

Assessing critical success factors (CSFs) for a supplier in a relationship- driven B2B-market

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and Management**

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Abstract

It is necessary for firms to consider and understand sales and buying processes to improve relationship initiation and accommodate the buyers and end-customers. Relationships within the supply chain enable firms to access beneficial abilities to overcome challenges and complexities of new products, shrinking time to market, capital intensities and thus meeting competitive challenges. Developing strategic partnerships with key supply chain actors is an emerging trend in supply chain management. Firms are seen as complex nodes in interdependent supply chain networks where competitive advantages are met by collaboration and co-creation in the business environment.

The aim of this study is to investigate the problem areas and assess the critical success factors for a supplier within a relation driven B2B three-tier supply chain network by adopting an abductive, theory-building methodology using qualitative case studies, using the case company as a focal firm. Two different three-tier supply chains are investigated within the focal company with an end-customer, a buyer and a supplier in each supply chain structure.

The study offered us four dominant themes common to all findings. These are structural power within the supply chain network, relationship stability with the end-customer, market knowledge and structural network position. In our discussion, we looked for common denominators to frame our propositions. We organized the propositions in each of the four key themes that emerged from the findings. We then incorporated literature at this stage to compare and contrast our findings, essentially using the literature study as an additional source of validation.

The main theoretical contributions of this research involve targeting a new area of importance in the crossroads of supply chain management, customer relationship management and knowledge management, and identifying four critical success factors in a market entry on a relationship-driven industrial B2B market

Key-words: *Supply Chain Management, Customer Relationship Management, Disintermediation, Network Management, Buyer-Supplier Power, Strategic Management, Procurement*

Sammanfattning

Syftet med denna studie är att undersöka problemområden och bedöma de kritiska framgångsfaktorerna som är relaterade till ett marknadsinträde för en relationsdriven B2B marknad sett från en leverantörs perspektiv i värdekedjan. Genom att använda sig av en abduktiv metod och tre separata fallstudier, med hjälp av Atlas Copco som en samlingspunkt för datainsamling där dokument, intervjuer och besök är de primära kvalitativa datainsamlingsmetoderna som använts.

Fallstudierna gjordes för tre olika fall med en leverantörskedja bestående av tre aktörer: en leverantör (Atlas Copco), en intermediär och en slutkund. Två av dessa fallstudier gjordes för den central Europeiska marknaden och en för den Nord Amerikanska marknaden. Fallstudien bestod främst av två steg. I det först steget samlades kvalitativ data in genom semistrukturerade och strukturerade intervjuer. Resultaten presenterades därefter i en tabell med två kategorier: identifierade problemområden i samband med ett inträde på den central europeiskamarknaden marknaden och konkurrensfördelar i relation till dess konkurrenter. I den andra delen av studien relaterades resultaten till litteratur för att identifiera de kritiska framgångsfaktorerna som är relaterade till ett marknadsinträde för en relationsdriven B2B marknad sett från en leverantörs perspektiv i värdekedjan.

Resultat av studien pekar på fem problemområden relaterade till ett marknadsinträde för en relationsdriven B2B marknad sett från en leverantörs perspektiv i värdekedjan: dålig relation med slutkunden, makt obalans mellan parterna i värdekedjan, underskott av kanaler för informationsutbyte med slutkunden och intermediär, låg kund-kännedom och otillräckliga mänskliga resurser.

Med stöd av litteratur och fallstudierna definierades de kritiska framgångsfaktorerna som är relaterade till ett marknadsinträde för en relationsdriven B2B marknad sett från en leverantörs perspektiv i värdekedjan som fem olika propositioner i studien. Proposition tre syftar till att leverantören bör lägga ett större fokus till slutkunden och jobba med relations stimulerande processer med denne och ha ett mindre fokus på intermediär. Den fjärde och femte propositionen syftar till förståelsen av slutkundens preferenser och efterfrågan för produkten och tjänsten. Genom att bygga upp en mer solid infrastruktur för relations skapande processer och informationsutbyte parterna emellan skapas de bästa förutsättningarna för att på ett framgångsrikt kunna göra ett marknadsinträde med det bästa värdeerbjudandet för kunden. Dessa kritiska faktorer sammanfattas i ett ramverk som kallas för "*four factor framework*" med fyra faktorer som påverkar ett marknadsinträde med de karakteristiska drag som fallstudien hade. De fyra faktorerna i ramverken är: marknads relationer, värdekedjans struktur, marknadskännedom och maktfördelningen.

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List of figures

Figure 1: :Supply chain and its characteristics	13
Figure 2: The supply chain and its dimensions	14
Figure 3: Difference between a traditional and service oriented supply chain	15
Figure 4: An example of a single level bidirectional service supply chain	15
Figure 5: An example of a two level bidirectional service supply chain.....	16
Figure 6: Open triad	18
Figure 7: Transitional triad	19
Figure 8: Closed triad	20
Figure 9: Aspects to consider in CRM.....	27
Figure 10: Methodological approach	31
Figure 11: Interconnections of different phases of the study.....	32
Figure 12: Research design.....	35
Figure 13: Service customer segments.....	47
Figure 14: Service offering for each segment	48
Figure 15: Modular service offering.....	49
Figure 16: Sales and communication channels between Atlas Copco and the powertrain producer	50
Figure 17: Business flow and relations between Atlas Copco, MTB's and the powertrain producer	52
Figure 18: Example of a cross border business process (Key account manager Daimler, Relation till MTB's i central europa 2016).....	54
Figure 19: Atlas Copco position in supply chain	55
Figure 20: Buyer-supplier power distribution downstream within the supply chain.	67
Figure 21: Buyer supplier power in first stage of sales process.	68
Figure 22: Buyer supplier power in second stage of sales process when MTB is decided.....	68
Figure 23: Mapping of current flow of information.....	70
Figure 24: Expected engine production in Europe for Daimler	72
Figure 25: Expected transmission production in Europe for Daimler	73
Figure 26: Expected transmission and engine production in Asia for Daimler.....	74
Figure 27: New infrasctrucutre for flow of information.	86
Figure 28: Framework uncovering the critical success factors in a market entry in a strategic, operational and functional level	
Figure 29: Four factor framework.....	89

List of tables

Table 1: Search terms	37
Table 2: Search strings.....	38
Table 3: Data Collection methods.....	40
Table 4: List of the most dominant players on the MTB market.....	56
Table 5: Findings.....	58
Table 6: Expected engine and transmission production by model	75
Table 7: First tier suppliers, partners or companies owned by Daimler	77

List of charts

Chart 1: Expected engine production by model	75
Chart 2: Expected unit output per plant for engine	76
Chart 3: Expected transmission production by model	76
Chart 4: Expected unit output per plant for transmission	77

Table of content

1	Introduction	9
1.1	Background and Problematization	9
1.2	Purpose	10
1.2.1	Research question.....	10
1.3	Thesis Outline.....	11
1.4	Delimitation.....	12
2	Literature review	13
2.1	Supply chain management	13
2.1.1	Differences between services and products seen from a supply chain perspective	14
2.2	The procurement, auction and purchasing process	16
2.3	Multi-Tier Supply Chain Management	16
2.3.1	Complexity of Multi-Tier Supply Chain Research	17
2.3.2	Structural arrangement - Supplier-Buyer-Customer Relationships	18
2.4	Cooperative Strategy in supply chain networks	21
2.5	Network organization theory	21
2.5.1	Social Network	21
2.5.2	Resource dependency theory	21
2.6	Network management and strategy	22
2.6.1	Network management	22
2.6.2	Relational view.....	22
2.6.3	The contexts of supply chain networks.....	23
2.7	Customer relations, business links and networks within the supply chain	24
2.8	The flow of information and knowledge within the supply chain.....	25
2.9	Customer relationship and knowledge management	26
2.9.1	Advantages and Disadvantages	26
2.9.2	Success factors.....	27
2.9.3	The components of customer relationship management.....	27
3	Methodology	30
3.1	Chosen Methodology	30
3.2	Research Design	32
3.2.1	Phase 1.....	32
3.2.2	Phase 2 & 3	33
3.3	Search methodology	36
3.4	Methods used to collect data.....	39
3.4.1	Interviews	40
3.4.2	Site Visits.....	41
3.4.3	Documentation	41
3.4.4	Ethics.....	41
3.5	Quality of analysis	42
4	The case condition.....	43
4.1	Atlas Copco.....	43
4.2	Product Offering.....	43
4.2.1	Tensor Electrical Tools	43
4.2.2	Power Focus 4000.....	44
4.2.3	Power MACS 4000	44
4.2.4	Power Focus 6000.....	45
4.2.5	Core Competences from a product perspective	46
4.3	Service offering	47

4.3.1	Service segments	47
4.3.2	Service offering based on segment.....	47
4.3.3	The modular service offering and optimization modules	48
4.3.4	Competitive advantages and improvements of services	49
4.4	Sales channels and relations with MTBs and powertrain producers	49
4.5	The business flow and interconnection between the MTB, Atlas Copco and the final customer for the central European market.....	50
4.5.1	The sales process on the North American market.....	52
4.5.2	Cross border sales.....	53
4.6	An overview of the supply chain	54
4.7	Machine tool builders	55
4.7.1	Introduction	55
4.7.2	The machine tool builder market.....	56
5	Findings and Analysis.....	58
5.1	Machine Tool Builder (MTB) demands.....	59
5.1.1	Selection Criteria in the selection process of fastening equipment	60
5.2	Identified Problem Areas	60
5.3	Relations within the supply chain network	62
5.3.1	The relationship process between Atlas Copco and MTBs on the central European Market	63
5.3.2	The current relationship and business links between Atlas Copco and the MTBs that operate on the central European market	64
5.3.3	The relationship and business links between Atlas Copco in Central Europe and end-users	64
5.3.4	The relationship and business links between Atlas Copco and the end-customer within the North American market	65
5.4	Buyer supplier power between actors within the supply chain downstream on the central European market.....	66
5.5	The power distribution before an intermediate is determined by the end-customer.....	67
5.6	The power distribution after an intermediate is determined by the end-customer.....	68
5.7	Flow of information about the product and services, from and for the customer	68
5.8	Market knowledge	70
5.9	Summary of problem areas for a supplier within a three-tier supply chain network in a relationship-driven B2B market (RQ1)	71
5.10	Location and quantity of future expected engine and transmission production for Daimler..	72
5.10.1	Expected engine production in Europe for Daimler	72
5.10.2	Expected transmission production in Europe for Daimler.....	73
5.10.3	Expected engine and gearbox production in Eastern Asia	74
5.10.4	Expected engine and transmission production by model	75
5.10.5	Identified first tier PT suppliers to Daimler	77
6	Discussion	78
6.1	Multi-tier Supply Chain structure.....	78
6.2	Power Within the Supply Chain Network.....	80
6.3	Establishment of relationship enhancing processes	81
6.4	Have a deep understating of future demands	84
6.5	Customer and Market Knowledge	85
6.6	Four Factor Framework.....	87
6.6.1	Constrains	87
6.6.2	Four factor framework.....	87
6.6.3	The four critical success factors	90
7	Conclusion	92

7.1	Conceptual Contributions, Managerial Implications and Future Research.....	93
7.2	Sustainability	94
8	References	95
	Appendix 1	99

1 Introduction

The introduction provides a background of Atlas Copco and the powertrain producer market, problematization, preliminary purpose, and preliminary research questions, delimitation and expected contribution of the research.

1.1 Background and Problematization

Since the emergence of globalization and cooperation across borders, companies have shifted their strategies to cover more inter-firm spanning activities, rather than optimizing interior processes (Buhman, Kekre, & Singhal, 2005; Chen & Paulraj, 2004). Outsourcing products and services have created complex and fragmented multi-tier supply chains (MSCs) (Harland, Knight, Lamming, & Walker, 2005). In operational management and supply chain management, the main focus today is on achieving competitive advantage by creating relationships and information-sharing routines with the supply chain network. Because the supply chain network is complex, it is difficult to create homogenous action plans to achieve competitive advantage, since the nature of supply chain networks are complicated and each relationship within the supply chain structure has a unique context. Therefore, companies must examine the characteristics and environment of the supply chain structure before constructing strategies. As firms within the supply chain network are tied to each other, these firms share mutual relationships and activities including, power, specific investment, transactional behaviour and resources and therefore relationships between the network level are interdependent (Cox, 2001; Cox, 2004; Cox, Ireland, Lonsdale, Sanderson, & Watson, 2002; Ritter, Wilkinson, & Johnston, 2004).

It is necessary for firms to consider and understand sales and buying processes to improve relationship initiation and accommodate the buyers and end-customers (Rackham & DeVincentis, 1999). Relationships within the supply chain enable firms to access complementary abilities to overcome challenges and complexities of new products, shrinking time to market, capital intensities and thus meeting competitive challenges (Scott, 2000). Developing strategic partnerships with key supply chain actors is an emerging trend in supply chain management. Firms are seen as complex nodes in complex interdependent supply chain networks where competitive advantages are met by collaboration and co-creation in the business environment (Allee, 2003). However, there are various of factors and reasons for the lack of collaboration within supply chain networks. Previous studies indicate the imbalance in power between actors within the network, which is an influencing factor. Cox (2007) argued that power is one of the main factors that determines the success rate in many business transactions while McDonald (1999) posed that power within supply chain relationships may harm and mitigate and effective collaboration. Effective relationships and collaborations could only be developed when there is a balance of power between the actors (Van Weele and Rozemeijer, 1999). Stannack (1996) argued that studies in where power has been analysed e.g. buyer-supplier relationships, are too limited that it can not explain multiple interactions i.e. in MSC networks. Interactions and relationships within supply chain networks should therefore considered as power is regarded to be socially imbedded. Zolkiewski (2001) suggested that power within supply chains networks is a central force and therefore affects the relationship dynamics between the actors and the struggle for control over the resources and position within the supply chain. Cendon and Jarvenpaa (2001) explained the important role of power within networks considering the terms of impact on its choices, governance structure, relative dependence between actors and activities performed within the network. However, the dyadic framework fails to consider firms as nodes in complex multi-tier supply chain structures Choi and Wu (2009), and Pilbeam et al. (2012) have found that power in supply chain networks has not been studied in a wide range to explain the nature of relationship types between supply chain network actors.

This research area within supply chain management provides links between the synergies involved in the co-creation of value, the business performance and the relationship and power dynamics of each actor within the supply chain network. The purpose of this research is to build on existing body of knowledge and fill the gap by studying the influence of relationship and power for supplier organizations within three-tier supply chains. More specifically, this study will empirically evaluate relationship and power dynamics in multi-tier supply chains and the impact of relationship activities on business performance and effectiveness along a continuum from strategic to operational and to functional level.

As the studied phenomenon is related to a whole industry (powertrain producer market) the problem can be seen as a problem conducted within the *industry level* and not at a lower level due to its absence in relating itself to a specific function or individuals. However, it is important to remember that the result of the study will affect the *functional-, individual and organizational level*. This due to the increased knowledge of the powertrain producer market that Atlas Copco will acquire. The three level model is explained in *Method for engineering students: degree projects using the 4-phase model* by (Blomkvist & Hallin, 2015).

1.2 Purpose

The purpose of the research is to identify problem areas and critical success factors for a supplier organization within within a three-tier supply chain network in a relationship-driven B2B market. The purpose of the study is stated as:

How can a well-established supplier organization within a three-tier supply chain increase its market share and growth within the central European powertrain producer market?

The thesis develops critical success factors on how the supplier should act within a three-tier supply chain to increase its market share within the central European powertrain producer market.

1.2.1 Research question

The purpose of the research is achieved by analyzing and answering the following questions:

RQ1 – *What are the identified problem areas for a supplier within a three-tier supply chain network in a relationship-driven B2B market?*

RQ2 – *What critical success factors (CSFs) should be considered for a within a three-tier supply chain network in a relationship-driven B2B market?*

The questions were generated by using the research question generating model by Collins & Hussey on page 104 (Collis & Hussey, 2014).

1.3 Thesis Outline

Chapter 1 Introduction - The introduction provides a background of Atlas Copco and the powertrain producer market, problematization, preliminary purpose, and preliminary research questions, delimitation and expected contribution of the research.

Chapter 2 Literature review - The purpose of the literature review is to provide an understanding of the relations and power dynamics within a supply chain network context to answer RQ2 and to fill the gaps identified within the existing body of knowledge. This literature review chapter introduces and provide an understanding of supply chain management to further explain contexts of supply chain network in detail scoping on multi-tier supply chain networks. Following the context of supply chain networks, network organization theory is incorporated in the literature review to give an understanding of how to develop a strategy in a network environment, focusing on Relational View and Resource Dependence Theory. The literature review ends with giving a theoretical understanding of relations within the field of Knowledge Management (KM) and Customer Relationship Management (CRM) in a supply chain context.

Chapter 3 Methodology - The methodology chapter introduces and provide understanding for the methodology and methods used in the study. It explains how the research is design and how the work process is conducted through ought the study. The research methodology is then explained in detail followed by the methods used to gather data for every specific question. The chapter ends with the quality of the analysis.

Chapter 4 Case conditions - The chapter gives the reader a brief introduction of the studied firm and the central European Powertrain producer market mostly to grasp an understanding of the value chain, supply chain network dynamics, procurement processes and the Machine Tool Builder (MTB) market which contributes and facilitates the answering of RQ1 and RQ2. The chapter begins with a brief introduction of the case company's product and service offering, followed by a description of the case company's current sales channel(s), sales process, cross country sales process, a mapping of the current supply chain and a brief description of the MTB market.

Chapter 5 Findings and Analysis - The main purpose of this part of the study is to present the findings of the study and answer RQ1. First a table with an overview of the main findings is illustrated followed by each identified problem areas for a supplier within a three-tier supply chain network in a relationship-driven B2B market. The findings are based on the empirical material gathered by the data collection methods explained in the method chapter. The findings of the the case study primarily entail two activities. First, the qualitative data, collected based on the semi-structured interview tool, are presented in a table with two categories: identified problem areas for a supplier organization within within a three-tier supply chain network in a relationship-driven B2B market. Then, spread throughout each category are subjective interpretations of data and analysis. After going through each category, the findings and analysis are summarized in a table.

