-value products. The products are critical and there is a limited supply.
Assa Abloy	Proven track record of meeting and exceeding the legal and commercial requirements. Possibility to integrate business processes and almost act as an extension of the company. It is expected that supplier make their own value propositions on how to improve the value created in the relationship. Should show a high degree of commitment.
Ikea	Lowest price vs comparable suppliers/products. Good price development, Low cost of poor quality, high availability, good strategic fit. Supplier able to provide innovation, product quality and product development.
Axis	Supplier able to provide unique technology.

*Table 17: Summary of strategic supplier criteria*

Regarding criteria for preferred suppliers, the main criterion is high performance (Table 18). The three case companies which have a distinct segment for preferred suppliers and set criteria, all lists high performance as a criterion. As the purpose often is to pool volumes to the preferred suppliers, a track record of high performance is important to guarantee future supply. It is interesting to note that Assa Abloy is the only case company which has responsiveness as a criterion for the preferred supplier segment.

	<b>Preferred supplier criteria</b>
Alfa Laval	High-performing suppliers with signed agreements.
Trelleborg	<i>No distinct preferred supplier segment.</i>
Assa Abloy	Suppliers that meet or exceed operational, commercial and legal requirements. High degree of responsiveness from the supplier.
Ikea	High-performing suppliers in: Lowest price vs comparable suppliers/products, Price development, Cost of poor quality, Availability & Strategic fit.
Axis	High-performing suppliers.

*Table 18: Summary of preferred supplier criteria*

The criteria for approved suppliers have not been compared since they are company specific therefore not of interest in a comparative analysis.

### 5.2.3 Performance

Performance	Alfa Laval	Trelleborg	Ikea	Assa Abloy	Axis
Which KPI's suppliers are measured on?	Compliance, PPM, SDOT, PPV	OTD, Quality, Payment Terms, PPV, Service, Corporate Responsibility	Quality, Availability, Cost, Sustainability, Customer perception of the product	Quality, Delivery	OTD, Payment Terms, Flexibility, Closeness, Quality, Code of Conduct
Customized KPI's for suppliers	No	For Quality	Some category specific KPI's such as children products	No	No
Degrees of measurement - Figure 14	3 & 4 - For all suppliers	2,3,4	2,3,4,5	3,4	2,3,4
Qualitative KPI's "soft"	No	Service	Customer perception of the product	No	Supplier Cooperation Ability
Innovation KPI	No	No	No	No	No
KPI sharing with suppliers	Done weekly by production sites for all key suppliers.	Quarterly to Annually	Monthly report & feedback sessions with suppliers, Supplier portal	By exception	Annually with continuous reactive follow-ups

Table 19: Summary of case companies SPM

All the companies included in this study use similar standardized KPI's. The two KPI's that are used by all the companies are quality and delivery (Table 19). However, the way that the KPI's are measured vary to a certain degree. Other differences are largely due to business related requirements. For example, IKEA is the only company that uses "Availability" and "Customer Perception of the Product" as KPI's which is likely due to Ikea having a B2C business model and therefore being more consumer oriented. Another example is Axis which uses flexibility and closeness to their suppliers as KPI's which likely reflects its strive to partner with suppliers and the relatively high turnover rate of their product portfolio. Even though not all companies measure suppliers on compliance to their code of conduct it is an important aspect at all the companies. All of them have strict requirements which when not followed leads to direct follow-ups and is taken very seriously.

As mentioned, not all KPI's are measured similarly amongst the different companies. The prevalent example of this is "Quality". It is primarily measured in three different ways: Percent (%), Parts Per Million (PPM) and Cost of Poor Quality (COPQ). They all have their advantages and disadvantages which adds to the argument that KPI's should be customized after the different supplier relationships. However, it is worth elevating COPQ as it is the only approach that uses a total cost approach which reflects the true cost of requiring improved quality. Having over dimensioned quality can be very costly and if it is not demanded by the customer, it provides low added value. This approach requires a lot more resources than using the simpler approaches such as PPM and % which primarily look at defective rates and thus is likely to be appropriate for the more transactional suppliers rather than strategic suppliers. Ikea who uses this KPI strives to partner with all of their suppliers, which is why COPQ is a suitable way for them to measure quality.

As mentioned using qualitative KPI's for one's suppliers is avidly discussed in theory (Gordon, 2008; Hahn, et al., 1997; O'Brien, 2014; Ellram, 1990; Cousins, et al., 2008). However, in practice it is used to a limited extent. As mentioned earlier, Ikea uses the KPI "Customer Perception of product" which likely has its roots in Ikea being a B2C company driven by the interest of their customers. Both Axis and Trelleborg use a supplier-buyer interaction KPI. In the case of Trelleborg, it uses the KPI "Service" where purchasers give their suppliers a score. As Trelleborg has a decentralized procurement organization the service KPI allows for an improved cross-organizational communication of personal opinions and judgement. In Axis' case it measures "Supplier Cooperation Ability" which reflects the fact that its product development is an important strategic



competence and that it wants its suppliers to be an integrated part of that. Both Assa Abloy and Alfa Laval have similarly structured procurement organizations as Trelleborg with a high degree of decentralization. Through the case studies it was identified that they have internal discussions between purchasers where they informally convey their opinions on how suppliers are to work with. However, the more decentralized a procurement organization is, the more difficult this becomes. Both Alfa Laval and Assa Abloy stated during interviews that they use multiple ERP system which makes it difficult to convey information throughout the organization. It is likely that using a unanimous qualitative KPI such as measuring supplier service level could be a useful aid that can improve internal knowledge transfer.

Another aspect that separates Ikea from the rest of the case study companies is that they use customized supplier specific KPI requirements and targets. Instead of measuring suppliers with different KPI's as theory recommends, it tailors the KPI's after what is required from a supplier. This can likely help the KPI's reflect the nature of the relationship better. For example, in the case of Ikea, it has specific innovation suppliers which have more relaxed demands compared to its high-volume suppliers. Another aspect when tailoring KPI's is understanding the customer demands. Axis stated an ambition to develop its delivery KPI to better reflect the needs of the customer. Certain customers have strict demands on fast delivery but for many of their large customers it was not as prioritized. As all its suppliers were measured according to the same delivery requirement, it does not reflect the needs of the market. Alfa Laval discussed that this is something they have an interest in developing, but currently lack the resources. However, such activities can likely improve resource utilization as supplier specific KPI requirements and targets are set according to specific demands rather than by a unanimous standard. This can likely decrease the need of reactive interactions with one's supplier, saving both time and money as they reflect the nature and demands of the relationship better.

All the case companies have different practices for sharing KPI's with their suppliers. There is a wide range from Alfa Laval having weekly contact with their key suppliers to Assa Abloy sharing primarily when there is a need for improvement/reactive measures. The regularity of supplier-buyer interactions is likely set by the nature of the supplier relationship. It is still worth noting that Ikea has a supplier portal where suppliers can look up their own performance. As suppliers can view their performance online, it gives them the possibility to proactively improve if there is a need for it. However, this is only likely to be successful in closer relationships where there is an interest from the suppliers, or in cases of a high degree of buyer power, which both are often the case for Ikea.

#### 5.2.4 Improvement & Development

<i>Improvement &amp; Development</i>	<b>Alfa Laval</b>	<b>Trelleborg</b>	<b>Ikea</b>	<b>Assa Abloy</b>	<b>Axis</b>
Direct supplier involvement/development	Limited	Limited	Yes. Provision of machines, technology, knowledge, engineers	VE & Lean teams	After Demand
Reactive actions	Yes, towards all suppliers	Yes, when needed	Yes, when needed	Yes, towards all suppliers	Yes, when needed
Proactive actions	Supplier Conference, Business Reviews	Supplier Conference, Business Reviews	Supplier Development Process, KPI trends, Business Reviews, Supplier Conferences	VE & Lean teams	Business Reviews, Supplier Academy, Supplier Conferences

*Table 20: Summary of case companies Improvement & Development activities*

When comparing activities done at the different case companies, a clear trend can be noticed: most activities are reactive (Table 20). In general, the proactive approaches are limited when comparing to reactive measures. The most common proactive measures are business reviews and supplier conferences which are done in varying degrees by all the interviewed companies, except Assa Abloy. Those activities are efficient approaches to align suppliers and convey the buying organization's strategies and goals. Supplier conferences are also likely to be an efficient approach to improve competition and knowledge exchange between suppliers. Other proactive activities include Ikea's Supplier Development Process and Assa Abloy's value engineering and lean teams. These activities can potentially provide large benefits for both the buyer and the supplier. The potential mutual benefits are a likely stimulus in a supplier relationship. However, it is worth noting that Trelleborg compared to the other companies may not have the same large potential value gain for a more proactive approach as it deals a lot with commoditized products where quality is relatively standardized.

However, when discussing supplier activities, Ikea stands out. What makes them significant is that it works primarily proactively when the other case companies work reactively. Using leading KPI's, it gets the possibility to interact with suppliers before it is too late and reactive activities have to be exercised. This moves the focus from firefighting and solving current problems, to improving and developing. Axis, after Ikea, has the second most developed set of improvement and development activities. What signifies both these companies is that they are the organizations that have the smallest supply bases. By working closer with a limited cohort of suppliers they can establish more developed relationships where more resources can be used where they make a difference. Krause and Ellram (1997) state that buying firms who were most satisfied with the results of their supplier development initiatives were to a higher degree committed to invest in these activities. This reflects the findings in this study with Ikea and Axis being most committed.

Ikea also has a systematic development process with its suppliers. As it has a large procurement organization with a relatively high personnel turnover rate, the usage of a standardized process can be critical for stringency and continuity in the supplier development. Using a similar standardized approach can likely be beneficial for other organizations with large or decentralized procurement organizations.

An important aspect which is worth discussing is the mindset the interviewed organizations have towards improving and developing suppliers. When a supplier is underperforming, an organization has to make the choice if they want to switch supplier or make demands to/help improve the supplier. Ikea and Axis have a focus on developing and improving their suppliers as they have a strong belief in partnerships. However, Trelleborg is generally the opposite, as it mainly deals with commoditized products, it often switches suppliers rather than improving the existing ones. Assa Abloy differs in that its focus for its improvement work is self-centric. The supplier's improvements should provide benefits to them. IKEA has a much more utilitarian perspective where it is happy to aid and improve suppliers even though it can potentially also help competition which uses the same supplier. Ikea believes that this is beneficial in the long run. Monczka, et al. (1993) elevate the importance of mutual recognition and interest by both the seller and the buyer, otherwise little effort and progress will be made.