Chapter 6 Discussion – Comparing the findings from the data collection offers us four dominant themes common to all findings. These themes are structural power within the supply chain network, relationship stability with the end-customer, market knowledge and network position. Power appeared according to the findings to be a function of the structural network position in the multi-tier supply chain structure (MSC) while relationship stability within the MSC was affected both positively and negatively depending on the relationship dynamics between the buyers and end-customers. Lack of market knowledge appeared also to be a function of the structural network position and relationship stability between Atlas Copco and the end-customers. In the discussion, we looked for common key themes to formulate our propositions. We organized our propositions in each of the four key themes that were discussed from the findings. We then incorporated

literature at this stage to compare and contrast our findings, using the literature study as a source of validation.

1.4 Delimitation

The main unit of analysis in our research is multi-tier supply chains, scoping on the supply chain structure, and power and relationship dynamics for a supplier organization within a three-tier supply chain network in a relationship-driven B2B market. Since relationship-driven B2B markets are vast, complex and contains an enormous amount of data, variables and factors to consider, a limitation of the scope is necessary to identify the problem areas and assess the critical success factors. The numerous amounts of data and variables to consider within a supplier organization leads to a lack of any form of objectives and guidance on what key variables to include and exclude, with the result that action plans and processes are difficult to implement and operationalized. The study focuses solely on the supply chain, and the relationship and power dynamics between the supplier organization, the buyer and the end-customer. This strategy helps to define, identify and structure critical success factors for the supplier organization within a multi-tier supply chain in a relationship driven B2B market.

2 Literature review

The purpose of the literature review is to provide an understanding of the relations and power dynamics within a supply chain network context to answer RQ2 and to fill the gaps identified within the existing body of knowledge. This literature review chapter introduces and provide an understanding of supply chain management to further explain contexts of supply chain network in detail scoping on multi-tier supply chain networks. Following the context of supply chain networks, network organization theory is incorporated in the literature review to give an understanding of how to develop a strategy in a network environment, focusing on Relational View and Resource Dependence Theory. The literature review ends with giving a theoretical understanding of relations within the field of Knowledge Management (KM) and Customer Relationship Management (CRM) in a supply chain context.

2.1 Supply chain management

Supply chain management (SCM) is a broad but yet very important topic in today's business world. The definition of what SCM is, differs according to the situation but can be summarized as a managerial tool that helps organizations manage the flow of information, money, services and products beyond the physical boundaries of the organization (Stephen C. Shih, et al., 2012; Sampson & Spring, 2012; Benita, 1998; Hokey & Zhou, 2002). Or can also be defined as the management of raw material, in-process and finished goods inventories from the point of origin to the point of consumption, and the planning and control of materials and information from suppliers to end-customers (Arthur D. Little, Inc.1991; Harmon, 2009). The main objectives of SCM are to enhance the operational efficiency, profitability and competitive positions of the company and its partners within the supply chain (Hokey & Zhou 2002).

The supply chain can be seen as a flow of goods, information or services and is illustrated in Figure 1. In the middle of the figure the focal firm is located, to the left of the focal firm the suppliers and the transporters can be seen (Klassen, 2006). The amount of supplier and transporters vary from case to case and can range from 1 up to as many suppliers and transporters as needed in the chain. The flow in this direction is called *up-stream*. To the right of the focal firm the intermediate and the final customers are situated. As in the flow upstream the amount of intermediates can vary from 1 to as many that are needed. The movement in this direction is called down-stream (Klassen, 2006). The intermediates can have many functions within the supply chain an act as distributors or reseller for example and usually act as a bridge between the final customer and the focal firm.

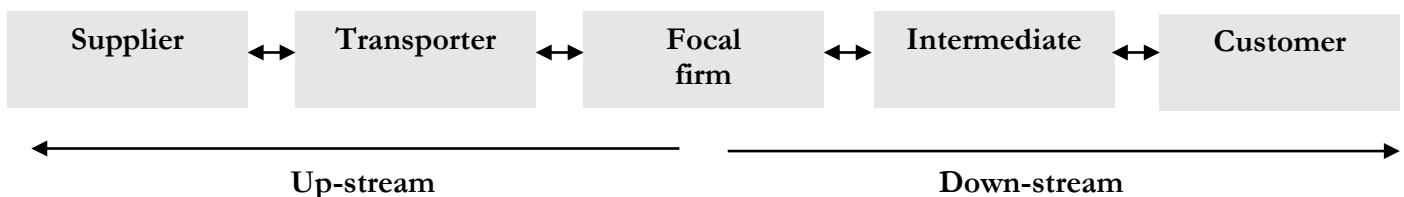


Figure 1: Supply chain and its characteristics

The supply chain consists out of two dimensions, horizontal and vertical and can be seen in Figure 2. The horizontal structure or dimension refers to the number of tiers across the supply chain. The vertical structure refers to the number of suppliers and customers represented within each tier (Labert et al., 1998; Hokey & Zhou, 2002). This means that the amount of actors within each tier can vary independly. Within the tier of the focal firm functions can be outsourced, if this is the case the focal firm can grow vertically after each function to serve different customer needs or have a better contact with suppliers upstream for example (Sampson & Spring 2012).

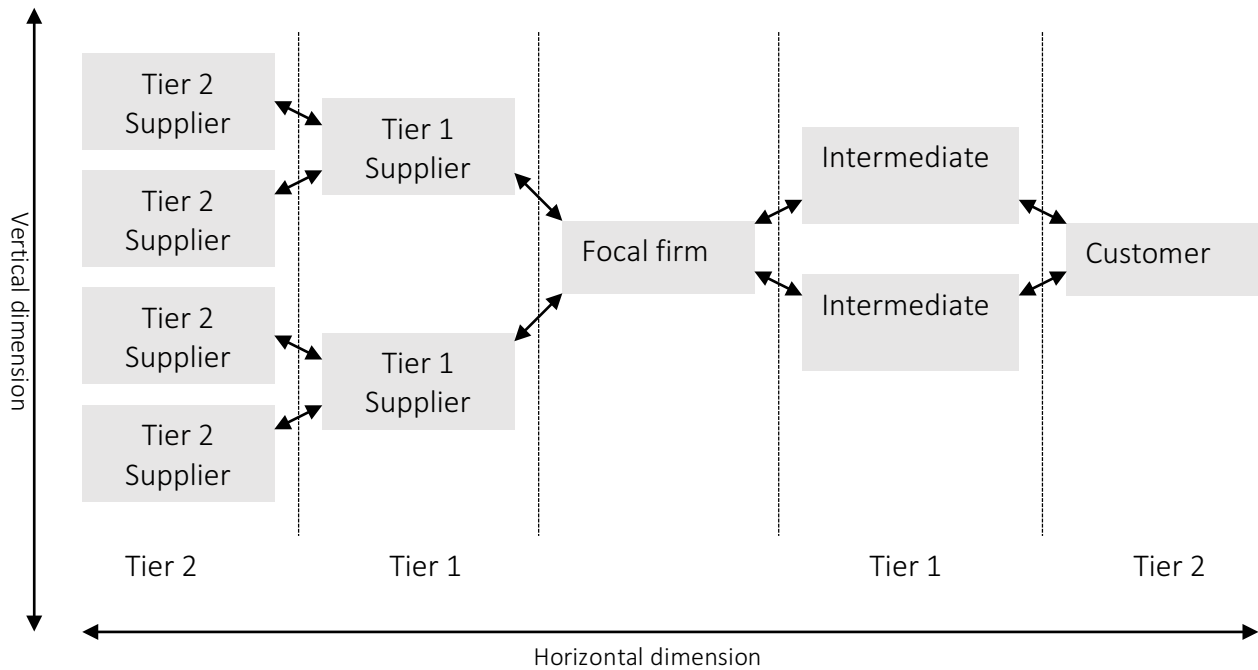


Figure 2: The supply chain and its dimensions

The benefits of successful implementations of supply chain strategies are many. They can for example lead to a higher efficiency of the activities within the supply chain with lower costs of activities or a higher added value of the activity with the same or reduced cost of it (Harmon, 2009; Lamming 1996; Lockamy and Smith 1997). Another benefit that is related to this study is the increased customer satisfaction by improvements of the supply chain downstream. It can for example be the elimination or the disintermediation of an intermediate to get closer to the customer. But also by building efficient channels of information and knowledge from and to the customer to understand and serve its needs in a better way by implementing customer relationship and disintermediation strategies related to SCM. The importance and development of a customer driven culture is a very important aspect of today's business. It should not only be found within the marketing division but be identified within all the divisions of the company to be a competitive actor on the market (Harmon 2009). This is confirmed by many prominent persons within the field of SCM that argue that SCM practitioners must maintain and sustain a customer driven culture (Harmon, 2009; Groosse 2000; Lamming 1996; Lockamy and Smith 1997; Kuei et al, 2001).

2.1.1 Differences between services and products seen from a supply chain perspective

As the nature of services are not the same as for conventional products, the supply chain for services is designed in a different way. For example, value driven by a service to the customer is not a product that is produced and then sold, but value that is co-created with the customer (Hua, Ranjan & Jingliang 2011). The change that many traditional industry companies have gone through in recent years from only offering products, to adding services to them to increment customer value and increase its differentiation capabilities have created problems for them. This as many companies have not understood the differences between services and products from a supply chain perspective. Edvardsson with others address this issue where they state that the industrial companies need to understand how to manage co-creation of their service offering together with buyers (Hua, et al., 2011; Edvardsson et al., 2008; Yadav and Varadarajan, 2005). The fact that services are co-created with the customers makes it easier for companies to adapt to customer

needs and understand them but it is also providing a unique and new channel of information between the company and the customer where information of for example specific customer-needs can flow, to not only improve its services but also its products.

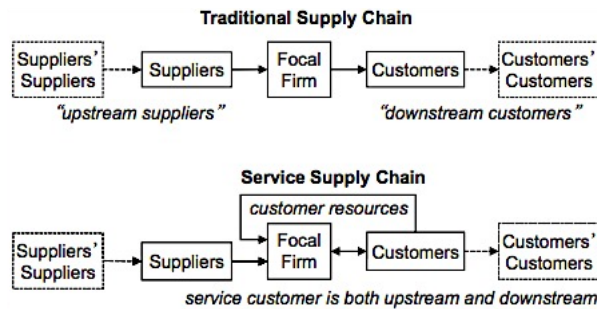


Figure 3: Difference between a traditional and service oriented supply chain (Sampson & Spring, 2012)

Sampson & Spring define service supply chains as “bidirectional supply chains” that require information about the customer needs before the service can be provided to the customer. This enables the focal firm to always position itself in the best position to meet the needs of the customer. In relation to traditional supply chains, service supply chains are usually shorter and always produced JIT (Sampson & Spring 2012). As written before Sampson & Spring define service supply chains as “bidirectional supply chain” more specifically they describe three types of supply chains (Sampson & Spring, 2012):

1. **Single level bidirectional** - Is the most normal case where the customer supplies inputs and receives the output, for example a visit to the hair dresser. An example of this is illustrated in Figure 4.
2. **Two level bidirectional** – Is like the single level bidirectional case but one or many functions of the supply chain are outsourced. For example, if the hair dresser outsources the styling of the hair to another company. An example of this is illustrated in Figure 5.
3. **Customer supplier duality that is not bidirectional** - Is usually the case where a third party logistics company act as an intermediate between the customer and the supplier.

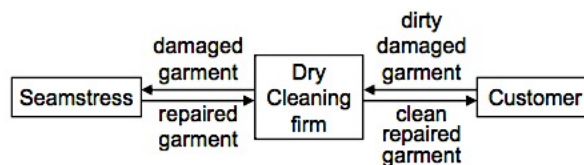


Figure 4: An example of a single level bidirectional service supply chain (Sampson & Spring, 2012)

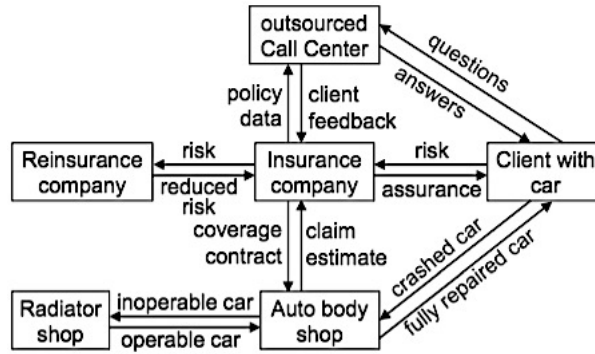


Figure 5: An example of a two level bidirectional service supply chain (Sampson & Spring, 2012)

2.2 The procurement, auction and purchasing process

Procurement is defined as the act of acquiring, buying goods, services or work from an external source, for example between a supplier and buyer. This is most often done through a tendering or a bidding process (Jin & Juanfang Yu 2015). In most cases is it the purchasing managers that provide the vital link between the operation itself and its suppliers. The focal firm is usually placed in both situations, both as a supplier and buyer. When the focal firm is negotiating with the suppliers or acting as a supplier to an intermediate or customer is it not necessary that the actor with the best price wins the bid. But the actor that can provide the highest value for the customer. The problem is not to understand this, but how to generate the customer knowledge and information. Process it in a way that the information and knowledge can be directly translated into the actions requested by the customer in the most efficient way (Jin & Juanfang Yu 2015).

The auctions offer the buyer direct access to numerous competing suppliers to a relatively low search cost which creates a perfectly competitive environment between the suppliers (Jin & Juanfang Yu 2015). In most cases this type of competitive environment only causes benefits for the buyer but this is not always the case. An example of a case where the auction is not beneficial for the end-customer is when the intermediate is located between the end-customer and the suppliers. The intermediate can create a competitive environment with preferences that suits it demands and not necessary the end-customers. This leads to a disadvantageous situation for the end-customer and the suppliers.

But the competitive environment that is created by the auctions is not always disadvantageous for the supplier's. Beside the increased competitiveness discussed previously between the suppliers the auction offers a transparent form of competition that relies on quantitatively defined terms (price, quality or lead time for example) and takes place within a pre specified time period (Jin & Juanfang Yu 2015).

2.3 Multi-Tier Supply Chain Management

The vertical perspective where single organizations would own the entire supply chain is rarely seen today. The trends of applying a horizontal strategy toward outsourcing and global sourcing have created more complex and fragmented multi-tier supply chains (MSc's) (Mena, et al., 2013; Harald, et al., 2005). These levels of complexity in the supply chains have an impact on economic indicators of performance. Choi & Krause (2006) define these indicators as cost, quality, responsiveness and resilience. Lamming & Hampson (1996) argues that the impact of complexity of having fragmented supply chains go beyond economic factors, whereas these impacts also consider environmental and social impacts across multiple stages of the supply chain (Lamming & Hampson 1996). Cox, et al.

(2001) studied the complexity of multiple relationships within the supply chain network and proposed a method to analyze a series of dyads and power regimes within the supply chain networks by combining a resource-based view (RBV) (Barney, 1991b; Barney, 1991a; Wernerfelt, 1984) and a relational view (Dyer & Singh 1998). The dyad approach has been criticized, as critics argued that the dyadic approach doesn't capture the complexity of networks and proposed an alternative, the study of multi-tier systems that avoids the complexities of the networks without the drawbacks of the dyad. A three-tier system is the simplest form of an MSC and has been proposed as the smallest unit of a network since a three-tier system allows the analysis of the impact of a third party on a relationship between two other organizations (Choi & Wu, 2009a; Choi & Wu, 2009b). Most of the researches into three-tier systems have mostly focused on buyer-supplier-supplier relationships. Rossetti & Choi (2005,2008) for instance, have studied the process of intermediation where the supplier's supplier cuts out the middleman in the supply chain network and reaches directly to the buyer.

2.3.1 Complexity of Multi-Tier Supply Chain Research

Several study methods have been conducted to study MSc's. Many of these methods include simulation and modelling approaches. Forrester (1958) studied how computers could be used to simulate the dynamics of production and distribution systems. This followed by the Beer Game, which teaches the impact of decision-making, and feedback control systems in supply chains (Forrester, 1958; Mena, et al., 2013). A boutique of modelling approaches continues to be widely used such as discrete event simulation, game theory and agent base modelling. An alternative to modelling and simulation has been the application of organizational, economic and sociological theories in studying multi-tier supply chain networks. However, many of these studies have been conducted in dyadic context and not in multi-tier systems. Williamso (2008) used the transaction cost economics (TCE) to study the inter-organizational relationships through boundary decisions and how to minimize transaction costs for a specific by applying a governance structure. The TCE approach has been criticized to not explain the dynamics among multiple firms. Resource base view (RBV) and the knowledge-based view approaches have been widely used in supply chain researches to explain participation in a network to extend a firm's internal resources such as knowledge and information sharing to develop a sustainable competitive advantage. The theory of RBV also recognize the importance of inter-organizational relationships. However, the theory has not been laid out for MSc's. The relational view discussed by Dyer & Singh (1998) explains how a firm's critical resources may span across firm boundaries and further discuss that inter-organizational relationships can be a source of competitive advantage. The complex adaptive systems (CAS) theory has provided another perspective in the supply chain researches. CAS helps to understand the behavior of multi-party relationships in supply chain network systems. To further simplify and minimize the problems that complexity poses for researchers, Choi & Wu (2009a) proposes three-tier network system as the fundamental building block of a network to understand how a link affects another link and how a node is affected by a link that is not directly connected to it. Concepts and literature from marketing, service delivery and operations management have been contributed to the triadic relationships literature to ground its empirical research. These concepts include social network theory, balance theory and the role of intermediaries. Studies of social ties to the effective operation of triadic relationships have resulted in papers exploring aspects of triadic relationships including buyer and supplier dynamics (Mena, Humphries & Choi 2013).