### 5.2.5 Collaboration & Innovation

<i>Collaboration &amp; Innovation</i>	<i>Alfa Laval</i>	<i>Trelleborg</i>	<i>Ikea</i>	<i>Assa Abloy</i>	<i>Axis</i>
Primary source of innovation	Primary in-house	Primary in-house	Open innovation. In-house + Innovation Suppliers + Prioritized Suppliers	Primary in-house	Primary in-house
Type of ESI	White box	White box	Grey Box	White Box	Grey Box
Systematic innovation capture from suppliers	No	No	Yes	No	Yes
Reasons for collaborations	Improving value from suppliers and securing supply	Gain technical knowledge, Securing supply	Partnering in joint development and innovation, secure supply and availability, cost reduction through value engineering	Transparency, Supplier Value Propositions & Commitment	Lack of in-house knowledge, Exchange with industry leaders
Actions to become preferred customer	Volume pooling, Supplier of the Year	Volume Pooling, Supplier Conference	High volume, Supplier Development Program	Volume Pooling	Volume Pooling, Being industry leader

*Table 21: Summary of case companies Collaboration and Innovation activities*

#### Preferred customer

All case companies included in this study have realized the importance of gaining preferred customer status with their important suppliers, they do however use different techniques to become, or try to become, a preferred customer. All case companies use volume pooling as a way of receiving attention from their suppliers. Representing a large part of the supplier's total revenue is a traditional and established way of becoming a preferred customer. That was however a challenge for a majority of the case companies as they reside in niche markets with small, complex orders to suppliers. Ikea, the only company included in the case study with a mass marketing approach, manages to receive a preferential customer status partly due to its high volumes. However, both Ikea and Axis have managed to become preferred customers to some of their suppliers despite representing a small share of those suppliers' total revenue. This was managed by offering the suppliers other value than increased volumes. Ikea's supplier development program and Axis' status as industry leader are efficient tools to get attention from suppliers. Therefore, if a buying company can provide suppliers with other value than increased volumes, it might help their status as a preferred customer. This is likely to be particularly important for companies which cannot use volume pooling to receive preferential customer status through large orders. It is however important that each company analyzes its own relative strength which might be used to leverage its preferred customer status as each company's capabilities and resources will differ, as well as the companies' supply bases. Another aspect closely related to preferred customer status, is the buyer-supplier power relationship. The findings of this case study indicate that the companies in supplier dominant relationships, as the case of Assa Abloy, impede supplier innovation. Additionally, Axis proactively avoids buyer dominance in their supplier relationships, as it believes it could affect the dependence and the supplier innovation negatively. This suggests that independence or interdependence in supplier relationships is the paramount type of supplier relationship.

#### ESI

Comparing the approaches to early supplier involvement, Alfa Laval, Assa Abloy and Trelleborg mainly have white box ESI, while Ikea and Axis have grey box ESI (Table 21). It is then interesting to note that both Ikea and Axis are the two case companies with the most developed methods of becoming preferred customers to their suppliers, something which is discussed by Schiele (2015) as a keystone for effective innovation. To further support this notion, Trelleborg aims to achieve grey box ESI but seems to struggle in its aspiration due to low involvement and interest from their

suppliers. Additionally, it should be noted that both Ikea and Axis have a clear process for product development with distinct steps where different types of suppliers are invited to participate. Both case companies have a concept development phase where a set of trusted suppliers are invited to participate, followed by a type of initiation stage where a new set of suppliers are suitable for involvement. This is generally followed by the stage where additional suppliers are involved. None of the other case companies has displayed a clear methodology for ESI.

### Supplier innovation

When mapping the case companies in the supplier innovation matrix (Figure 23), Assa Abloy, Alfa Laval and Trelleborg all receives “new on the market” supplier innovations, while Ikea and Axis have more developed supplier innovation types. It likely goes hand in hand with the ESI type of the different case companies as well as its preferred customer status among its suppliers. A risk of mainly receiving “new to the market” innovation is that such companies will get access to new innovations at the same time as the rest of the market. That means it could be harder to be a first-mover in a new technology field as well as competing through unique technology. Additionally, if no joint motivation exists, the innovation would probably not be adapted to exclusively fit the buying firm.

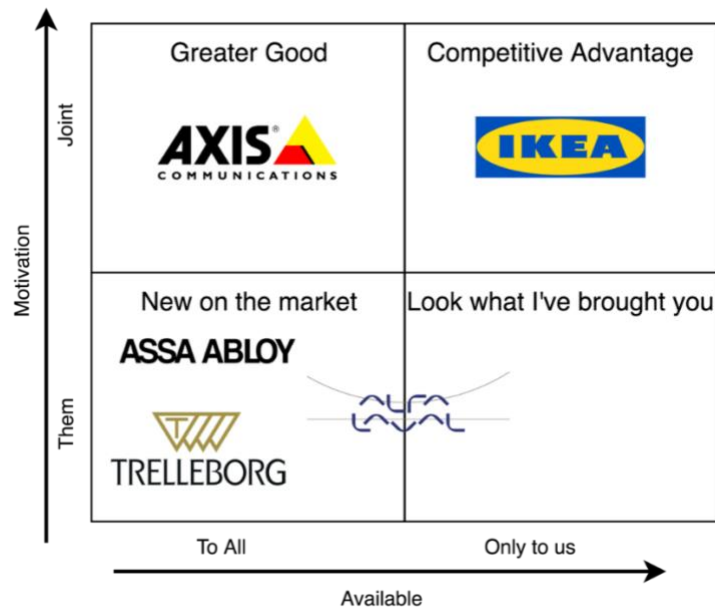


Figure 23: Case companies mapped in the “supplier innovation”-matrix. Adapted from O’Brien (2014)

Furthermore, it is important to acknowledge how some of the case companies unintentionally act preventatively towards supplier innovation, such as Assa Abloy, while others, especially Ikea, manages to encourage supplier innovation. As Assa Abloy struggles with early supplier innovation and preferred customer status while Ikea succeeds, it might indicate that it is important to consider the preventative and encouraging factors suggested by O’Brien (2014) (Table 8). And it is therefore probably important for companies interested in supplier innovation to recognize and analyze their actions and how suppliers perceive them.

## 6 Conclusions

---

*This chapter presents the key findings regarding each of the research questions, outlines the theoretical implications and discusses proposals for further research.*

---

### 6.1 Key Findings

#### Supplier Relationship Management

Companies' competitive benefits no longer lies purely in its in-house capabilities. This has been noticed through-out all of the case studies as all of the organizations have a low degree of vertical integration focusing on their core competencies with a large supporting network of suppliers. This is in line with Matthyssen and Van de Bulte (1994) who discuss that it is no longer possible to follow an antagonistic purchasing model as it only leads to short-term competitive advantages and no true competitive benefits.

The study revealed that there is a possible correlation between the size of the supply base and the development of an organization's SRM activities. This is probably due to smaller supply bases being more manageable, thus more resources can be spent on developing relationships and improving suppliers. The resources spent can instead be used where they make a difference and thus organizations will likely be able to realize greater yields. This agrees well with Krause and Ellram (1997) which state that buying firms who were most satisfied with the results of their supplier development initiatives were to a higher degree committed to invest in these activities.

A possible correlation between the level of refinement/value-add in the products that are purchased by an organization and the relative development of the SRM has also been identified. The case company which mainly purchases commodities also has the least developed SRM activities. Also, the company who purchases mostly high-end components has one of the most developed SRM initiatives. It is reasonable to argue that a higher level of refinement of purchased products leads to an increased likelihood that there is room for changes and innovation. Thus, leading to a larger potential gain/impact of SRM programs.

A similar correlation can be seen for decentralized versus centralized/centre-led purchasing organizations. Coordinating SRM efforts is likely to be easier the more centralized an organization's purchasing is. However, it not always a clear-cut case to have a more centre-led structure. Where there are few synergies in coordinating purchasing efforts, there are not the same potential benefits from a well-developed SRM initiative.

#### 6.1.1 What characteristics are important for strategic, preferred and approved suppliers?

The case study indicates that the pyramid segmentation model is the most common and applicable one. It seems to provide several benefits such as good representation of the supply base and providing an intuitive understanding of it. The study also shows that the weakness of the pyramid model is its failure to incorporate risk and the lack of a commercial strategic supplier segment, such as the strategic quadrant in the Kraljic matrix. Therefore, the Kraljic matrix is a useful complement to the pyramid model. Considering the strategic, preferred and approved/transactional supplier segments, some distinctive characteristics/criteria has been identified for each segment.

### Strategic

For suppliers in the strategic supplier segment, such characteristics include (1) a unique technology, innovation or capability which can strengthen the competitive edge, (2) a good strategic fit and (3) providing preferred customer status.

### Preferred

For suppliers in the preferred supplier segment, the characteristics include OTD, competitive prices, high quality, high service levels and high responsiveness.

### Approved

Regarding suppliers in the approved supplier segment, the criteria include compliance to code of conduct and meeting operational, commercial and legal requirements.

### Including the risk dimension into supplier segmentation

This study had as a delimitation omitted risk and effectiveness in its analysis of the case organizations' SRM. However, it was identified that pyramid segmentation model did not take risk into account. However, most of the case companies elevated the importance of understanding the supply risk when considering what activities should be done with their suppliers. As a segmentation model should be a clear model to clarify the importance of suppliers to purchasers it should reflect the true nature of the supply base. Considering this, the following model (Figure 24) has been conceptualized. It includes both innovation and commercially strategic suppliers as elevated in the key findings as well as a risk dimension for approved and preferred suppliers. The authors of this study believe that it can be an effective model for supplier segmentation but as it was out of scope for this study it has not been fully evaluated.



Figure 24: New proposed supplier segmentation model

### 6.1.2 How do companies within the engineered product industry work with Supplier Performance Management?

All the organizations involved in this case study measured their supplier by quality, OTD and to some extent compliance to the case companies code of conduct. Other KPI that were used by the case companies were generally in line with the nature of their business. However, the ways that the common KPI quality was measured varied. The unit used ranged from percentages, PPM to measuring it by the COPQ.

An aspect worth noting is that all organizations but one used their KPI's relatively homogeneously over their entire supply base with little variation in both which KPI's are used and the specific KPI requirements and targets each supplier is measured by. This is far from what O'Brien (2014) recommends in theory where different measurements and measurement approaches should be implemented depending on the strategic importance of the supplier.

The ways that suppliers were followed up varied significantly between the different case companies. Ranging from having annual review meeting to having weekly control meetings. This was in general perceived as practice routing from the nature of business/industry. The intensity of the relationships does not seem to have a correlation with level of partnership held.

### **6.1.3 How do companies within the engineered product industry work with supplier improvement and development?**

The study implies that the overall mindset in SI&D activities is reactive. The general pattern indicated that few companies engage in proactive activities. The reactive improvement and development approaches gave the impression that the suppliers who performed the worst got most of the purchasing department's attention. This consequently limits the resources that can be used on proactively improving suppliers. Most of the case companies only had proactive activities to a limited degree that hypostatized in the form of conferences and business reviews. The general consensus was that such activities were efficient tools to align suppliers and improve the sharing of knowledge. All the interviewed companies stated an ambition for a more proactive approach to their SI&D activities. However, it was worth noting that the perceived potential benefit varied with the type of suppliers and business the company worked with. The case company that saw the smallest benefit of developed supplier relationships was also the organization with the largest number of transactional suppliers and one of the largest supply bases.

The case company who worked with the most proactive mindset had the closest relationships with its suppliers. It also gave the impression of being more committed to invest in activities such as supplier evaluation, training and award programs and had a clear and standardized approach for its improvement and development activities. Additionally, the study indicates that the organizations with large supply bases were less committed to supplier engagement and involvement.

Direct supplier involvement was predominantly conducted to a limited extent with activities being done at a "need to do" basis. Only one of the interviewed case companies had a proactive approach where they regularly engaged with its suppliers.

### **6.1.4 How do companies within the engineered product industry work with supplier collaboration?**

The study shows that preferred customer status is important to develop feasible collaboration relationships with suppliers. It also shows that all companies work to achieve preferred customer status amongst their important suppliers. All companies engaged in some sort of volume pooling as an instrument to increase their buying power, however it does not always seem to be effective or efficient on its own. Companies who best managed to achieve preferred customer status paired volume pooling with additional tools or incentives, developed based on company specific competencies and abilities.