2.3.2 Structural arrangement - Supplier-Buyer-Customer Relationships

Service outsourcing is an increasingly common aspect where firms contract out specific functions to reduce transaction costs, where the buyer needs to coordinate multiple tiers in the network (Mena, et al., 2013; Tate & Ellram, 2006). In this network context, the buyer sells the customer a service, which is provided by its suppliers. Li & Choi (2009) points out the importance of considering a multi-tier supplier-buyer-end-customer when trying to understand service outsourcing (Li and Choi, 2009). In such network arrangement, the buyer usually acts as middlemen between the customer and the supplier (Li & Choi, 2009; Mena, et al., 2013). However, this bridge might shift to a supplier-customer relationship and the middlemen's bridge position erodes as the supplier have enhanced the relationship with the customer and thus the bridge position transfers to the supplier. This results in giving the supplier the responsibility of delivering the services. As a consequence, the buyer might lose information sharing and knowledge transfers if the network is not carefully maintained and managed and the buyer might become exposed to opportunistic behavior on the part of the supplier (Peng, et al., 2010; Zaheer & Bell, 2005). The shift in bridge position is also defined as supply chain disintermediation (Choi & Hong, 2002; Rossetti & Choi, 2005). In this situation the buyer can maintain a disintermediation by acting as a control monitor and performance manager with a focus on superior customer service to maintain and enhance the relationship with the customer (Carson, et al., 1997; Sanders, et al., 2007)

Mena, et al. (2013) conducted an inductive, and theory-building approach to investigate the relationships in three complementary multi-tier supply chains in the U.K.'s food sector. The purpose and the main unit of analysis of the study are the MSC, and the relationship among members of each MSC. The authors used three theoretical MSC structures to each corresponding case which can be seen in Figure 6, Figure 7 and Figure 8

1. Open triad;
2. Transitional triad and;
3. Closed triad.

The information flow in an open triad network is linear and there is no direct connection between the buyer and the supplier's supplier. The supplier has a mediating role between the buyer and the supplier's supplier. The closed triad structure occurs when the buyer and the supplier's supplier have established a formal relationship and a direct connection to each other. This enables information-sharing and knowledge transfers between these two actors; hence making the mediating role of the supplier disappears. The transitional triad is a building relationship process between the buyer and the supplier's supplier, thus initiating a move towards a closed triad (Mena, Humphries & Choi 2013).



Figure 6: Open triad

The first case study involved a brewer, a grain trader and a Farmers' association. The grain trader is the Brewer's preferred supplier for the malting barley, which is a main ingredient in beer. Most of the supplier management activities are outsourced to the Grain Trader using a yearly contract. The Farmer's association represent a group of farmers who grows commodities including malting

barley. The Grain Trader is responsible for the marketing, testing and storage and transportation of the farmer's malting barley and are therefore responsible for the supply of malting barley for the Brewer and act thus as a bridge between Brewer and Farmers' association. The data received from the case study showed a strong relationship between the Brewer and the Trader as both parties agreed that they were receiving great value out of the business relationship. The yearly agreement brought stability to the relationship between the Trader and The Brewer, improving communication, quality and efficiency. The Grain Traders maintained a stable relationship relying mostly on spot contracts and supplied not only the Brewer but also many other customers. The ability to motivate quality improvements and innovations was the strongest advantage in their relationship. The negative point in this relationship was issues regarding delivering reliable quality grain at the agreed time frames, which led to a level of deterioration in trust. Considering the Brewers' and the Farmers' relationship, the case study results revealed that both parties had no direct relationship although both were depended on each other (Mena, Humphries & Choi 2013).

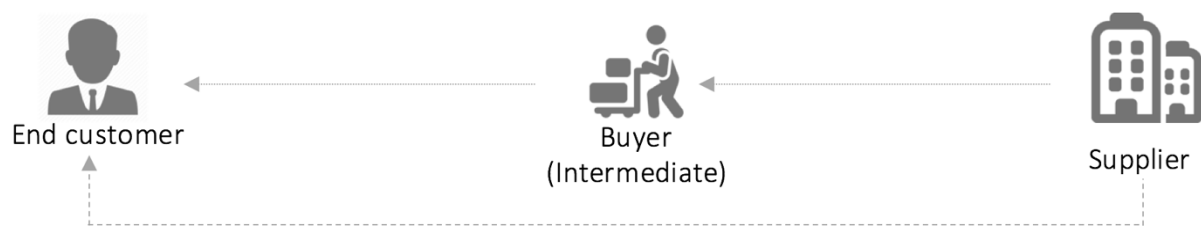


Figure 7: Transitional triad

The second case considers the MSC of a bread supply chain, which represents a relationship between a large Baker, a milling company and marketing co-operative. The Baker is a strong brand name family company, producing bread and other quality baked goods. The Baker's distribution channels are multiple self-owned bakeries in the U.K. and large and small retailers in the countries. The Miller is one of the U. K's largest wheat millers and is a subsidiary of one of the world's leading agricultural processors. The Miller's roll is to mill the wheat into flour, which is then supplied to the Baker. The Co-operative is at the other hand responsible for marketing the grain, taking orders from the Baker and arranging product to be delivered at the Miller for processing. The relationship between the Baker and the Miller consisted of a direct sourcing arrangement where the Baker-based on a contract- asked the Miller to purchase grain against that agreed contract. The Miller was responsible for ensuring the quality of the product and on-time delivery of the grain purchased from the Co-operative. The Miller was paid for the service and for the purchased grain from the Baker and the Miller paid the Co-operative for the Grain. The relationship was viewed positive between the Baker and the Miller although the parties didn't have a long-term contract but only spot-contracts. The results from the case study indicated that the mutual understanding of goals and measures could be improved. The relationship between the Miller and Co-operative was entirely controlled by the Baker and both parties agree that the key relationship for them was with the Baker. The relationship between the Baker and the Co-operative was based on a long-term contract for supplying high-quality wheat, as wheat is a key ingredient in bread. The Baker engaged and controlled the sourcing of goods, as the Baker controlled the price. This involvement indicated the importance of obtaining quality grain at the right price. Both the Baker and the Co-operative experienced a good relationship and saw the relationship as value adding and as the price is simple and non-combative. Both parties agreed on that the communication could be improved, requiring the Co-operative for internal adjustments. In this MSC all the three party was connected and had a more or less positive relationship with each other (Mena, Humphries & Choi 2013).



Figure 8: Closed triad

The third case study represents a transitional triad involving a major retailer, a Processor and a Breeder. The retailer is one of the biggest supermarkets in the U.K. and holds a considerable market power. The Processor is the biggest pork processing company in the U.K. The Breeder is one of the largest in the U.K and owns a haulage business. The triad had a linear relationship for over 10 years until recently, when the Retailer began involving in assuring the production methods of the Breeder, resulting in a supply chain relationship configuration. The relationship between the Retailer and the Processor was not perceived to be healthy as the Retailer frequently placed orders in the market for competitive bidding, without considering the impacts the value for money and price stability from the incumbent supplier. However, the Retailer had forced to cut staff due to increasing competition in the major supermarket space, thus forcing the Retailer to be dependent on the processor for market knowledge and losing influence. The relationship was based at short-term contracts, as each order was considered to be a contract. The case study revealed how the Processor tried to exert its power within the supply chain by preventing the Retailer from gaining knowledge of its cost structure as the Processor only guarantees delivery and quality expectations. As the Processor's power position was undermined by the Retailer's relationship with the Breeder, the Processor began to involve in the new relationship between the Retailer and the Breeder. The overall effectiveness was improved through transparency of cost and price structure, communication and coordination of material flows. Giving the Retailer more knowledge of the production process and the transparency, the Processor had turned this threat into proposing to the Retailer an improved Price structure (Mena, Humphries & Choi 2013).

The common underlying themes of these case studies are according to Mena et al. (2013) structural power, interdependence and relationship stability. Power was a direct function of the structural position in the MSC. The buyer had major power in all three cases because all three buyers was the conduit to the market. The suppliers or the middlemen had positional power as long as there were not a relationship and exchange of information between the buyers and the suppliers' supplier 1. The supplier in the case two had a minimal of power, as there were no bridging position between the Buyer and the supplier's supplier. Simmel (1950) discussed concept of a structural hole where any firm finding itself in a bridge position over a structural hole, possesses power from the structural hole. The author further proposed four propositions (Mena, Humphries & Choi 2013):

1. The resource-based power balance shifts when the MSC structure changes regardless of the possession of the resources by each member in the MSC
2. A buyer must connect or establish a relationship with supplier's supplier if they want to influence key product characteristics
3. The interdependence among the members in a MSC network grows in a shift from an open to a closed structure.
4. Closed MSC's offer a stronger perception of stability but require more management resources.

2.4 Cooperative Strategy in supply chain networks

The emergence of international cooperation has led to managers focusing more in inter-firm spanning activities than to the optimization of interior processes (Buhman, Kekre & Shingal 2005; Chen & Paulraj 2004). The focus from an operational management perspective is on optimal manufacturing strategies to improve time, delivery, cost, quality and design (Halley & Beaulieu 2009). Lamming, Johnsen and Harland (2000) characterize the nature of supply chain networks as complicated network structures and each specific relationship within this structure has a unique context, rather than a linear sequence supply chain. This network structure covers the dyadic level and the network level. The dyadic level includes for instance a single supplier and buyer relationship while the network level includes the focal firm, the upstream or the downstream level (Ritter & Gemünden 2003). The firms within the supply chain network are tied to each other and exhibit mutual relationships which include: relative power, transactional behavior and specific investment (Bensaou 1999; Cox 2001; Pfeffer and Salancik 1978). The focal firm is considered to be the center in the supply chain network since a firm's strategy depends in its external network structure. This network dynamic contains three main elements: actors, resources and activities (A-R-A model). The relationship dynamics of the focal firm with its upstream supply chain and its downstream supply chain is usually adopted in the field of supply chain management (Croom, Romano and Giannakis, 2000; Harland 1996). Håkansson and Snehota (1989) points out the importance of relationships and interactions between firms. The firms must therefore adopt different strategies in different relationships (Johanson and Mattsson 1987).

2.5 Network organization theory

2.5.1 Social Network

The study of social network includes social relationships among a set of actors and their relationships within a network (Burt 1992) (Lin, Cook and Burt 2001). Wasserman and Faust (1995) defines social network where actors and their actions are interdependent, relational ties between actors in a social network are channels for the transfer of flow of resources and the network structure is either an opportunity or a constraint. A social network can be defined as and is dependent of structural characteristics such as size, density, centrality, clustering and the nature of its ties (Tichy, Tushman and Fombrun, 1979).

2.5.2 Resource dependency theory

Companies often uses their resources to strengthen their position in the network by influencing other network members, which can help increase the company's performance and can result in a competitive advantage. If a company is dependent on another firm's resources, then the latter firm will gain a power and competitive advantage (David and Barney, 1985; Pfeffer and Salancik, 1978). Thus a firm gains a greater power advantage when it occupies a more dominant position relative to other firms in the network. Power is therefore a dominant factor of an organization's relationships within a network environment (Chang et al., 2012).

2.6 Network management and strategy

2.6.1 Network management

Networks represent a type of organization where the members gain and sustain competitive advantage vis-à-vis their competitors outside the network. These networks allow a firm to specialize in core activities in the value chain where the firm displays core competences (Jarillo 1988). In this way a firm can continuously manage or control a network rather than coping within the network. The coping perspective results from the firm's continuous interaction with other parties, interacting and exchanging information to create value for the other parties. This could lead to a shift of focus away from the control of resources, towards the integration of resources, and towards the management of reacting, rather than the management of acting (Håkansson and Snehota, 1989). Harland and Knight (2001) stated that attempts and opportunities to plan and control networks systematically are limited to any but the most powerful network actors. However, there are opportunities to influence a network in subtler ways for more actors and more often within the network. An organization within a network would neither be controlling or coping as they can be seen as extreme positions on a range of actor's potential behavior within a network. The ability to manage or cope with network management issues is affected by a given firm and its counterparts within the network. If a firm has control over its counterparts within the network then it tends to manage its counterparts by e.g. leading, initiating, planning, influencing and forcing. However, if a firm has strong counterparts in the network, the firm tends then to cope with these actors by e.g. responding, following, reacting, adapting and improvising (Ritter et al., 2004). The firm's position and behavior within the network is mainly determined by its relationships with the actors.

2.6.2 Relational view

The relational view gives an understanding of how to develop a strategy in a network environment and which types of competitive advantages that comes from collaboration within the network organization. The relational view also shows the methods of using the strategies and specific relationship types to achieve different types of competitive advantages. The relational view advocates for the value of using inter-organizational relationship to gain critical network resources (Baum et al., 2000) and shows how developing relationships with actors in the network environment creates sustained competitive advantage (Dyer Singh, 1998). According to the relational view, collaborating firms achieve immense of returns from four primary sources: (1) relation-specific assets, (2) knowledge-sharing routines, (3) complementary resources and capabilities, and (4) effective governance. Relation-specific assets consider how the volume of inter-firm transactions influence the cooperating members between the firms. Knowledge-sharing routines is the knowledge exchange between the parties which is facilitated by enhancing transparency and reciprocity between the firms. As a result of facilitating knowledge-sharing routines, the firms will generate synergy through resources and knowledge of their collaborating partners. Effective governance is the result of the aforementioned sources, where the willingness of various partners to enter into alliances enhances, due to minimized transaction costs and maximized value (Chang et al., 2012).

2.6.3 The contexts of supply chain networks

Chang et al. (2012) classified four relationship types according to the relative strength of power between the focal firm and its upstream and downstream: (1) focal firm dominance, (2) upstream network dominance, (3) focal firm obedience and (4) downstream network dominance. They further develop strategies for a given firm towards its partners using four following determinants: relation-specific assets; knowledge- sharing routines; complementary resources and capabilities; and network position. In focal firm dominance, the focal firm have power of its upstream and downstream and is characterized by four qualities: (1) there exists a high degree of industry concentration such as a monopoly; (2) Because the focal firm has a high market share, it enjoys strong power over the upstream; (3) the focal firm have a unique and differential technology products or components that it offers to its downstream firm and; (4) the focal firm is in growth stage from a product life cycle viewpoint and thus, enjoys an increase in demand. In upstream network dominance, the upstream firm's power is higher than that of the focal firm's power and the power of the focal firm is higher than the power of the downstream firm. The upstream firms are concentrated and owns resources, and power to influence the focal firm and achieve a dominant position. In focal firm obedience, both upstream and downstream firms have power over the focal firm with following characteristics: it belongs to a fragmented industry, faces a decreased demand and the product/service is in decline stage in the product life cycle, and experiencing high switching costs for upstream and high search costs for downstream. The downstream firms have a higher power share over the focal firm because of their high share of sales. The downstream firms are also characterized by a growth rate and are strong channel leaders in the market. In downstream network dominance, the downstream network firms have power over the focal firm and the upstream network firms. The downstream network firms are characterized by following properties: have a strong brand name and reputation, located in a high-concentration industry and possesses a high share of sales of the focal firm. The upstream firms experience high search cost since the resources offered are homogenous and thus have a high degree of substitution for the focal firm. The focal firm is an intermediate that experiences a low switching cost for its upstream and a high search cost for its downstream. To achieve a competitive advantage, firms need to implement different strategies depending on the context of supply chain network (Donaldson, 2001).

2.6.3.1 *Downstream network dominance*

The focal firm in a downstream network dominance structure, possess a long-term relationship and safeguard mechanism with upstream suppliers. However, on the downstream side the focal firm might invest valuable resources or assets in its important customers to increase the relationship and collaboration within the network. As a result, the focal firm can strengthen and sustain deep ties and relationships with its most important customers (Chang et al., 2012).

The downstream firms in a downstream network dominance, dominate the main market channels or own a strong brand name. As a result, the focal firm invests its resources to engage the customers and seeks to strengthen the relationship and the knowledge-sharing processes with each main customer. The focal firm have an advantageous network position with downstream network dominance relative to its upstream, as the informational and social relationship with its supplier is richer (Chang et al., 2012).

Chang et al. (2012) addressed following strategies to cope with downstream firms:

- Investing in special-purpose relation assets for critical customers
- Strengthen and sustain the relationship ties with the critical customers

- Information sharing and create specific knowledge for the downstream firm to create competitive advantage by shortening the developing product's time-to-market.
- Reduce the cost and shorten the delivery time for downstream
- Offer operational information for downstream customers to control and manage production.
- Engage and increase the degree of compatibility
- Be a candidate or a selective partner for the key downstream customers
- Connect the upstream network with the downstream network
- Strengthen relationships and foster an amicable atmosphere
- Aim for collaboration and alliance with downstream customers.

2.7 Customer relations, business links and networks within the supply chain

The relationships with the actors within the supply chain vary with the goal and vision of the focal firm but also with which kind of product or service the focal firm are offering. For a market with commodities where the market is open and the intermediates and customer do not have high bargaining power, the relationship is of less importance. However, for a market with products that possess certain characteristics and a market with a high level of complexity and limitations, a partnership with the intermediates or customers are crucial. Especially if the focal firm is acting as a first tier supplier (Hokey & Zhou 2002). Partnerships are also important if the market is hard to access. In these situations, a partnership can open up the market for the focal firm. For example, if the relationship between a customer or intermediate is bad a whole market can be inaccessible for the focal firm. On the other hand, if the relationship is good it can benefit the focal firm by making the market less accessible for the competitors on the market. The relationship is in most cases best and most important with the actors closest to the focal firm and decreases the further down or upstream the actor is located (Hokey & Zhou 2002). Furthermore, the literature from various sources proves that a successful partnership between a buyer and supplier where knowledge sharing is a big part of the partnership can lead to improved results and performance along the whole supply chain (He, et al., 2012; Heide and Miner, 1992; Dyer and Nobeoka, 2000; Krause et al., 2007; Rauniar et al., 2008; Lawson et al., 2009; Cao and Zhang, 2010).

Lambert identifies four types of relationships or as he calls it business links between the tiers within the supply chain. The better the link is between the actors the better are the possibilities of having a steady flow of reliable information between the two parties, which is crucial in markets where customer knowledge and relations are important. He identified the following four links (Hokey & Zhou, 2002; Lambert et al. 1998):

1. **Managed business process links** – the focal firm integrates a supply chain process with one or more intermediates, customers or suppliers. This type of link forms a solid foundation for a channel of information exchange between the two parties
2. **Monitored business process links** – is a links that are not fully controlled by the focal firm but are rather monitored by it. This type of link forms good conditions for a channel of information exchange between the two parties.
3. **Not managed business process links** – is a links between the focal firm and the

intermediates, customers or suppliers that are neither managed or monitored by the focal firm. Instead of managing or monitoring the link the focal firm relies on the intermediates, customers or suppliers to manage or monitor the links. This type of link relies on trust between the two parties where the whole responsibility on maintaining the link lies at the intermediate, customer or supplier.

4. **Non-member business links** – is the links between the partners within the supply chain and actors outside the supply chain. This type of link is good when external information and control is needed.

2.8 The flow of information and knowledge within the supply chain

Traditionally SCM definitions only included the flow of goods, but it has changed over the years and focus have been redirected towards the flow of information. This due to the change of focus from a mass production focus to a mass customer customization focus (Harmon, 2009; Stephen C. Shih, et al., 2012). The key competitive advantage has changed from a price or quality leadership to the ability to offer the best value for the customer. With the increased importance of understanding the customer and its demands the flow of information and the relationship with the customers have increased. In co-relation to the raised importance of understanding the customers the management of knowledge, information and data more known as *knowledge management* (KM) emerged.

KM is defined as the capturing and management of knowledge, information and data about the customers, competitors, products and services through various channels (Rollins & Halinen 2005). Knowledge is defined as information with the highest value. Knowledge management organizations to share and use knowledge to drive action by creating access context infrastructures, and simultaneously reduce learning cycles (Yichen & Hwan-Yann, 2006). Furthermore, it supports the company to apply best practices to future problems and by this create a long term competitive advantage (Rollins & Halinen 2005). The biggest challenge within knowledge sharing within the supply chain is the establishment of trust and strong relationships between the parties within the supply chain.

Within the frame of KM two types of knowledge exist and are defined as (Bueren, et al., 2004; Stephen C. Shih, et al., 2012):

- ***Tacit knowledge*** is knowledge that is hard to articulate, store and transfer and usually generated by experience and learned through work.
- ***Explicit knowledge*** is knowledge that is easy to articulate, store and transfer. For example, how to use a certain machine or how to follow certain procedures.

Within the frames of *knowledge management* two fields are of specific interest for this study. *Customer relationship management* (CRM) and *customer knowledge management* (CKM) that are two emerging discipline of KM (Yichen & Hwan-Yann, 2006; Gibbert, et al., 2002).

2.9 Customer relationship and knowledge management

The importance of the relationship between the focal firm and its customer have elevated significantly in recent years. Customer knowledge is as discussed previously a critical asset in today's businesses. The gathering, managing and sharing of customer knowledge are all valuable competitive activities for organizations (Khodakarami & Chan 2014). More and more companies start to understand the benefits of shifting from a product to customer focus. In addition, the enhancement of existing relations to customers have been proved to lead to increased profits and long term sustainable growth (Yichen & Hwan-Yann, 2003). The CRM process addresses all aspects from identifying the customers, creating customer knowledge, building customer values and shaping customer's perceptions of an organization and its products or services (Yichen & Hwan-Yann, 2003; Yichen & Hwan-Yann, 2003; Keith A. Richards & Eli Jones, 2006; Keith A. Richards & Eli Jones, 2006;). It is most often defined as a form of relationship strategy, seen from a top management perspective. But also as an enabler to help companies achieve and improve customer relationships, customer loyalty, understanding of its customers and enhance customer satisfaction to achieve business excellence (Keith A. Richards & Eli Jones, 2006; Yichen & Hwan-Yann, 2006; Bueren, et al., 2004).

2.9.1 Advantages and Disadvantages

When studying CRM is it important to be aware of its disadvantages and advantages. The advantages are many, for example, improved customer relationships most often offer a platform for the transfer and creation of knowledge that would otherwise be impossible or hard to create without a good relationship with the customer (Rollins & Halinen 2005). A study done by Keith, Richard and Eli identify the seven most noticeable advantages of successful CRM implementations (Keith A. Richards & Eli Jones 2006) and is confirmed by a study conducted by Yichen & Hwan-Yann (Yichen & Hwan-Yann, 2003):

1. Improved ability to target profitable customers
2. Integrated offerings across channels
3. Improved sales force efficiency and effectiveness
4. Individualized marketing messages
5. Customized products and services
6. Improved customer service efficiency and effectiveness
7. Improved pricing

As listed above the advantages are many but it is important to understand the difficulty of the implementation of CRM as a study from Gartner proved that 70 % of all CRM projects either lead to losses or no improvements due to various factors (Keith A. Richards & Eli Jones 2006). One factor is for example that companies usually underestimate the complexity of CRM by only seeing it as an implementation of CRM software when it is much more than just the implementation of a software.

2.9.2 Success factors

To avoid unsuccessful CRM implementation it is important to understand what is important when conducting CRM projects. In a study made by Mendoza, et al four critical success factors are listed that are synonym for previously successfully implemented CRM projects (Mendoza, o.a. 2006):

- **Structure** – make every part of the company involved
- **Objectives** – Define short, medium and long term objectives.
- **Nature of organization and product** – the means used to communicate the CRM strategy, as well as the commitments from the staff will depend on the type of activities done by the employee. The nature of the product will also determine the effectiveness of such activities as the marketing campaign
- **Automation** – systemize the intake of information and spread it through the organization accordingly.

2.9.3 The components of customer relationship management

Within the framework of CRM knowledge is divided into knowledge about, for and from the customer. The knowledge **about** the customer is the understanding of the requirements of the customers. It can be a specific preference of a color of a product for example or a certain feature of the product or service. The knowledge **for** the customer is the information that the customer is requesting and needing in their interaction with the focal firm. It can for example be information about the products or services that the customer needs to use right. The knowledge **from** is the knowledge that the customers possess about the products and services they use as well as about how they perceive the offering they have purchased. This information is of value for the focal firm as it can be seen as feedback on how the products or services can be improved, it is this knowledge that needs to be channel to the focal firm so that improvements and customer customizations can be made to the products and services (Bueren, o.a. 2004). It is also this knowledge that is the most important and valuable for the focal firm (Gibbert, Leibold & Probst 2002).

Within the field of CRM three aspects are studied *process*, *people* and *technology* which can be seen in Figure 9. The process is the aspect customers relate themselves and interact with the organization trough marketing, sales and services. As written before one of CRM goals is to satisfy and create long-term relationships with the customers. By analyzing the processes that involve the interactions with the customer's weaknesses can be identified and improvements can be made (Mendoza, o.a. 2006).

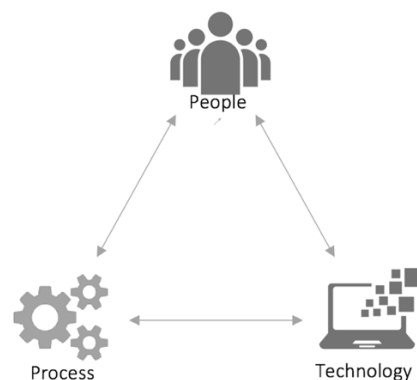


Figure 9: Aspects to consider in CRM

Process

The first aspect within the process component is marketing. Marketing is often related with Kotler's 4p's but within CRM it is associated to Barnes "new P's" that is a model similar to Kotler's but with a customer relationship focus. Instead of the traditional product, place, promotion and price the model consist of product, process, performance and people. The purpose of the model is to manage and understand the relationship with the customer, its demands and buying habits (Mendoza, o.a. 2006). This information should then be shared within the whole organization which demands a high level of coordination but also reliable and already established channels of information.

The sales process is as important as the marketing process as it is the employees within the focal firm that are related to it that are facing the customers and managing the relations with it. The management of the relationship with customer's trough the sales force is essential within the CRM framework. The interactions between the customer and the sales force are usually made face-to-face which is a key component of maintaining a long term partnership and relationship with the customer. The CRM strategy has an important impact on how the interaction should be conducted. The channel and link that is created with the customer trough face-to-face interactions establishes a solid channel of key information between the customers and the focal firm. This channel of information should have a big impact on the market strategy of the firm (Mendoza, o.a. 2006).

According to a study conducted on Harvard the overall quality of the services provided by the focal firm are directly related to the satisfaction level of customers (Mendoza, o.a. 2006). With a higher level of satisfaction, the willingness of the customers to share key information increases. In addition, services that involve human resources create a perfect link and channel of information between the customer and focal firm. If methods of collecting, sharing and storing this information are established it can benefit the company and the CRM strategy of it.

Human factor

The human factor (people in Figure 9) is the second aspect it has a key role within the CRM strategy and is equally related to the customers as the employees of the focal firm. Mendoza mentions three aspects related to the customer and four related to the organization (focal firm). The first aspect related to the customer is to always strive towards providing satisfaction according to the needs and value standards of the customer and not what the focal firm assumes is best. It is important to understand that different customers within different markets view values in different ways. For a certain customer the quality of the product is very important meanwhile the complementary service offering to the product is the most important aspect for another customer. Because of this is it very important to use every channel and link of information in relation with the customer in the most efficient way to understand the real needs of the customer. This by transferring, managing and storing it in the right way and not let any information disappear in the process. The second aspect is the satisfaction level of the customers. The satisfaction level is a key component when striving towards a long-term relationship with the customers. The third aspect is the level of loyalty between the customer and the focal firm. This because it is a very important to maintain a long term relationship with the most profitable customers (Mendoza, o.a. 2006).

Seen from the organizational perspective it is important to be able change the mentality and approach of the organization from a product to customer oriented approach and focus. The employees related to the customers need to fit the roles of successfully establishing good relationships with the customers. This in order to provide good conditions by creating and maintaining a high level of customer loyalty. As CRM changes need to be made from the top down, the persons within the highest level of the organization must be the biggest promoters of the CRM strategy implementations and influence the rest of the organization in the most efficient way possible. This due to that the implementations of the CRM strategy will affect the mentality of the

organization. As this change can be difficult to carry through, the management of it is very important and an aspect that should be taken seriously. When managing the change of the organization the communication, follow-up, feedback and an effective leadership are the keys to successfully carry through the change (Mendoza, o.a. 2006).

Technology

The technology is the third and final aspect that Mendoza mentions in his article. A big part of the implementation of CRM strategies are the software's and IT systems that can for example track customer needs and demands. It is important to identify the right software's and IT systems in relation to the specific CRM strategy and how these tools will affect the organization. Many CRM implementation projects fail today due to that organizations only see CRM as an implementation of software's and IT system when it is only one of the three aspects in reality. Due to that this study will focus on the first two aspects (Mendoza, o.a. 2006).

3 Methodology

The methodology chapter introduces and provide understanding for the methodology and methods used in the study. It explains how the research is design and how the work process is conducted through ought the study. The research methodology is then explained in detail followed by the methods used to gather data for every specific question. The chapter ends with the quality of the analysis.

3.1 Chosen Methodology

To choose the proper methodology of the thesis the paradigm needs to be identified and determined. As the main purpose of the study is to explore rather than investigating study is done from the interpretivist paradigm where the social reality is seen as subjective and not objective (Collis & Hussey 2014). The main methods of gather data are qualitative which also corresponds to the chosen paradigm. To get as many angles as possible of the studied phenomenon a variety of methods are used to gather the empirical data and are explained later in the chapter.

As it can be read in the research design the study is conducted in three phases. Within every phase different research approaches are taken. As the study is commuting between the gathering of empirical data and forming theories or done simultaneously the main research approach is abductive. This approach is the most beneficial as the study is dynamic rather than static and can change and adapt to always pursue towards the goal of the study (Blomkvist & Hallin 2015). The abductive approach also enables the research to be of interactive nature. With this we mean that the problematization and problem formulation can continuously be evaluated and changed during the time the study is conducted because new knowledge is always being added to the study which is important in our case.

For the first phase of study that is explained in detail in the research design an inductive approach is taken. This due to the big amount and specific type of data that is needed to study the phenomenon and the proven “gap” in existing literature of the current central European powertrain producer market and intermediation. Rather than forming hypothesizes of what problem areas for a supplier organization within within a three-tier supply chain network in a relationship-driven B2B market and later confirm them with empirical data (deductive approach).

We choose to firstly collect data and then form conclusions (Collis & Hussey 2014). This due to that the study is dependent of up to date data, that the data is available in the beginning of the study but also because it is impossible to form any conclusions before gathering the data needed in the first phase of the study.

For the second and third phase of the study that is explained in detail in the research design a deductive approach is taken. In relation to the first part of the study that is of inductive nature literature related to the critical success factors is gathered. Theories and frameworks are then formed based on the literature. The gathered empirical data is then either confirming or not confirming the theories stated in the literature review (Blomkvist & Hallin 2015). This approach is chosen due to that it is more efficient to relate the literature to the empirical data and then understand which improvements and conclusions that can be made.

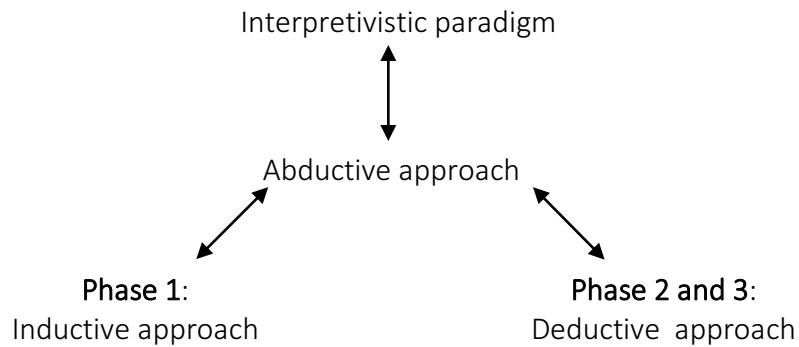


Figure 10: Methodological approach

The first phase of the study is conducted as a *descriptive case study* where the objective is restricted to describe current practice (Collis & Hussey 2014). Phase two and three of the study is conducted as a *multiple explanatory case study*. The existing theory conducted in phase two of the study is used to understand and explain what is happening in two specific cases. The case study is a methodology that is used when a certain phenomenon is studied in its natural setting and various methods are used to obtain in-depth knowledge about that specific case (Yin, 2009).

The study is following Collis and Hussey's recommendation of how to conduct a case study to a certain degree. They defined the main states of it as follows (Collis & Hussey 2014):

1. **Identify and select the case** – the selection of cases is made in relation to the availability of data and the company the study is conducted on as it is it who provides the study with empirical data.
2. **Preliminary investigations** – is the processes of becoming familiar with the context in which the study is going to be conducted in. Different authors argue if it is beneficial to do this for the study as the perception of the case changes with the level of knowledge of it. As the study is conducted within a complex setting the level of knowledge of it must be high to ensure the understanding of it as the right description of it. For this study phase one acts as the preliminary investigation.
3. **Data collection** – is the stage where, how and when the data will be collected. The specific methods for collecting data for this study are described in detail in 3.3 *Search methodology*. As Eisenhardt recommends, the study consist of empirical data gathered by multiple methods to ensure the highest level of the empirical data possible (Eisenhardt 1989).
4. **Data analysis** – is the stage where the analysis of the cases is conducted. As the study is including more than one case and situation a *cross-case analysis* is conducted. Collis suggests that, when conducting a cross case analysis, that we are totally familiar with the gathered data. This to later be able to make separate descriptions of the cases, events, opinions and phenomena to enable identification of essential and useful patterns (Collis & Hussey 2014).
5. **Writing of the report** – is the stage where the written parts of the report are done.

The first case is conducted for the North American PT market and more specifically for Ford as a “best practice” case where the company that the study is conducted with have a very high market share. In relation to this case the second case is done for the central European PT market and more specifically for Daimler where the company that the study is conducted on have no market share on. By studying two different cases differences can be understood and compared to form relevant conclusions instead of only studying one case.

3.2 Research Design

In Figure 12 the research design of the study is illustrated and in Figure 11 the three phases of the study and their relations are illustrated. In Figure 11 phase one of the study is made in the first part of the study where we use a inductive approach. The second part of the study contains both phase two and three of the study where we use a deductive approach.

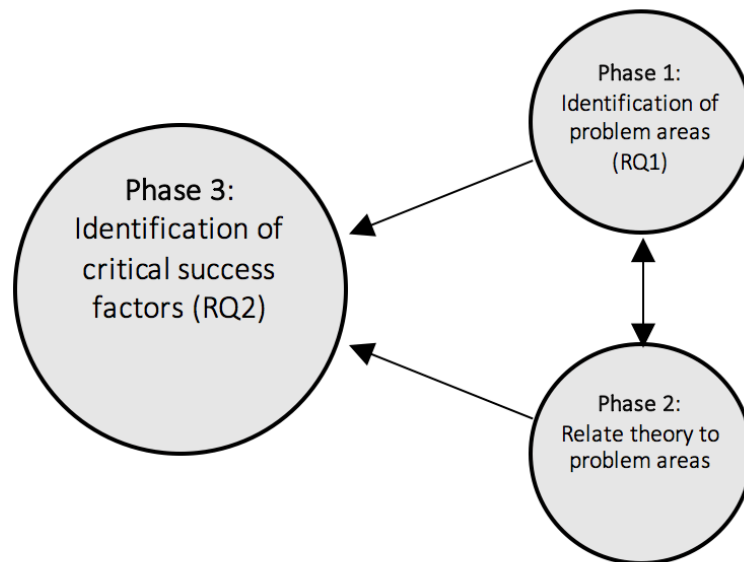


Figure 11: Interconnections of different phases of the study

3.2.1 Phase 1

Identification of problem areas for a supplier within a three-tier supply chain network in a relationship-driven B2B market and the answer to RQ1.