Furthermore, the case studies show that the companies mostly work with white box supplier innovation, which seems to be a consequence of undeveloped SRM programs and lack of resources. A probable success factor for grey box ESI, apart from overall alignment and integration SRM program/strategy in the organization, is having a clear ESI methodology with distinct process development phases and specific groups of suppliers related to the separate stages. Another finding from the case studies is that case companies mainly seek to collaborate with their strategic suppliers. Preferred and approved suppliers are generally not considered for collaboration relationships.

Additionally, it should be noted that the case companies that best managed to extract innovation value from their supply base met all or some of the conditions of the encouraging factors in O'Brien's (2014) supplier innovation model (Table 8) whilst companies which had a low level of supplier innovation rather met some of the preventative factors. Therefore, it seems like the encouraging factors are important in order to retrieve innovation from a company's supply base.

Furthermore, the study shows that most companies mainly receive "new to the market" innovations from their supply base, which probably goes hand-in-hand with the relatively undeveloped SRM programs and a large focus on in-house innovation. Thereof, few companies included in this case study had clear processes to capture supplier innovation.

## **6.2 Theoretical Implications**

This thesis attempts to widen the knowledge within the area of SRM through an elaborate mapping of how companies within the engineered product industry engage in SRM strategies and activities. SRM and purchasing in a more practical manner are relatively unexplored areas in academia. The thought leaders and drivers of development in the area of procurement are generally from the industry rather than academia. Even though a large amount on research on the area SRM exists it is primarily focused on theoretical aspects with little focus on practice. This study provides a stepping stone to decrease the gap between academia and industry.

Within the scope of this thesis' theoretical framework, the contribution to academia has been:

- Identification of additional methods of achieving preferred customer status.
- Clarification of the two main types of strategic suppliers: Innovation suppliers and commercially strategic suppliers.
- Indications that the type of products purchased and produced have a large impact on the scope of an organization's SRM activities.

## **6.3 Further Research**

To be able to generalize the findings of this thesis, further research has to be undertaken. Included in this chapter, five topics are presented which would benefit from additional exploration.

### **Preventative and Encouraging factors for supplier innovation – Case study**

The authors of this study believe it would be interesting to further research the preventative and encouraging factors for supplier innovations initially presented by O'Brien (2014). It would be interesting to perform a quantitative study on the impact of such factors on the ability to obtain supplier innovation. It would also be interesting to see if additional preventative or encouraging factors could be identified.

### **Proactive vs. reactive SRM activities**

The impact of proactive measurements on the performance of suppliers and the value extracted from the supply base was briefly touched upon in this thesis but could benefit from further research. What type of proactive measurements have the biggest impact? How much can be prevented through a proactive SRM approach? Can a proactive approach lead to better resource allocation to suppliers?



### **Supplier specific KPI requirements and targets**

Almost all the case companies in this study measured their suppliers homogenously using the same KPI's and KPI service levels and targets. Can tailored KPI levels become an efficient method to drive supplier development? Would it reflect the nature of relationship better? Can these tailored requirements decrease the need for unnecessary follow-ups and free up resources for a more proactive supplier improvement and development process?

### **Dynamics and size of supply bases steering SRM strategies**

In this study there is indication of correlation between small supply bases and well-developed SRM strategies. It would be interesting to research whether this relationship is correlative or causative, and if the latter is true, which one causes the other. Is it easier to manage and implement SRM strategies for a small supply base? Does a well-developed SRM strategy increase the organizational alignment and boost supply base reduction? Additionally, one of the findings indicated that the size of an SRM initiative correlates to the degree of refined products purchased. It would be interesting to perform a quantitative study and see if there is a verifiable relationship between the two occurrences.

## 7 References

- Alfa Laval, 2017a. *Annual Report*, Lund: Alfa Laval.
- Alfa Laval, 2017b. *Supplier Categorization [PowerPoint presentation]*, Lund: Alfa Laval.
- Alfa Laval, 2017c. *Alfa Laval Supplier Presentation*, Lund: Alfa Laval.
- Anderson, J., 1999. *Business Market Management: Understanding, Creating and Delivering Value*. New Jersey: Prentice Hall.
- Assa Abloy, 2016. *Supplier Segmentation Diamond Model*, Stockholm: Assa Abloy.
- Assa Abloy, 2017a. *Annual Report 2016*, Stockholm: Assa Abloy.
- Assa Abloy, 2017b. *ASSA ABLOY External Presentaion [PowerPoint Presentation]*, Landskrona: Assa Abloy.
- Axis Communications AB, 2017. *2017 Annual & sustainability report*, s.l.: s.n.
- Azadegan, A. & Dooley, K., 2008. Supplier innovativeness and the role of interorganizational learning in enhancing manufacturer capabilities. *Journal of Supply Chain Management* , 44(4), pp. 14-35.
- Bechara, J. & Van de Ven, A., 2011. Triangulating philosophies of science to understand complex organizational and managerial problems. *Research in the Sociology of Organizations*, Volume 32, pp. 343-364.
- Bovet, D. & Sheffi, Y., 1998. The brave new world of supply chain management. *Supply Chain Management Review*, Volume 2, pp. 14-22.
- Campbell, N. & Cunningham, M., 1983. Customer analysis for strategy development in industrial markets. *Strategic Management Journal*, Volume 1, pp. 360-380.
- Chen, C.-T., Lin, C.-T. & Huang, S.-F., 2006. A fuzzy approach for supplier evaluation and selection in supply chain magement. *Int. J. Production Economics*, pp. 289-301.
- Chesbrough, H. W., 2003. The Era of Open Innovation. *MIT Sloan Management Review*, Issue Spring, pp. 35-41.
- Chopra, S. & Sodhi, M., 2014. Reducing the risk of supply chain disruptions. *MIT Sloan Management Review*, 55(3), pp. 73-80.
- Cousins, P. D., Lawson, B. & Squire, B., 2008. Performance measurement in strategic buyer-supplier relationships : The mediating role of socialization mechanisms. *International Journal of Operations & Production Management*, 22 February, 28(3), pp. 238-258.
- Cox, A., Lonsdale, C., Watson, G. & Qiao, H., 2003. Supplier relationship management: a framework for understanding managerial capacity and constraints. *European Business Journal*, 15(3), pp. 135-145.
- Cox, A., Lonsdale, C., Watson, G. & Wu, Y., 2005. Supplier relationship management as an investment: evidence from a UK study.. *Journal of General Management*,, 30(4), pp. 27-42.
- Denscombe, M., 2010. *The Good Reasearch Guide: for small-scale social reasearch projects*. Maidenhead: McGraw-Hill Education.
- Duclos, L. K., Vokurka, R. J. & Lummus, R. R., 2003. A conceptual model of supply chain flexibility. *Industrial Management & Data Systems*, pp. 446-456.
- Eisenhardt, K. M., 1989. Building Theories from Case Study Research. *Academy of Management Review*, 14(4), pp. 532-550.