Problem statement and background of the study

The problematization and purpose of the study was based on the description of the problem given by Atlas Copco. In the description of the problem, the case company addressed the purpose of studying the phenomenon due to the lack of information of the powertrain producer market in central Europe and more specifically for Daimler. Ideas about what was the essential part of the study were discussed due to the wide scope of the description. As the case company didn't know which problem areas that were related to a market entry of the central European market the first part of the study was dedicated towards this goal and set as RQ1.

Descriptive case study of the current situation

In this part of the study data is collected and analyzed to identify problem areas for a supplier within a three-tier supply chain network in a relationship-driven B2B market. To do this data is collected that describe the current situation of The case company's product and service offerings, the relationship with key accounts and the structure of the supply chain with a focus downstream. Qualitative data collection methods are mainly used where two sources of data are used: interviews

and documentation. The interviews are conducted within all units within in the Motor Vehicle Industry (MVI) ranging from the R&D-unit to the Marketing-unit and from engineers to General Key Account Managers (GKAMs) and Business Line Managers (BLMs). Interviewees from each unit are selected based on their knowledge and experience of the product and service offerings, the relationship with key accounts and the knowledge and experience of the organization structure, focusing on the supply chain downstream.

To minimize theoretical biases of the interviews, the questions are posed as open and semi-structured. This to still have answers that point towards the scope of the study. The development of new and refined questions for the interviews are a proactive- and ongoing process during the whole period of collecting data to ensure collection of needed data in that specific period of time. The interview questions are divided in two parts. The first part is related to The case company's product and service offerings and examples of both positive and negative experiences within the offerings are sought. The second part focused and is related to The case company's supply chain, focusing mainly on the relationship downstream in the supply chain including the Machine Tool Builders (MTBs) and the end-customer (Daimler). The interviews are recorded to enable tracking of key information after the interview is conducted.

The second type of data that is used in this step is documentation. This data acts mainly as a complement to the interviews but also to understand the characteristics of the MTB and PT market as a whole.

Analysis and conclusions

In the final step of step one the problem for a supplier organization within within a three-tier supply chain network in a relationship-driven B2B market are identified based on the results of the descriptive case study made in the previous stage.

3.2.2 Phase 2 & 3

Identification of success for a supplier organization within within a three-tier supply chain network in a relationship-driven B2B market and the answer to RQ2.

Phase Two – Literature review that is related to the topics of the identified problem areas

The second phase regards the collection of literature related to the problems identified in phase one. Several literatures in Customer Relationship Management (CRM), Supply Chain Management (SCM) and Knowledge Management are reviewed based on given problems identified from the empirical study. In the next stage an extensive literature review on procurement, multi-tier supply chain, disintermediation and customer relationship management in order to explain the problems identified in phase one. The literature review investigates several aspects of supply chain flexibility including dimensions, implementations, concepts and definitions. The study is then narrowed down to the aspects that meet the problems identified in phase one.

Phase Three – Multiple explanatory case study, analysis and conclusion

The third phase of the study combines and connects the identified empirical study with the literature review. This phase investigates the relationship between identified problems in the empirical study with literature from SCM and CRM. Following the inductive approach, the results collected from the site visits, documentation and interviews are used to make comparison to the

literature review, to finally establish a set of propositions. Here it is necessary to isolate patterns and identify commonalities between the data in the empirical study and to gradually establish the generalizations that were common across the data in the empirical study. These generalizations are confronted against the body of knowledge in the literature review to finally develop propositions. The analysis is conducted in two stages: within-case analysis and cross-case analysis. The within-case analysis is mainly focused on the significant characteristics of the relationships among the parties of each MSC, while cross-case analysis helps to identify similarities and differences across the data conducted in the empirical study.

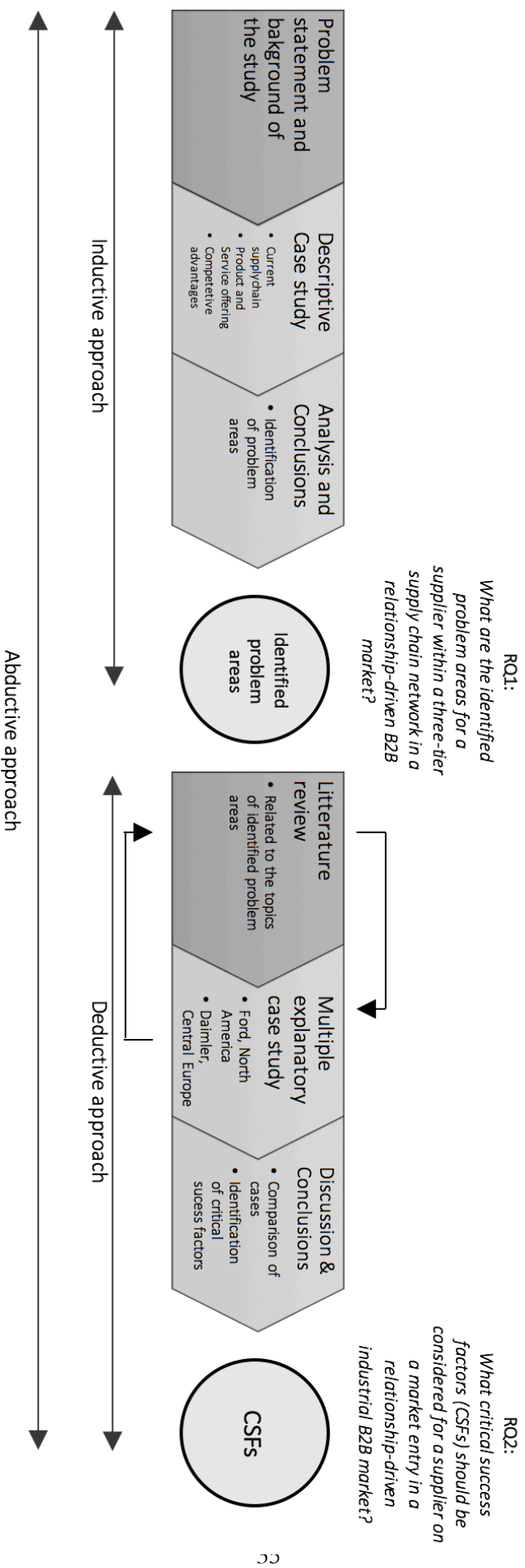


Figure 12: Research design

3.3 Search methodology

To find the optimal databases suited for the field marketing and supply chain, we used KTHB Primo search engine accessed via KTHB official webpage to search for databases. We then browsed to find the relevant databases within supply chain and strategic marketing studies. A total of six interesting databases and publishers were found including:

- Emerald Insight
- IEEE Xplore
- Wiley Online Library
- Springer Link
- Science Direct
- Elsevier

To further decide which of these databases were most optimal for our information need, the info section of each database/publisher was studied. Looking for databases suitable for the research, we found out that all databases listed above were the most comprehensive bibliographic databases of supply chain management and marketing research available. Since the study concerns supply chain, procurement and marketing, the source that would be most relevant are in bibliographic databases which are common in the field of management and organization and refer to documents from periodicals, conferences, reports, patents and journals.

Since the study emphasis a supplier organization within within a three-tier supply chain network in a relationship-driven B2B market, different angles of information search can be approached depending on the information need. The main subjects of the study can be categorized/classified into two major fields; the field of marketing and the field of supply chain management (SCM). Since the study concerns a wide area of different fields the information need can be broken down in to a list of relevant search terms to define the search request as precisely as possible. By combining and modifying the terms in the search field, the search will be more precise and give access to several sources in where we can find out the required information. The types of sources that would be viable for the study are primary information sources, which can be described as the original source for a piece of information. The primary information sources for this case are scientific journals full-text documents within marketing and SCM.

Using the databases listed above, the strategy is to break down the main questions into key terms and combining the synonym of each key term by the OR-operator in the search field and combining the key terms by the AND-operator using the iterative process. This will make it easy to keep track of- and re-run the search, by correcting and modifying the search strings iteratively for best possible outcome. The plan is to use iterative-process to improve our search list by modifying each search by adding more terms and using the operators, iterate it again and combining it with previous search results until we get the information need.

Table 1: Search terms

Supply Chain Management	Disintermediation	Customer relationship management
SCM	Disintermediate	CRM
Multi-tier supply chain	Middle-men	Knowledge Management
Supply-network	Power	KM
Triad*		Relational view
Procurement		Buyer-seller relationship
Down-stream supply chain		

In the first search process we searched for the key terms Supply Chain Management in different forms using OR-operator and truncating to avoid missing necessary information need since different databases and different authors write the same word in different forms. We saved the search string and moved on to the next key term, disintermediation. Like previous search, we combined words and forms related to disintermediation by using OR-operator, truncating and wild card to avoid missing out information need. In the third step we combined words related to customer relationship management using OR-operator and thesaurus. The fourth step includes the combination of the search string from the two first key-terms; Supply Chain Management and Disintermediation by using the AND operator, and got 9845 hits. To further broaden the results, we combined the key-terms Supply chain management and customer relationship management using the AND operator and got 8214 hits. To narrow down the results, we combined the three key terms supply chain management, disintermediation and customer relationship management, also using the AND operator and got 657 hits.

Table 2: Search strings

Steps	Search Code	Number of Hits	Tools used
1	“supply chain management” OR “SCM” OR “multi-tier supply chain” OR “MSC” OR “down-stream supply chain” OR “supply network” OR “buyer-seller” OR “triadic supply chain”	81 424	Free Search + Thesaurus
2	“disintermediation” OR “disintermediate” OR “power”	339	Free Search + Thesaurus
3	“customer relationship management” OR “CRM” OR “knowledge management” OR “KM” OR “relational view” OR “buyer-seller relationship” OR “relationship”	1 651 747	Free Search + Thesaurus
4	#1 AND #2	9 845	Combination using AND operator
5	#1 AND #3	8 214	Combination using AND operator
6	#1 AND #2 AND #3	657	Combination using AND operator

The hit list is examined using following steps:

- 1- How many references are found?
- 2- Are the sources relevant for the study?
- 3- Are they written in the language that we understand?
- 4- Are the search terms correctly spelled, and have we used the operators in the correct way?
- 5- Have we used the correct key terms, synonyms and acronyms that emphasis the study?

Once we have found the hit list we evaluated the validity by selecting peer-reviewed journals, where the articles have been reviewed and assessed before being publicized and which is a sign of good quality. These journals that have not been assessed and peer-reviewed can still be valid. However, it is our responsibility to evaluate the validity of these journals.

Four parameters were put in consideration when analyzing and selection of references: publication, abstract, controlled terms and how much the same journal has been cited in Scopus. It is important choosing references that are highly relevant in term of publication year. Among the references found in the search list, there were many reports that went out of the scope of our main information need and therefore weren't included in the reference choices. Some references in the search result weren't accessible to the full-text journals since they weren't available for accessing in the directed site, and the probability for a higher expectancy rate went down since we hadn't access to these sources.

The reference chosen was highly relevant in terms of date and peer-review and copes with the development of marketing and SCM. All of reference chosen to conduct a literature review, was published by Elsevier, Science Direct, Springer Link and Wiley Online Library, world-leading providers of information solutions in science and technology, among them Science Direct, which was the site we most of the time was redirected to from Primo. Elsevier is also a part of Reed Elsevier Group PLC, a world-leading provider of professional information solutions in different sectors, science, medicine and technology among them. Science Direct is the provider of one-quarter of the word's peer-reviewed full-text scientific and technical contents. Elsevier provides a mecca of updated within management and organizational studies, which makes the source we chose pretty reliable and authentic.

3.4 Methods used to collect data

The three main methods of collecting data are *interviews*, *documentation* and *site and visits* which are three qualitative data collection methods. With the case company as the first client of the study and the university as the second essential qualitative and quantitative data sources can be assure. The opportunity to collect data of the product and the market dynamics where provided by the case company, but also key connection with other divisions and working areas. Data related to the second part of the study was provided with help of the case company as they see this information as a key aspect of the study.

The amount of interviews, site visits and documents are illustrated in *Table 3: Data Collection methods*. At the left side of the table the three main areas of interest for the empirical data is illustrated case conditions, identified problem areas and the key competitive advantages. To the right of these areas the number of interviews, site visits or documents are illustrated. In specific cases one interviews have covered two areas, thus counted twice in the total amount of interviews conducted for the specific area. As seen in the table the interviews have been divided into three categories American PT market, Central European PT market and internal. These categories represent the interviewed person work only with the American PT market, the Central European PT market or have a position that is not directly related to each of these markets, in that case the interviewed person is counted under the internal category. The interviews were conducted with individuals that possess senior roles within the case company's organization including key account manager Daimler, technical manager, business development manager, global business manager PT, sales & marketing manager, global key account manager ford PT, global product manager for tools and assembly, general manager for Voice of the customer and individuals working under these individuals within the organization of the case company. The site visits where made on the case company's headquarters and the amount of documents used in the study regarding product information, service offering and the PT market are also illustrated in *Table 3: Data Collection methods*. In *Table 5: Findings* the main interview objects are listed.

Table 3: Data Collection methods

Data Collection methods							
	Interviews				Documents		
	American PT market	Central European PT market	Internal	Site visits	Product	Service	Market
Case conditions	0	5	12	1	14	1	2
Identified problem areas	3	9	13	0	0	0	0
Key competitive advantages	3	9	13	1	0	1	2
Total	6	18	38	20	14	2	5

3.4.1 Interviews

We choose to use interviews as a source to collect data because it gives the depth of specific information that we need, but also because interviews are a great method of generating innovative and out of the box solutions. As the phenomenon we study is so specific and ideas need to be created with the sources of the data it is a good initial method to collect data with. We choose to use semi structured interviews to provide answers that are not restricted in any way but still lean towards one type of topic. This to still have answers that point towards the scope of the study, compared with unstructured interviews that in some cases generate better answers but tend to move from the scope of the study. The development of new and refined questions for the interviews will be a proactive- and ongoing process during the whole period of collecting data to ensure collection of needed data in that specific period of time. The interviews are mainly made with employees from different business areas on the case company, but also with its customers and competitors if possible.

The main issues of using interviews as a source of collecting data is the problem of getting information on sensitive areas of the interviewed person but also that the interviewed person choose to answer the questions from a certain type of angle that is not beneficial for the study (Collis & Hussey, 2014). To handle this problem Smith argues for a developed understanding of the interviews world (Easterby, Thorpe & Jackson, 2012). By having a greater understanding for

the interviewed person and putting our self's in the mind of him/her helps us to ask the right questions and talk about the right topics to acquire the best answers possible.

The form of the interview is firstly being made *face to face*. This because it gives the best possibilities of getting a connection with the interviewed person but also the best chances of getting questions answered within “sensitive” areas. This form of interviews also helps to add depth to answers of complex questions (Collis & Hussey, 2014). This type of interview method is both expensive and time consuming but the case company provided the resources who were necessary.

The second form of the interview where made *Online* as a video conference when *face to face* interviews where not possible to conduct.

3.4.2 Site Visits

Site visits where conducted at the case company's headquarters in Nacka. The main purpose for the site visit is to understand the product, service and information flows between the case company, the MTBs and Daimler to obtain data about the inter-organizational processes and to triangulate information about the relationships with the end-customers (Daimler) and intermediates (MTBs). The visit also provided opportunities for identifying contradictories and different perspectives on the relationship with the downstream actors.

3.4.3 Documentation

Documents concerning the case company's product and service offerings, organization structure and value chain where collected from different units in the MVI division. Documents such as contracts and mail exchange where asked for from the case company to study the relationship dynamics in terms on long-term and short-term and whether or not the relationships relies purely on informal agreements. The contracts and the relationship dynamics where compared to the case company's relationship with Ford in the USA.

3.4.4 Ethics

The study has followed the ethical code provided by Collis & Hussey (Collis & Hussey 2014). The interviewed individuals in the study have been given a brief introduction of what the purpose of the study is before being interviewed. They have also been informed in which way the empirical data gathered in the interviews will be used in the study. Furthermore, all the interviewed individuals have the possibility to be anonymous and only stated by their position in the firm. All interviewed individuals agreed on participating in the study which means that nobody was forced neither tricked into being interviewed or being a part of the study. The research has not been affected or manipulated by any means by the focal firm, this assures the study to be independent and impartial.

3.5 Quality of analysis

When conducting a study, it needs to pass three types of tests that are *reliability*, *validity* and *generalizability*.

Reliability refers to the accuracy and precision of the study (Collis & Hussey, 2014). In other words, if the study will produce the same results if it is made again. As the empirical data for the study rely on three specific cases and use interviews as the main method of gathering empirical data the possibilities of getting the same results using the same data gathering methods is low. In other words, is it hard to reproduce the result. This due to that interviews in most cases generate subjective answers that have the possibility of changing depending on the context, background and position of the interviewee. For example, can a customer to the case company answer a question in a way that will benefit him/her compared to if the/she answers the questions if we say that we are from KTH and are independent. This is an important aspect that we need to consider when constructing and holding the interviews of the study.

Validity refers to if the data that is collected is relevant to the study and explains the studied phenomenon in the right way (Collis & Hussey, 2014). As interviews will be the primary source of empirical data the result can easily differ from the purpose of the study. Because of this it is crucial that the questions are given within the right context and level of understanding. But it is important to remember that interviews also can give precise and specific answers to the most complex questions that are hard to collect in any other manner. Besides that, the interviews will give the study up to date data that if made right gives precise data. It will also be of importance to proactively work with the problematization and purpose of the study to always ensure that the study is leaning towards the right direction.

Generalizability refers to the possibility to extend the information that is generated in the study and extend it towards other studies (Collis & Hussey, 2014). The first part of the study can be extended towards other studies as it identifies the problem areas for a supplier within a three-tier supply chain network in a relationship-driven B2B market. Other studies can use this information to understand these problem areas and develop the study from that point on in a different direction than this study has. Part two of the study is not easy to extend toward other studies as this part is closed within a specific case. The summarized literature gathered within this study can be used for studies related to supply chain management, disintermediation, procurement knowledge management and customer relationship management.

4 The case condition

The chapter gives the reader a brief introduction of the studied firm and the central European Powertrain producer market mostly to grasp an understanding of the value chain, supply chain network dynamics, procurement processes and the MTB market which contributes and facilitates the answering of RQ1 and RQ2. The chapter begins with a brief introduction of Atlas Copco's product and service offering, followed by a description of Atlas Copco's current sales channel(s), sales process, cross country sales process, a mapping of the current supply chain and a brief description of the MTB market.

4.1 Atlas Copco

Atlas Copco is a world leading provider of productivity solutions. The company was founded in 1873, is headquartered in Stockholm and have customers in more than 180 countries. The group offers customers innovative compressors, vacuum solutions and air treatment systems, construction and mining equipment, industrial tools and assembly systems. Atlas Copco's product portfolio focuses on productivity, efficiency, safety and ergonomics. Atlas Copco's powertrain division is a provider of assembly systems to the major powertrain manufacturers in the world. The powertrain division is one of four divisions in the Motor Vehicle Industry Division (MVI) at Atlas Copco Tools and Assembly Systems. The powertrain division at Atlas Copco desires to adopt a market segmentation approach to become in tune with customer and competitor behavior and provide a better understanding of different segment needs (Atlas Copco, Atlas Copco main page 2016).

4.2 Product Offering

4.2.1 Tensor Electrical Tools

Atlas Copco is a global leader in industrial power tools as the product offerings are smart, cost-efficient, reliable and ergonomic to use. The product offerings are integrated in modern and complex industrial assembly plants where each assembly tool must be optimized for safety, efficiency and quality; hence the tools are system-critical components in the overall assembly process. The product offerings used for the high-quality industrial assembly of threaded fasteners consist of Tensor assembly tools. Atlas Copco electrical tensor assembly tools are installed on production lines and are extensive enough with features that cover every application requirement. By featuring the latest technologies with fully integrated control and visualization systems for improved productivity, quality and efficiency, Atlas Copco Tensor Electric Tools now dominate the fastening market. The Tensor electrical tool range consists of seven electrical power tools that cover all application demands:

- Tensor DL: quality-critical low torque
- Tensor SL: safety-critical low torque
- Tensor DS2: quality-critical
- Tensor S2: safety-critical/traceable feedback
- Tensor ST
- Tensor STB
- Tensor STR

The Tensor portfolio encompasses a relatively broad range of tool configurations to cover every hand-held or fixture application found in an assembly plant. The Tensor tools are available for torques ranging from 0.3 to 4000 Nm. Atlas Copco's Tensor Electric tools focus mostly quality, productivity and cost efficiency gains (Atlas Copco, Product page 2016).

4.2.2 Power Focus 4000

The Tensor DS tools is monitored by a DS drive which comes in four models: Box, Basic, Advanced and Power Focus. The Power Focus 4000 (PF4000) is a control system suitable for Tensor S, ST, DS and ETX models. The Power Focus 4000 can handle all torque levels and comes in two versions, Compact and Graph where both versions offer the same functions, only differing in the user interface. The PF4000 Compact has a basic operator interface with a six-button keyboard and a LED display. The PF4000 Compact is pre-programmed using the Toolstalk Power Focus software and using PC as programmed interface. The PF4000 graph displays collected and analyzed statistical data. Changes and trends in the assembly process are displayed using diagnostics and statistical alarms, such as SPC monitor-charts and capability alarms. The PF4000 has an integrated Logic Configurator that provides PLC functionality as an integrated part of the controller. Integrating a Logic Configurator in the PF 4000 cuts purchase, set-up and installations costs and significantly simplifies system maintenance, thus saving time.

The PF 4000 offers a zero-fault process control using advanced control functions, which prevent the operator from deviating from the required process. The PF 4000 receives assembly information together with barcode that is scanned for component identification and automatically selects the correct tightening sequence and parameters. The programmed “Job” function offers traceable, zero-fault process control.

The Power Focus 4000 offers four different standard software levels since different applications demand different functionality. This provides cost-efficient software solutions ranging from basic non-networked system to a fully integrated system with the factory network. The four standard software levels are: DS, Bronze, Silver and Gold. Each required software level is provided using a patented Rapid Backup Unit (RBU) key. The RBU software keys are matched to the hardware using a “plug and play” approach. The RBU simply transfers demanded functionality to an empty hardware unit and can be upgraded if the functionality requirement changes. The RBU key is also used as backup for programming and configuration, thus program changes are transferred to RBU key and stored and can be easily be used in new hardware with a minimum downtime (Atlas Copco, Product page 2016).

4.2.3 Power MACS 4000

Power MACS 4000 is an advanced and automated fastening controller for fixture tools. The controller is geared with monitoring and communication capabilities combined with advanced management programs that overcome quality issues and enhance productivity. It is now possible to easily define the tightening strategy based on results and fulfil the requirements, thus making sure that the operator saves valuable time. Reject Management is the management program that automatically repairs tightening in a station. For example, when the operator notice that the bolt is not tightened according to the required specifications, the bolt then gets untightened of the spindle and the spindle makes a new try in order to get a green signal and proceed to the next step in the process. In some scenarios the tightened bolt can be removed from the assembly line and the problem is detected manually.

Atlas Copco is using a unique and patented tightening strategy, DynaTork that provides optimized fastening in terms of cycle time and quality. When the required torque value is reached, the DynaTork function then holds the torque in order to compensate for joint relaxation. Quality issues and problems are identified using integrated effective tools for statistical process control and analysis, continuous improvement and traceability, and therefore support a zero-fault production philosophy.

The new QST nutrunner is up to 67% faster than the QMX nutrunner and at the same time delivering the same accuracy and durability. The bus voltage is automatically increased for larger size nutrunners such as QST80 and 90 without any need of external controller or servo, resulting in unique speed capabilities for high-torque applications. Equipping an “Intelligent Chip” in the QST spindle assures error-free setup by storing data, which includes spindle and calibration parameters, serial numbers and maintenance intervals. The system is operated using no cabinet and therefore saves more space. The heavy-duty controller design and nutrunners delivers an accuracy of $\pm 2.5\%$ after one million cycles, which creates a longer service interval and reduces maintenance and downtime costs.

Power MACS 4000 has a friendly user-interface with easy programming of the most advance and flexible strategies using simple menus. The PM 4000 delivers a unique torque recovery strategy patented by Atlas Copco and optimized fastening with improved clamp loading. The Power MACS 4000 comes in two controllers, Primary Controller (TC-P) and Secondary Controller (TC-S). It is further equipped with a Main Switch Box (MSB) and a Distribution Box (DB) and are used for power distribution. Each MSB or DB is able to supply up to 6 controllers with power. The controller covers complete torque range from 2 up to 8000 NM (Atlas Copco, Product page 2016).

4.2.4 Power Focus 6000

Power Focus 6000 (PF6000) is the latest control system developed by Atlas Copco that features improved and new functions and design based on user experience. The software was designed to deliver best user experience focusing on reducing set-up and configuration time, training requirements, tightening know-how and focusing on intuitive navigation, flow and behaviour. The software has 12 languages supported including local date and time formats supported and local torque and unit formats. PF6000 can be accessed remotely via a web browser by an embedded HMI, which reduce training requirements and set-up time, as there is no need for additional software. An Intelligent Application Module (IAM) is an integrated portable module to the PF6000 where the operator can store and carry software, tightening configuration, tightening data, results and events in the module. It's an easy to upgrade rapid back-up function.

PF6000 allows the operator to have two software areas installed simultaneously, which provides faster upgrades. The software upgrading time for PF6000 using USB port is up to five minutes which PF4000 software upgrading time using Ethernet port is 15 minutes.

In the Motor Vehicle Industry (MVI) division, the PF6000 is segmented to the customers of Final Assembly, Heavy Trucks and Buses, Power Train and Tiers1. The PF6000 is suitable for the handheld nutrunners Tensor S and Tensor ST series considering the investment level and functionality of the handheld nutrunners. Power Focus 600 (PF600) is suitable to handheld nutrunners with a lower investment and functionality level such as Air and Tensor DS. Drivers and key values of PF6000 and Tensor STR are:

- Unique Operator Experience: Operator friendly and minimum training requirements.
- Superior Quality Control: Improving quality standards and cost reductions.
- Flexible Integration: Optimized start-up and lowest total cost of ownership

The new Power Focus 6000 and Tensor STR is designed and upgraded with new functions to meet customer needs and demand. Four key aspects of customer needs are identified: Environmental, Quality, Ergonomic and Productivity. (Atlas Copco, Product page 2016)

4.2.5 Core Competences from a product perspective

In the section below the three most important core competences from a product perspective are presented. The first is the tensor productivity, the second tensor quality and the third and final is the cut of costs with tensors.

4.2.5.1 *Tensor productivity*

To ensure superior cycle times and optimum cycle rates at maximum efficiency for the most demanding applications, motor power and spindle performance are vital to increased productivity and efficiency. The Tensor Electric tools are powered by a proprietary motor technology that ensures maximum efficiency. The torque value is traceable from transducerised tools such as Tensor S and ST and can be stored to ensure that the tightening process has been carried out to the correct torque level. Tracing the torque value eliminates the need for click wrenches, as no additional tightening is required. This function increases the productivity and decreases the labor costs in an assembly plant.

The Tensor Electric tools are designed that ensures that operators avoid strain, fatigue caused by weight, uncomfortable grip, vibration or sudden force in the reaction force. The programmable ErgoRamp featured in the ergonomically Tensor tools further reduces strains and increase in turn the productivity. Tensor electrical tools offer a quieter workplace by offering sound levels of 50-60 dBA and therefore generating less noise than conventional tools. The electric Tensor tools do not generate oil mist or contamination, which ensures a cleaner environment and contributes to higher-quality Tensors. (Atlas Copco, Product page 2016)

4.2.5.2 *Tensor quality*

The hand-held electrical nutrunners meet the highest standards for fastening accuracy and tested in compliance with the international ISO5392 test standards.

The Tensor electrical tools enable a complete quality control system where all tool types monitor the entire fastening process. The control systems monitor the number of turns, the tightening and rundown angle. The monitor detects stripped and crossed threads, allowing the operator to correct errors at source.

Operator feedback is integrated into the Tensor tools with signal lights built to ensure that the operator is notified in case of errors or problems related to the tightening process. This gives the operator the incentive to take corrective actions in such situations. (Atlas Copco, Product page 2016)

4.2.5.3 *Cut costs with Tensor*

The design modularity of the Tensor tools keeps the number of components and mechanical parts to a minimum, which makes the Tensor tools more reliable. Each component of the Tensor is of high quality and optimized for maximum service-life, ensuring increased maintenance intervals and at the same time minimizes breakdowns.

Tensor electrical tools reduce the number of tools required to perform the same job as any Tensor tool has a programmable and adjustable torque specification. Having a multi-torque capability, the operator can apply a desired torque within the specified torque range and therefore using the same tool for many applications requiring different torque specifications.

The Tensor electric tools have simple installation procedures, reducing set-up and installation costs. There is no need in investing in a compressor or airline system when setting up the Tensor electric tools. The Tensor tools also have lower operating costs, as the energy consumption for a Tensor tool is approximately only a twentieth of what a conventional tool consumes. Having a superior productivity, combined with low investment costs and low operating costs, ensures the investor a fast payback of the initial Tensor investment. (Atlas Copco, Product page 2016)

4.3 Service offering

Beside proving its customers with state of art products Atlas Copco have a high variety of services that they provide. Atlas have a vision of providing services that helps the customer increase the uptime of the products, improve process quality and increase the efficiency in production, maintenance and quality of the processes. The services offered by Atlas Copco extends between support services as a 24/7 customer care line to more specific and sophisticated services that require expertise as a joint analysis. The sales of services have grown rapidly in recent years, currently 60% of the revenues are coming from services. (Löfgren 2016)

4.3.1 Service segments

Atlas Copco is currently segmenting its customers for the services into three segments illustrated in Figure 13. As illustrated in the figure the customers are segmented into *uptime*, *stability* and *protect* customers. The segments are differentiated by the amount of tensors, fixtures and the type of tools used by the customer. The customer segments relevant for this study are the *uptime* and *stability* segment where the powertrain customers are located. The powertrain customers have a high demand for services that provide improvements to the tightening quality and a lower demand for services that improve the tool uptime. (Löfgren 2016)

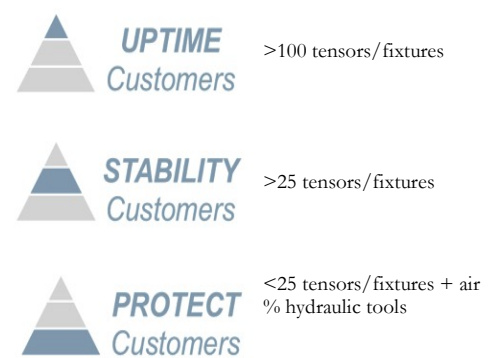


Figure 13: Service customer segments (Sales & Market manager, 2016)

4.3.2 Service offering based on segment

As the product offering Atlas Copco work with the same modular system for the services to provide the flexibility that is demanded on the market with the financial benefits of having a standardized offer of services. In Figure 14 the different demanded services by customer segment are illustrated. All segments including the powertrain producers are in need of start-up services as the *result scan* and *easy start* but also optimization services. The *result scan* and *easy start* are either provided directly to the end-customer when a new system is bought or to the MTB if the end-customer wants to buy the whole production line from one single supplier. The differences between the services is that the result scan is made based on historical data, thus must either be tested in a laboratory or be done after a certain time have passed. (Löfgren 2016)

The provided services for the tool maintenance differ for each segment where the *uptime* customer segment is covered by the whole service offer. To be able to provide all these services an Atlas Copco service office is located at the location of the customer. This in comparison with the two other segments where a service team is not located at the location of the customer at all times. This enables Atlas Copco to offer services that track KPI's that are of importance for the customer, field services, preventive maintenance, tool calibration and breakdown repairs. For the *stability*

segment a service team is visiting the customer frequently which enables the whole service offer beside the tracking of KPI's. The *protect* customer segment are only cover by *tool calibration* and *individual repairs*. (Löfgren 2016)

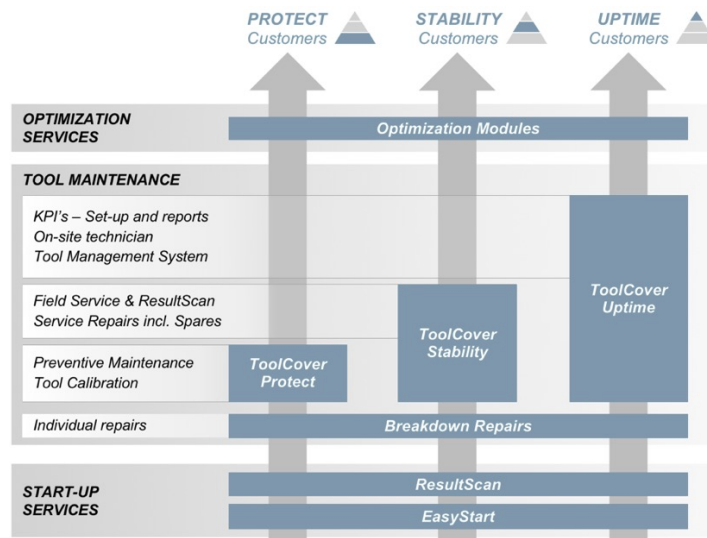


Figure 14: Service offering for each segment (Löfgren 2016)

4.3.3 The modular service offering and optimization modules

As written before the services are build up as a modular system consisting of optimization modules, tools maintenance and start-up services illustrated in Figure 14. The optimization module is divided into the four different customer needs: *support*, *knowledge*, *productivity* and *quality* where every area consists of specific types of services offered by Atlas Copco and is explained in detail in Figure 15. (Löfgren 2016)

Support, this area consists of two services that provide support to the customers in two forms. Either by phone to the 24/7 customer care line or by on site by the first line support.

Knowledge, as many of Atlas Copco's products require training and learning a big part of Atlas Copco's services offering consists of training its customers in different forms for example on how to use the products in the best way possible or how the tightening should be done as optimally as possible.

Productivity, as many of the customers and more specifically the powertrain producers are always working with reducing the lead times and increasing the productivity of the production line. Atlas Copco want to offer services that support theses improvement for example do they offer *line balancing* or *process optimizations*.

Quality, to complement the high quality of Atlas Copco product offering services that enhances the quality are provided for the customers. For example, can a customer sign contracts that allow him/her to always have the latest software updates or preform a joint analysis. (Löfgren 2016).

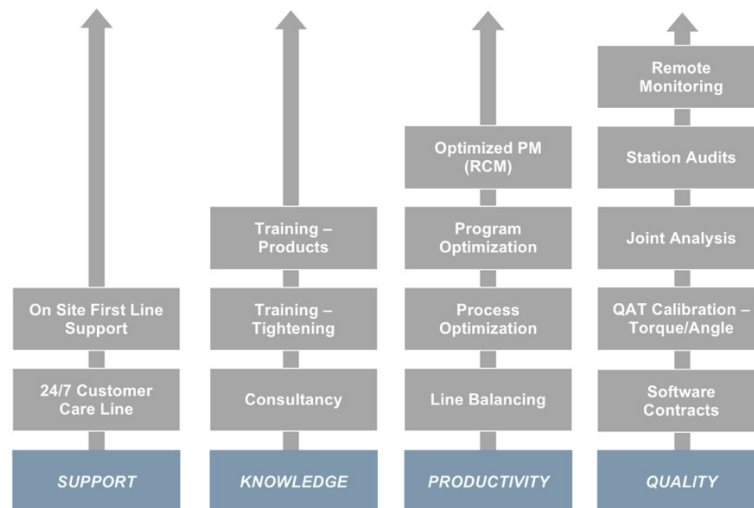


Figure 15: Modular service offering (Löfgren 2016)

4.3.4 Competitive advantages and improvements of services

If the competitive advantage and attractiveness of the service are equal Atlas Copco are strong within four areas. *Maintenance of the tensors and fixtures* where Atlas is currently market leader for the tensors with almost a market share of 50%. But are not as competitive on the fixtures. *Production optimization* where Atlas is one of the best providers of product optimization services on the market, but struggle to increase its market share due to problems of hiring staff with the right competence. *Data driven services*, which is a growing type of service on the market and perceived as one big part of the future in services as it increases the customer value and at the same time decreases the cost as fewer human resources are needed.