- Ellram, L. & Hendrick, T., 1995. Partnering characteristics: A dyadic perspective. *Journal of business logistics* , 16(1), pp. 42- 64 .
- Ellram, L. M., 1990. The Supplier Selection Decision in Strategic Partnerships. *Journal of Purchasing and Materials Management*, 20(4), pp. 8-14.
- Ellram, L. M., 1996. The use of the Case Study Method in Logistics Research. *Journal of Business Logistics*, 17(2), pp. 93-138.
- Frazier, G. L. & Antia, K. D., 1995. Exchange Relationships and Interfirm Power in Channels of Distribution. *Journal of the Academy of Marketing Science*, 23(4), pp. 321-326.
- Gadde, L.-E. & Snehota, I., 2000. Making the most of supplier relationships. *Industrial Marketing Management*, Volume 29, pp. 305-316.
- Ghauri, P. & Grønhaug, K., 2002. *Research Methods in Business Studies*. Essex: Financial Times/Prentice Hall.
- Gordon, S. R., 2008. *Supplier Evaluation and Performance Excellence: A Guide to Meaningful Metrics and Successful Results*. Fort Lauderdale: J. Ross Publishing.
- Gunday, G., Ulusoy, G., Kilic, K. & Alpkan, L., 2011. Effects of innovation types on firm performance. *International Journal of Production Economics* , 133(2), pp. 662-676.
- Hahn, C. K., Watts, C. A. & Kim, K. Y., 1997. The Supplier Development Program: A Conceptual Model. *Journal of Purchasing and Materials Management*, 26(2), pp. 1-7.
- Halley, A. & Nollet, J. ', 2002. The Supply Chain: The Weak Link for some preferred suppliers. *The Journal of Supply Chain Management*, 38(2), pp. 39-47.
- Hallikas, J., Puumalainen, K., Vesterinen, T. & Virolainen, V.-M., 2005. Risk-based classification of supplier relationships. *Journal of Purchasing & Supply Management* 11, pp. 75-82.
- Höst, M., Regnell, B. & Runeson, P., 2006. *Att genomföra examensarbete*. Lund: Studentlitteratur.
- Ho, W., Dey, P. K. & Bhattacharya, A., 2015. Strategic supplier selection using multi-stakeholder and multi-perspective approaches. *International Journal of Production Economics* , 166(3), pp. 152-154.
- Hult, G., Hurley, R. & Knight, G., 2004. Innovativeness: its antecedents and impact on business performance. *Ind. Mark Manag*, 33(5), pp. 429-438.
- Ikea Group, 2017. *Yearly Summary FY16*, Älmhult: Ingka Holding B.V..
- Ikea, 2013. *IKEA Supplier Portal*. [Online]  
Available at: <http://supplierportal.ikea.com>  
[Accessed 11 04 2018].
- Ikea, 2017. *Purchasing & Logistics [PowerPoint presentation]*, Älmhult: Ikea.
- International Organization for Standardization, 2017. *ISO 44001:2017*. [Online]  
Available at: <https://www.iso.org/standard/72798.html>  
[Accessed 20 02 2018].
- Joshi, A., 2009. Continuous Supplier Performance Improvement: Effects of Collaborative Communication and Control. *Journal of Marketing* , 73(1), pp. 133-150.
- Kennedy, M., 1976. Generalizing from a single case studie.. *Evaluation Quarterly*, Volume 3, pp. 661-668.