Seen from the other perspective Atlas Copco have weak sales processes and competences in comparison with its competitors. The service portfolio can be more diversified to fit the customer needs in a better way instead of providing costly services that are unique and only made specially for one type of customer. To be competitive within the new field of services which is the data driven services Atlas must improve its system support and IT structure but also its software competences. (Löfgren 2016)

4.4 Sales channels and relations with MTBs and powertrain producers

Within the central European Market Atlas Copco is currently using two sales channels in relation to other business areas as *final assembly* where only one channel is used. Only one channel was used towards the powertrain producer market at first, but worked poorly. As a direct reaction to this Atlas Copco raised the importance for the MTBs as a sales channel, as the bargaining power of the MTB is high during the sales process of a new production line. In other words if the MTB recommends a certain supplier of tools the powertrain producer is strongly influenced by this information (Key account manager Daimler, Relation to MTBs in central Europe 2016).

The biggest channel of the two identified in Figure 16 is the one through the MTB. This channel is used when bigger projects are initiated. Either of a new production line or the rebuilding of an existing one. Through this channel Atlas Copco only provide the components requested by the MTB. Support is also provided but only to the MTB in the production of the final product.

Through the direct channel, only smaller orders are made by the customer in form of spare parts or specially made products with unique solutions. The main purpose of this channel is to provide service and support that is called “after sales” services. But if requested by the customers Atlas

Copco can provide whole solutions to its customer by this channel as the local application centers almost have the same function as the MTBs when delivering specific solutions to its customers.

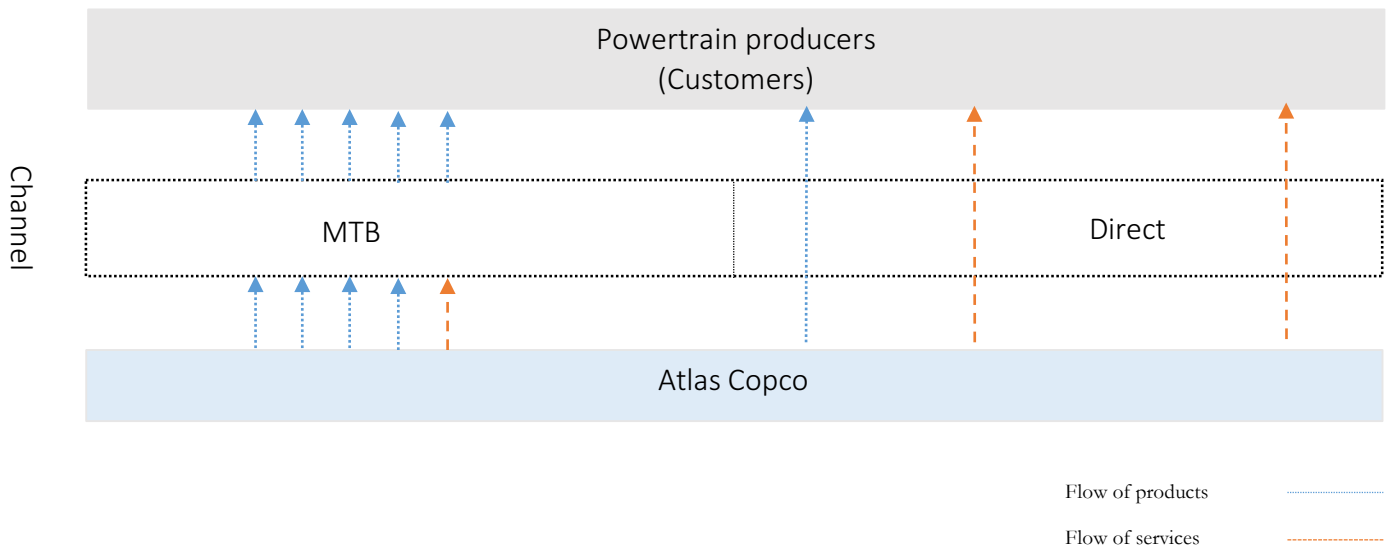


Figure 16: Sales and communication channels between Atlas Copco and the powertrain producer

4.5 The business flow and interconnection between the MTB, Atlas Copco and the final customer for the central European market.

The business flow is based on the interview with the global key account manager for Daimler in Germany. The sales process and interconnections between the MTB, Atlas Copco and the end-customer (PT producer) are complex and every sales process is unique. But the main pattern of how a sales process between the MTB, Atlas Copco and the end-customer functions is illustrated in Figure 17. The model consists of four stakeholders:

- Atlas Copco
- Powertrain producer (end-customer)
- Atlas Copco's sales representatives for both the MTBs and the powertrain producer
- Machine tool builders (Intermediates)

To simplify the model further the number of MTBs are limited to three but the number of MTBs change from case to case and are not fixed to a specific number. As illustrated in Figure 17 four different types of flows are included in the model:

- External flow of information (Black)
- Internal flow of information (Green)
- Flow of products (Blue)
- Flow of services (Orange)

The sales process can be summarized into 7 steps and is illustrated in Figure 17:

[1] The powertrain and end-customer announces that a new project of a new production line is needed and a first contact is made with the most relevant MTBs. Usually this contact is made with

the previously contracted MTBs but new ones can also be included in the process. The MTBs receive the information and provide an offer and concept for the powertrain producer.

[2] Simultaneously as the project is announced by the powertrain producer a sales representative from Atlas Copco that is located at the powertrain producer, informs the sales representatives from Atlas Copco at the MTBs that a new project is going to be initiated. The sales representatives can at this stage of the process promote and offer the product to both the end-customer and the MTB. By doing this the sales team can affect the sales process on two levels as the MTB is as important as the end-customer. This is due to that the MTB also has bargaining power in the election of first tier suppliers, they usually recommend a certain type of supplier of tools. This recommendation has a big influence on the end-customer's decision in most cases. But in the end it is the end-customer that decides a list of normally three main suppliers of tools that the MTB needs to choose from. If the supplier is not on that list it cannot be chosen by the MTB.

[3] After the offers have been revised by the powertrain producer a decision of which MTB that is going to be the supplier is made. The information is communicated by the sales representative located at the powertrain producer to the sales representative located at the elected MTB (MTB₃ in Figure 17). If the sales representatives at both positions have done a good job, the powertrain producer and the MTB choose Atlas as a provider of tools instead of the other two alternatives.

[4] Atlas Copco receives an order of the demanded tools from the MTB

[5] Atlas Copco sends the order of the demanded tools to the MTB and provides service in form of support when the MTB is building the production line. Usually this support consists of representatives from Atlas Copco that help the MTB incorporate the tools into the production line. The building of the line normally takes 6-12 months and is dependent of the size and complexity of it.

[6] When the MTB has produced the production line it is shipped in pieces to the powertrain producer and the final assembly of the production line is made at the location of the powertrain producer. In this stage Atlas Copco is also involved in the support of the final assembly of the production line, usually with representatives.

[7] When the production line is assembled Atlas provides "after sales" services for the powertrain producer in form of support, replacement of parts, modification etc.

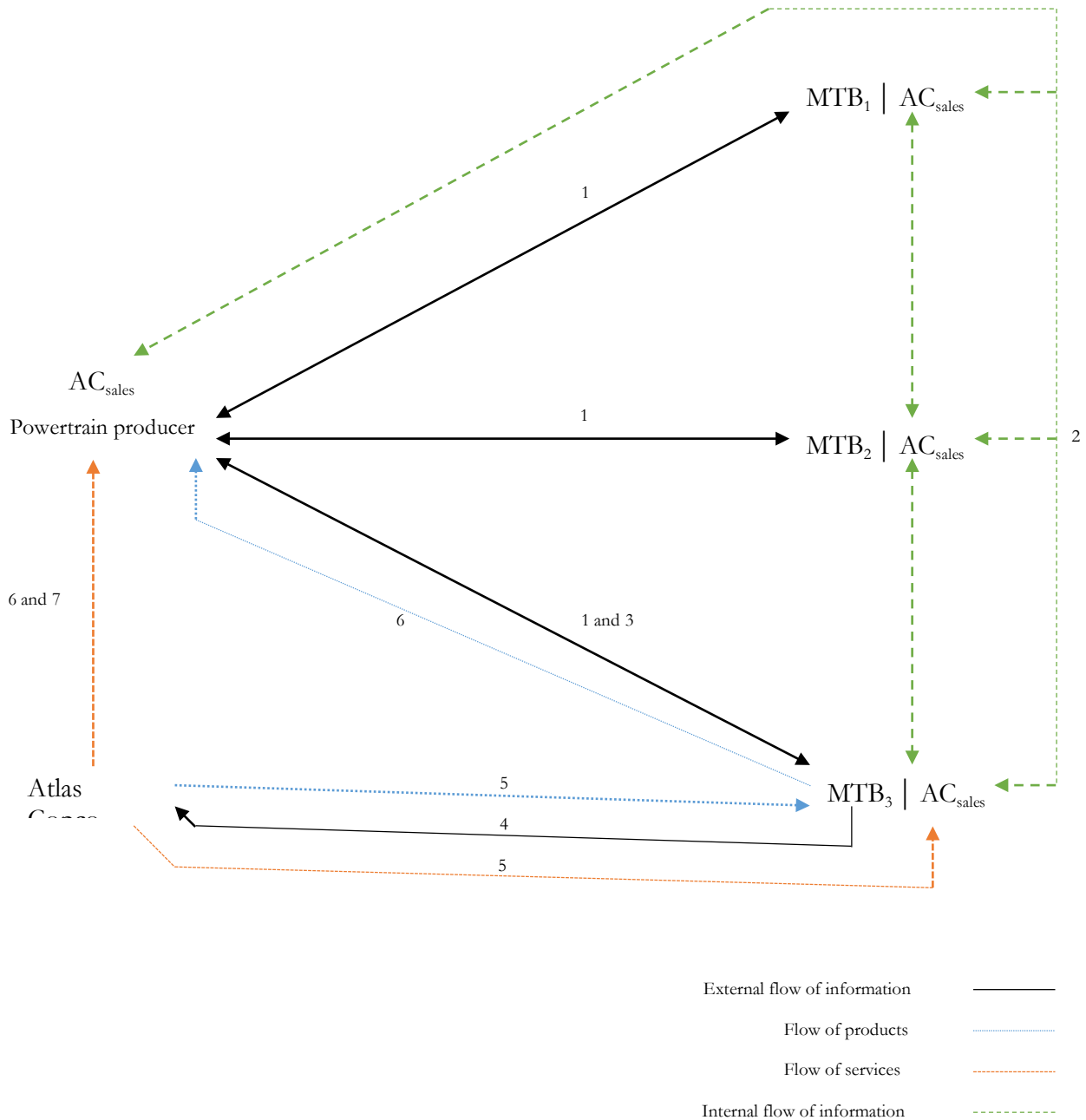


Figure 17: Business flow and relations between Atlas Copco, MTBs and the powertrain producer (Lenchov 2016)

4.5.1 The sales process on the North American market

The sales process within the North American PT market differs from the Central European in smaller details that have a big impact on the sales process. In comparison with the central European market that only have one general key account manager for both the PT and final assembly market. The American market have a general key account manager that only targets the PT market and one that targets the final assembly market for for each customer (Ford and General motors) (Global key account manager Ford PT, Introduction of the North American market 2016). This enables better relations with the specific markets as they work totally different. The PT market is dependent of MTBs as the production lines are more complex and usually contain many automated steps in comparison with the final assembly lines. As described in the sales process for the central

European market the MTB usually gets a list of three supplier of tools to choose from. From that point on the MTB have the power to choose the supplier that suits its needs in the best way. In comparison with the sales process in central Europe the sales process is the same for the North American PT market with one big difference. The final customer (Ford for example) gives a list of three tool suppliers but strongly indicates that Atlas Copco should be their provider of tools to a reasonable price. The election of three suppliers is working more as a formal measurement to not put Atlas Copco in a monopolistic situation. It is the good relationship between the general key account manager in North America and key persons within the organization of the final customer (Ford for example) that mainly makes the difference in the sales process between the two cases (Global key account manager Ford PT, Introduction of the North American market 2016).

4.5.2 Cross border sales

As written in the litterateur review, the MTBs usually operate globally and rely as much on exports as local sales. Currently Atlas Copco targets both the MTBs and the powertrain producers within most geographical regions. Besides having sales representative at the sites it is very important that the information between different parties can flow fast and efficiently in a secure and reliable way. An example of a cross border business processes is illustrated in Figure 18 and the general steps of this type of process is described below (Key account manager Daimler, Relation to MTBs in central Europe 2016):

[1] The powertrain producer (end-customer) located in Russia chooses to place a new order from a MTB located in Germany. Before and during the order is placed communication is shared between the MTB and the sales representative from Atlas Copco, the Powertrain producer and the sales representative from Atlas Copco and between both the sales representative from Atlas Copco located in Germany and Russia.

[2] The tools demanded from the MTB in Germany are supplied by Atlas Copco

[3] The finished production line is shipped in pieces to the powertrain producer and the final assembly of the line is made on site

[4] After sales support and support during the final assembly of the production line is made by the local Atlas Copco office in Russia.

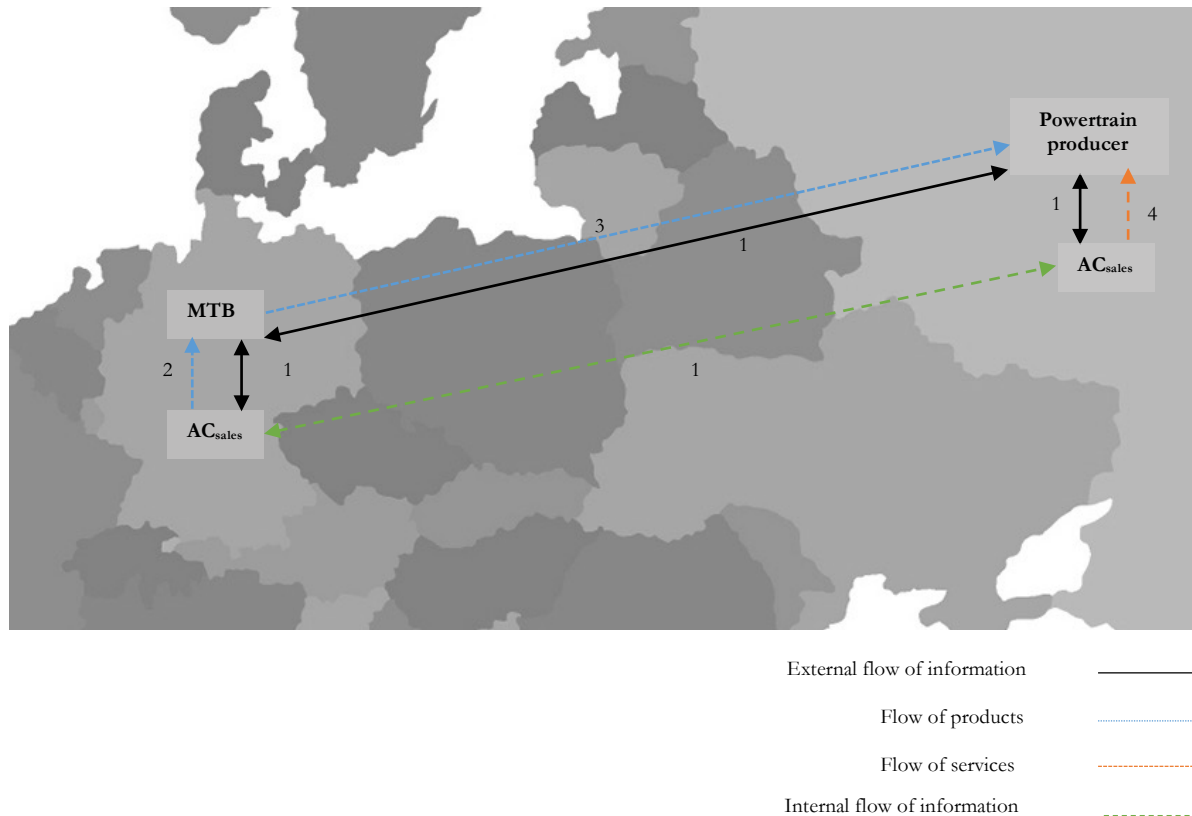


Figure 18: Example of a cross border business process (Key account manager Daimler, Relation to MTBs in central Europe 2016)

4.6 An overview of the supply chain

The supply chain from the MTBs perspective is illustrated in Figure 20. Most often the MTB produces a handful of parts of the production line themselves but rely highly on good suppliers. Usually a normal MTB has 100+ channels to first tier suppliers of products solutions to services (Key account manager Daimler, 2016). One of these suppliers is Atlas Copco, as Atlas Copco is the first tier supplier to the MTB, is it important that both parties have the same strategy and vision. With this we mean that if the MTB relies on the quality of its products and the speed it can deliver the production line. Atlas Copco as the other supplier must also deliver products with high quality and be able to deliver the products fast. Because the production line that the MTB is delivering to the final customer consists of the products made by Atlas Copco. Because of this the importance of identifying what the final customer demands are as equally important as identifying which MTB that provide the requested features and characteristics.