- Klioutch, I. & Leker, J., 2011. Supplier involvement in customer new product development. *International Journal of Innovation*, 15(1), pp. 231-248.
- Kluge, J., 1996. *Simply Superior Sourcing*. Eindhoven, 5th Annual IPSERA Conference .
- Kovács, G. & Spens, K. M., 2005. Abductive Reasoning in Logistics Research. *International Journal of Physical Distribution & Logistics Management*, 35(2), pp. 132-144.
- Kraljic, P., 1983. Purchasing must become supply management. *Harvard Business Review*, pp. 109-117.
- Krause, D. R., 1997. Supplier Development: Current Practices and Outcomes. *International Journal of Purchasing and Materials Management*, April, pp. 12-19.
- Krause, D. R. & Ellram, L. M., 1997. Success factors in supplier development. *International Journal of Physical Distribution & Logistics Management*, 27(1), pp. 39-52.
- Krause, D. R., Handfield, R. B. & Scannell, T. V., 1998. An empirical investigation of supplier development: reactive and strategic processes. *Journal of Operations Management* 17, pp. 39-58.
- Lambert, D. M., 2008 . *An Executive Summary of Supply Chain Management: Processes, Partnerships, Performance*. Sarasota, FL : Supply Chain Management Institute.
- Lii, P. & Kuo, F., 2016. Innovation-oriented supply chain integration for combined competitiveness and firm performance. *International Journal of Production Economics* , Volume 174, pp. 142-155.
- Liker, J. & Choi, T., 2004. Building Deep Supplier Relationships. *Harvard Business Review*, 82(12), pp. 104-113.
- Lynch, R. & Rogers, S., 2007. *Capturing innovation from suppliers*. Las Vegas , 92nd Annual International Supply Management Conference.
- Matthyssens, P. & Van de Bulte, C., 1994. Getting Closer and Nicer: Partnerships in the Supply Chain. *Long Range Planning* , 27(1), pp. 72-83.
- Moeller, S., Fassnacht, M. & Klose, S., 2006. A Framework for Supplier Relationship Management (SRM). *Journal of Business-to-Business Marketing*, 13(4), pp. 69-94.
- Monczka, R., Trent, R. & Callhan, T., 1993. Supply Base Strategies to Maximize Supplier Performance. *International Journal of Physical Distribution & Logistics Management*, 23(4), pp. 42-54.
- Moser, R., 2006. *Strategic Purchasing and Supply Management: A Strategy-Based Selection of Suppliers*. 1st ed. Frankfurt/Main : Deutscher Universitäts-Verlag.
- Neely, A. D., Gregory, M. & Platts, K., 1995. Performance measurement system design: A literature review and research agenda. *International Journal of Operations & Product Management*, 15(4), pp. 80-116.
- Nguyen, H. V., Nguyen, H. T., Deligonul, S. & Cavusgil, S. T., 2017. Developing visibility to mitigate supplier risk: the role of power-dependence structure. *Asia-Pacific Journal of Business Administration*, 9(1), pp. 69-82.
- O'Brien, J., 2014. *Supplier Relationship Management: Unlocking the hidden value in your supply base*. First ed. London: Kogan Page .
- Park, J., Shin, K., Chang, T.-W. & Park, J., 2009. An integrative framework for supplier relationship management. *Industrial Management & Data Systems*, 3 December, 110(4), pp. 495-515.
- Prahinski, C. & Benton, W., 2004. Supplier evaluations: communication strategies to improve supplier performance. *Journal of Operations Management*, Volume 22, pp. 39-62.

- Ragatz, G., Handfield, R. & Petersen, K., 2005. Supplier integration into new product development: coordinating product, process and supply chain design. *Journal of Operations Management*, Volume 23, pp. 371-388.
- Ragatz, G. L., Handfield, R. B. & Scannell, T. V., 1997. Success factors for integrating suppliers into product development. *Journal of Product Innovation Management*, 14(3), pp. 120-190.
- Rice, J. & Caniato, F., 2003. Building a Secure And Resilient Network. *Supply Chain Management Review*, 7(5), pp. 22-30.
- Roberts, E., 2001. Benchmarking Global Strategic Management of Technology. *Research Technology Management*, 44(2), pp. 25-36.
- Rowley, J. & Slack, F., 2004. Conducting a Literature Review. *Management Research News*, 27(6), pp. 31-39.
- Saunders, M. & Tosey, P., 2013. *The Layers of Research Design*, s.l.: The Association for NLP.
- Schiele, H., 2015. Accessing Supplier Innovation By Being Their Preferred Customer. *Research-Technology Management*, 28 December, 55(1), pp. 44-50.
- Schiele, H., Hüttinger, L. & Veldman, J., 2012. The drivers of customer attractiveness, supplier satisfaction and preferred customer status: A literature review. *Industrial Marketing Management*, November, 41(8), pp. 1194-1205.
- Schuh, C., Strommer, M. F. E. S., Hales, M. & Triplat, A., 2014. *Supplier Relationship Management: How to maximize supplier value and opportunity*. 1st ed. New York: Springer Science & Business Media .
- Steinle, C. & Schiele, H., 2008. Limits to global sourcing? Strategic consequences of dependency on international suppliers: Cluster theory, resource-based view and case studies. *Journal of Purchasing & Supply Management*, Volume 14, pp. 3-14.
- Trelleborg, 2018a. *2017 Sales By Business Area*, Trelleborg: Trelleborg.
- Trelleborg, 2018b. *2017 Annual Report*, Trelleborg: Trelleborg.
- Trelleborg, 2018c. *Kraljic Segmentation*, Trelleborg: Trelleborg.
- van Weele, A. J., 2014. Purchasing and Supply Chain Management. In: Hampshire: Cengage Learning.
- Wilson, D., 1995. An Integrated Model of Buyer-Seller Relationships. *Journal of the Academy of Marketing Science*, Volume 23, pp. 335-245.
- Yin, R. K., 1994. *Case Study Research: Design and Methods*. Thousand Oaks: SAGE Publications.

## 8 Appendix

### 8.1 Appendix 1 – Data Collection Plan

*Each interview is started with casual greetings and an explanation of who we are and what the study is about.*

*After this step has been done the following questions will be presented in order and answered.*

*All interviews are recorded and summarized.*

*The interview candidate will receive a copy of the interview guide before the interview.*

*The candidates will be shown the models used in this thesis for homogenization of the answers.*

#### 8.1.1 Procurement organization

How is your procurement organization structured?

- Do the different business units collaborate by coordinating the purchases together?

Describe briefly your company's procurement strategy.

What is your organizations outsourcing strategy?

What share of the COGS is Purchasing?

What major procurement challenges do you face?

How do you rate your procurement practices compared to the competition?

#### 8.1.2 Suppliers

Describe your supply base.

How do you work with different suppliers and what regular interactions/activities do you partake in?

- Is there a correlation between the complexity of a product and the degree of interaction with a supplier?
- What time perspective do you have with different suppliers? Short term vs. Long term? Why?
- With whom have you had the longest relationship with and why?

Are you in general a high or low volume customer for your supplier?

#### 8.1.3 Segmentation

Do you work with supplier segmentation?

- What strategy and goals do you follow?
- How do you work with categorizing suppliers?

What defines the different segments that you differentiate your suppliers into?

What criteria do you follow when deciding which suppliers belong to which segments?

What is the distribution between the different segments?

---

**For the remaining interview questions, have your segmentation model in mind and answer the questions with regards to the different supplier segments.**

---

#### 8.1.4 Performance

What KPI's do you use to measure the performance of your suppliers?

- Qualitative/Quantitative

How often do you follow up on your supplier performance?

How do you follow-up on your supplier performance?

Do you measure suppliers differently?

Do you share performance results with the supplier?

How do you develop your performance measurements?

What do you feel is generally most important for a supplier relationship to work out?

### **8.1.5 Improvement & Development**

How do you work with improving and developing suppliers?

- What regular interactions do you have with suppliers? (Review/Performance meetings, conferences etc.)
- What interaction yields the highest results?

How do your SI&D interactions vary with the different supplier segments/categories?

What is the purpose of supplier improvement and development?

What actions/tools do you deploy to improve or develop a supplier?

- How efficient are these actions?
- Are there any actions that work better than others?
- Do you reward/punish suppliers if demands are surpassed or not met?
- Do you work with a proactive approach or is it more reactive?

### **8.1.6 Collaboration & Innovation**

Collaboration in the product development stage

Do you involve suppliers in the product development?

- Which suppliers?
- How do you find suppliers to collaborate with and how do you ensure that they are a good fit?
- How do you cooperate with them? (Practical and the purpose)
- How early?
- What are the pros and cons?

Do you use residential engineering?

- If yes, why?
- Is it a mutual exchange or is it one-way only?

Do you have any examples of innovations developed with a supplier?

Other collaborations

What reasons do you have for collaborating with your suppliers?

Do you have other collaborations with suppliers?

- What characterizes these suppliers? E.g. High risk & business critical suppliers
- Which suppliers?
- How do you cooperate with them? (Practical and purpose)

Do you work proactively with becoming a preferred customer?

- If yes, what activities and interactions?

What enables/prohibits you from being a preferred customer?

How do you manage collaboration relationships on an organizational level?

- Are you transparent towards your suppliers?
- If yes, how do you work with coordination and communication to ensure transparency?

Are personal relationships important when maintaining a supplier relationship? Why?

How do you manage collaboration relationships on an individual level?

- What roles are typically involved in a collaboration relationship?

### **8.1.7 Final Questions**

Describe from your experiences what activities maximize value creation in a supplier relationship?

How would you improve the SRM-related activities you perform today?

How do you ensure that your procurement organization maintains a competitive edge?

Do you have anything to add?



## 8.2 Appendix 2 - Case information sources

### 8.2.1 Alfa Laval

#### Interviewees

*Category Manager – 23/3/18*

*Project & Process Lead – 12/3/18*

*Vice President of Operations – Global Sourcing – 15/3/18*

*Unit Manager Source – 21/3/18*

*Sourcing Manager China – 28/3/18*

#### Documents

*Annual Report 2016*

*Alfa Laval Strategic Supplier Program 2017 [PowerPoint presentation]*

*Alfa Laval supplier presentation 2017 [PowerPoint presentation]*

*Supplier Categorization [PowerPoint presentation]*

*Strategic Supplier Program Presentation 2017-08 [PowerPoint presentation]*

*Roles, Responsibilities and Guidelines for Supplier Responsibility Delegation [PowerPoint presentation]*

#### Websites

<https://www.alfalaval.com/about-us/about-us/our-company/>

### 8.2.2 Axis

#### Interviewees

*Sourcing Manager – 20/4/18*

#### Documents

*Annual Report 2017*

*Axis Commodity Management Process [Internal Document]*

*Org. Operations Axis [PowerPoint presentation]*

*Supplier Categorization [Internal Document]*

#### Websites

<https://www.axis.com/en-ie/about-axis>

### 8.2.3 Assa Abloy

#### Interviewees

*Sourcing Manager – 12/4/18*

#### Documents

*Annual Report 2016*

*Assa Abloy – External Presentation [PowerPoint presentation]*

*Supplier Segmentation Diamond Model [PowerPoint presentation]*

#### Websites

<https://www.assaabloy.com/en/com/about-us/>

### 8.2.4 Trelleborg

#### Interviewees

*Vice President Purchasing – 23/4/18*

#### Documents

*Annual Report 2017*

*2017 Sales by Business Area [PowerPoint presentation]*

*Core Purchasing Principles [Internal Document]*

*Kraljic Segmentation [PowerPoint presentation]*

*Supplier Performance Assessment [Excel]*

**Websites**

<http://www.trelleborg.com/en/about--us/>

**8.2.5 Ikea**

**Interviewees**

*Business Developer – 11/4/18*

*Sourcing Development Manager – 11/4/18*

**Documents**

*Annual Report 2016*

*Quality Compliance Standard GO - NOGO [Internal Document]*

*IWAY Standard – [Internal Document]*

*Purchasing & Logistics [PowerPoint presentation]*

*Presentation About Purchasing Ikea [PowerPoint presentation]*

**Websites**

<http://supplierportal.ikea.com/Pages/default.aspx>

[https://www.ikea.com/ms/en\\_ID/this-is-ikea/about-the-ikea-group/index.html](https://www.ikea.com/ms/en_ID/this-is-ikea/about-the-ikea-group/index.html)