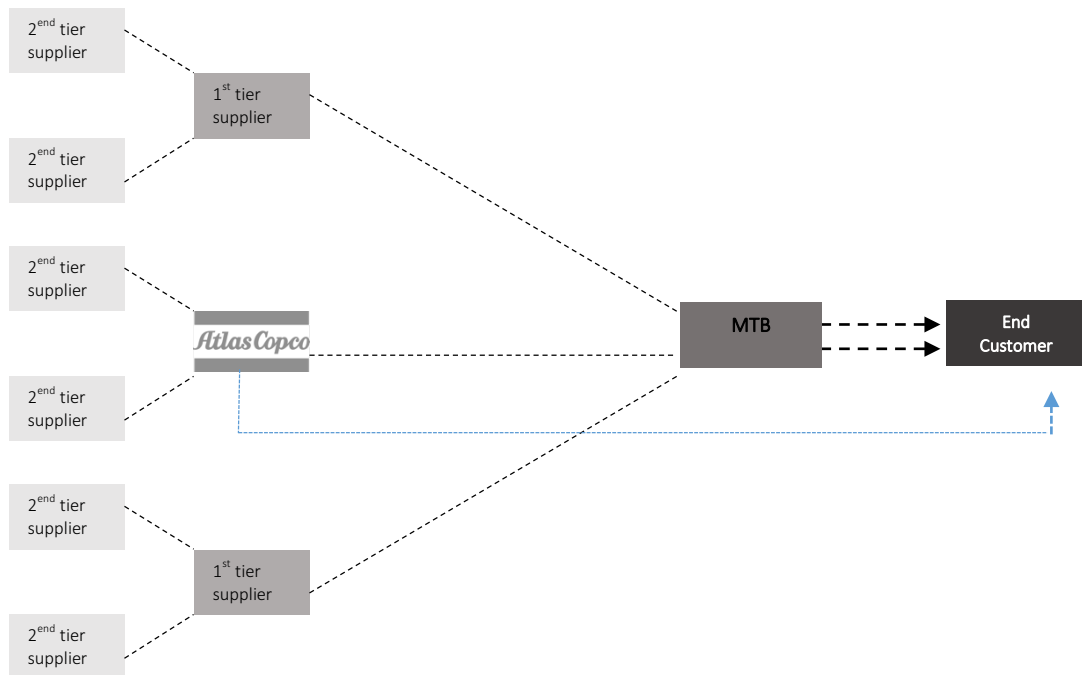


Figure 19: Atlas Copco position in supply chain

4.7 Machine tool builders

4.7.1 Introduction

Machine tool builder (MTB) is a subsector of the mechanical engineering industry and is the origin of any manufacturing process including the automotive industry. MTBs have and will have a big influence over the automotive industry production and the powertrain (PT) production in particular (Hauser 2011). The main driving force and competitive advantage within the MTB industry is to make efficient and cost effective systems. This due to that more efficient systems do not only lead to a lower cost per unit for the customer but also lower lead-time for example. As this is an important factor and competitive advantages the industry is very R&D intensive with an average of 3,1% (Hauser 2011) of the total sales invested in R&D. Compared with actual MTBs in the region (Germany) ThyssenKrupp's reinvest 2,5% from sales to R&D (ThyssenKrupp 2014/2015). This number is smaller than the 3,1% average. In comparison to KUKA with 4,6 % (KUKA 2014/2015) and Siemens with 5,6 % (Siemens 2014/2015) reinvested in R&D. Both of these actors are a part of the MTB market but have other business units as well that consume R&D resources which leads to the elevated investments in R&D. How much money that is invested only on the machine tool building division with focus on the powertrain unit is hard to determine. But a relevant conclusion that can be made is that the reinvestment in R&D is below 3,1 % rather than above. In comparison with Atlas Copco that reinvest 3,2 % (Atlas Copco 2014/2015) of the total sales in R&D the MTB market is situated slightly below.

The MTB work as a gathering point in the supply chain and is situated in a central key position between the customer (powertrain producers) and the suppliers upstream. The MTB is the actor in the supply chain that assembles all the parts and tools requested in the production line by the car producers. Most of the tools are supplied by first tier supplier upstream but can also be produced by the MTB (Key account manager Daimler, Relation to MTBs in central Europe 2016).

As the market is global the industry is independent of any geographical location and do not depend on any geographical location in particular. In 2010 EU was the biggest exporter and possessed 52% (Hauser 2011) share of the total exports in the world with Germany as the biggest producer with 43,5% (Hauser 2011) of the European market.

4.7.2 The machine tool builder market

The MTB market is generally speaking dominated by 20 bigger players and a handful of these can be found in Table 4: List of the most dominant players on the MTB market. But there are also MTBs in the midrange size that principally operate in specific regions and smaller that operate locally (2).

Table 4: List of the most dominant players on the MTB market

Machine tool builder	Location
ThyssenKrupp	Essen (Germany)
Krause	Germany
Siemens	München (Germany)
ABB	Sweden
KUKA	Augsburg (Germany)
Hirata	Osaka (Japan)
Comau	Turin (Italy)
Fori	Shelby (USA)
DalianHaosen	China
Tian Young	China
Tata	India
Hanwha	South Korea

The players on the MTB market are characterized by two main competitive advantages *cost* or *differentiation*. In the study made by the CECIMO “competitiveness of the European machine tool industry” 7 key differentiating factors are identified (Hauser 2011):

- Quality
- Performance
- Precision
- Productivity
- Reliability
- Brand
- Ability to solve customer problems

All factors are equally important to be a strong competitor on the market and are also depending on the market segment the MTB is competing on. But the three most important factors of the European market are *precision* which is the ability to deliver production lines that work with

precision and accuracy. *Reliability* which is the ability to deliver what the customer want and in the right time frame. The third and final ability is to provide new and unique solutions for the customers as for example new flexible lines that are highly requested at the moment from the powertrain and automotive industry (CECIMO,2011).

As the competition between players on the MTB market is high. But also because of the scale (5-10 million €) (Key account manager Daimler, Relation to MTBs in central Europe 2016), duration and low frequency of the projects the bargaining power of the customers is elevated. As a result of this the MTBs usually form long-term partnerships with specific customers which results in co-development of specific solutions for the customers. But also in lower profit margins and higher expectations on the MTB that the customer has formed a partnership with.

With the growing number of powertrain producers within the emerging markets (Asian, India and Brazil) the threat of new startups within the MTB market can be viewed as big. But the entry barriers to the MTB market are high which results in a limited amount of new players that actually pose a threat to the existing actors on the market. Hauser states the following three barriers to the MTB market (Hauser 2011):

- The market is capital intensive which leads to that the new entrant needs to posse's high amounts of capital to compete with the rest of the competition
- The market has a high level of "know how" knowledge which leads to that the new actors needs to put big amounts of resources on R&D to be able to compete on the same level as the other actors on the market
- The market is relying on long term relationships with the customers that have been established over longer periods of time

5 Findings and Analysis

The main purpose of this part of the study is to present the findings of the study and answer RQ1. First a table with an overview of the main findings are illustrated followed by each identified problem areas for a supplier within a three-tier supply chain network in a relationship-driven B2B market. The findings are based on the empirical material gathered by the data collection methods explained in the method chapter. The findings of the the case study primarily entail two activities. First, the qualitative data, collected based on the semi-structured interview tool, are presented in a table with two categories: identified problem areas for a supplier organization within within a three-tier supply chain network in a relationship-driven B2B market and key competitive advantages. Then, spread throughout each category are subjective interpretations of data and analysis. After going through each category, the findings and analysis are summarized in a table.

In table 5 the main findings of the study are presented. They are divided by interview object, identified problem areas and key competitive advantages. The purpose of the table is to give an overview of the main findings and the allocation and source of the problem areas and key competitive advantages.

Table 5: Findings

Position	Identified problem areas for a supplier within a three-tier supply chain network in a relationship-driven B2B market	Key competitive advantage
Key account manager (GKAM) Daimler	<ul style="list-style-type: none"> Relationship to MTB and end-customer is key No formal mapping of current and future engine and transmission production. Motivate the MTB to buy more than just components No system or structure in place to handle customer knowledge and relations 	<ul style="list-style-type: none"> Ability to solve customer problems Custom made products and services
Technical Manager ACA	<ul style="list-style-type: none"> Relationship with end-customer Pricing strategy is crucial Understand and manage customer needs efficiently 	<ul style="list-style-type: none"> Ability to solve customer problems The ability to provide special solutions Global and local reach
Manager Business Development	<ul style="list-style-type: none"> Better use of application centers Decrease dependency of MTB Relationship with end-customer 	<ul style="list-style-type: none"> Ability to solve customer problems Flexibility Global and local reach
Global business manager powertrain	<ul style="list-style-type: none"> Lack of market knowledge in central Europe Lack of knowledge of Daimler and Daimler's engine production facilities. 	

Sales & Market manager	<ul style="list-style-type: none"> • Motivate end-customer to understand value of both products and services • Better understanding of customer service needs 	<ul style="list-style-type: none"> • Best maintenance of the tensors and fixtures • Production optimization solutions • Data driven services
Global key account manager Ford PT	<ul style="list-style-type: none"> • Integrated sales force structure • Lack of skilled sales force in the powertrain segment • Sales channel • Buyer Power • Component sales rather than complete solution 	<ul style="list-style-type: none"> • Application centers and service • Reliability
Global product manager at Tools and Assembly	<ul style="list-style-type: none"> • Lack of market knowledge • Unclear sales force structure • Information asymmetry within the MVI division (between the Global Key Account Managers) 	<ul style="list-style-type: none"> • Product quality • Worldwide application centers • Adaptability and customized solutions to customers
General manager Voice of the customer	<ul style="list-style-type: none"> • VoC only formal source of information of customer demands 	

5.1 Machine Tool Builder (MTB) demands

Based on the interviews with the technical manager and the business development manager three competitive advantages were identified:

- Ability to solve customer problems
- Flexibility
- Global and local reach

Atlas Copco's success is based on the fact that they have always been able to solve customers' problems in all situations (Technical Manager ACA 2016). The customer is never left alone if something does not work. Failures in the production are costly and need to be solved fast. Many tool suppliers provide support and service when a problem occurs, but no producer is as fast and efficient as Atlas Copco. In fact, Atlas Copco have been so successful at solving special types of problems that Atlas Copco in some cases have replaced an existing tool supplier because they could not solve the problem.

The flexibility is the second core competence and is the ability to customize the product after the customer needs. Atlas Copco is working with a standardized modular system that enables a high level of variety to a low price in comparison with totally specialized products that Atlas Copco also offer, but to a higher price. Over the years the ability to make specialized products after customer needs have been a huge success factor for Atlas Copco, where new innovative products have been created in combination with a reputation of always being able to make the requested modification of a certain product to fit the customer demands. The Global and local reach is the ability to be a global organization but being able to act locally. With the support of the application centers located on five locations around the globe (USA, Brazil, Germany, India and China) and the local sales units,

advantages of being both a global organization and having the local knowledge can be combined, which only a limited amount of competitors can do on the market.

5.1.1 Selection Criteria in the selection process of fastening equipment

The most important selection criteria according to the GKAM for Ford PT in the selection process of fastening equipment is: cost, relationship, quality of the fastening equipment that Atlas Copco provide, the reliability of the equipment, and the financial stability of the company. According to the GKAM for Ford PT, it's important to understand the culture that exist in the whole industry in central Europe and how different it is in the USA. By the culture, the GKAM for Ford PT refers to the OEMs. In the USA, Atlas Copco had to force a changing culture and they were successful in doing that at Ford powertrain. So the MTBs have four key aspects that they would look for in a partner in any type of equipment. In central Europe, the OEMs gives the MTBs all the decision-power. So the most important thing is that the MTB have an obligation to their OEM to build an engine, with the amount of money they are given. So, controlling cost and their budget is paramount factors to the MTBs. They can be given unlimited funding; they can do a whole lot of things such as buying the most expensive equipment, with all types of support. However, they don't have that kind of luxury, but a restricted budget. The second thing they have to know is if they will get their on-site technical support they need to make it right or if they do have the capacity within their own organization that Atlas Copco doesn't have if they place an order. Therefore, some MTBs have their own internal technical capabilities. So the less internal technical capability of integrating components that MTB has, the more support they're going to require from the supplier. Therefore, the support structure is important.

The GKAM for Ford PT further stated that MTBs don't care so much about reliability of the engine, i.e. the ability to make engine run on an ongoing basis over the next 5 years. They can blame the tool suppliers and their warranty is only one year. So the only thing they have to do is install it and make sure it runs for one year. Everybody's system will do that and if they don't, they shouldn't be in the industry. Reliability is the OEMs' problem, not the MTBs' problem. The MTBs is not charged for assuring that the equipment will hold on for e.g. 20 years. Reliability of the equipment is important to the operators working at the end-user facilities who are responsible for keeping the equipment running and want to be able to know that the equipment that the MTB have put in will run effectively for 15-20 years. But if the equipment doesn't run for four to five years, the MTB can just slap their hands together and say that it's not their problem.

The one thing that the MTB will be doing, is once they made their selection on which supplier that will deliver the equipment, usually the lowest cost providers as long as these companies meet the reliability and support standards that OEMs require. The support and reliability outweigh any financial advantage they get. But also, the MTBs still have to convince OEMs to agree to go with the nutrunner supplier that they have selected. So it's not likely that Ford will agree to put a smaller unreliable MTB on one of their plants. Most of the times, the instructions that the OEMs provide specifies which tool suppliers that the MTBs must choose from and those that they are comfortable with, such as: Apex, Bosch or Atlas Copco.

5.2 Identified Problem Areas

One of current problems that Atlas Copco have in Germany and the rest of central Europe is the necessity of having a skilled sales force (Global key account manager Ford PT 2016). Selling PowerMacs fixtured automation equipment is much more complicated than selling Powerfocus hand-tools: the sales process takes longer, is more sophisticated, the implications of not doing a good job are far more expensive and swiping, and the risks are therefore higher. The expectations of the customers when they mount the fixtured solutions into the stations, is that the solution

should run perfectly for approximately 20 years. The customer doesn't expect that they should do anything with that solution for the next 20 years. That's the mentality in powertrain according to The GKAM for Ford PT. In Final assembly (FA), if a hand-tool goes down, the operators will replace it with another Powerfocus controller, unplug the RBU, program it and get it back running, and that hand-tool is not expected to run more than three to five years. A lot of that is because the vehicle assembly plant is closer to the customer who buys the car and therefore the vehicle assembly plant controls the money. The vehicle assembly plant has a lot of more money to spend on their solutions. The powertrain segment is a customer of that vehicle assembly plant. It provides engines, axles and transmissions no differently than Michelin provides tires. So the vehicle assembly plant can competitively bid transmission and have X instead of having Y building them a transmission. The powertrain segment is therefore far more competitive from a costing and pricing standpoint than the Final assembly segment (Global key account manager Ford PT 2016). The manager for business development also points out the lack of technical competence among the sales force within the central European powertrain segment and sees the importance of having technical competence to understand the customers' demands deeply. There is no clear structure of the central European powertrain sales force, thus, the same sales force acts within the powertrain and the final assembly segment (Manager Business Development, Application centers 2016).

Using the fixed automated solutions is not like taking the PowerFocus controller, mounting it on the wall, plugging it to the wall and start using the tool, which according to The GKAM for Ford PT is relatively easy to do (Global key account manager Ford PT 2016). Atlas Copco is having to create machines and control systems that communicate on very complex IO structures that the end-users have developed, so each end-user, all have infrastructures of communications and networks that Atlas Copco's equipment must function in, and that's very daunting to understand and to master to the point of being able to implement turnkey solutions (Global key account manager Ford PT 2016). The MTBs have big stacks of engineers who specializes in that and understand that and do well in that. This complexity of the integration is something that is at the heart of how and why it's difficult for Atlas Copco to shift from a mentality of MTB channel sale to one of what Atlas Copco is doing in USA, which is an end-user channel of sale. According to the global key account manager of Ford, in order to be able to do end-user channels of sale with complex system like PowerMacs or new PF6, Atlas Copco have to have internal capability to of being able to supply a key system, that means they have to get into a partnership arrangement with the end-user, understand these complexities, understand their IO machine control language and formatting, and then they have to understand their MTN communications which are post network data communications systems. To do that, Atlas Copco have to get onboard and have to know that as well as the MTB and or better than MTB relative to Atlas Copco's equipment. In addition to that, Atlas Copco have to show the end-user, that they bring value to the table over and above what the MTB could bring.

Another issue that Atlas Copco currently faces in central Europe is that they buy in to the philosophy that the channel of sale to the MTB, is the best channel of sale (Global key account manager Ford PT 2016). The GKAM for Ford PT stated that as long as that mentality exist, Atlas Copco will never change. So right now, a lot of people working for Atlas Copco in central Europe still are convinced that their system is the best one. The problem is the channel of sale and that Atlas Copco in central Europe are buying in to a belief that by selling to the MTB and through the MTB and letting them basically be a distributor for Atlas Copco, is the business they need to be in. Atlas Copco has set up structures and channels of sale through MTB to foster that. One of the things that Atlas Copco enforce that channel of sale is specifically in powertrain, the complexity that surrounds the integration of those components. (Global key account manager Ford PT 2016). However, the technical manager stated that it's equal of importance to maintain relationship with both the end-customers and MTBs. In comparison to what The GKAM for Ford PT states, which

focus more on the end-customer and prefers an end-customer sales channel in creating a direct relationship with the end-customers in central Europe, i.e. an end-customer oriented sales channel and shifting the power asymmetry away from the intermediaries in the supply chain network, the MTBs. The GKAM for Daimler supports Atlas Copco's current sales channel in central Europe and value the current relationship with TKSJ as TKSJ and Atlas Copco currently are strategic partners (Key account manager Daimler, Relation to MTB's in central europe 2016). The global business manager for powertrain also posed the importance of initiating a direct relationship with the end-customers. He further admired Atlas Copco USA sales channel strategy that targets end-customers and sees the necessity to apply an end-customer oriented sales channel while at the same time maintaining the strategic partnership with TKSJ (Andersson 2016).

It's also difficult for Atlas Copco to find synergies within the final assembly segment and powertrain segment due to distance constraints i.e. there are separate production sites for respective segment and the technical aspects of the Final Assembly segment and powertrain segment. The final assembly segment uses more hand-held assembly tools such as Powerfocus while the powertrain segment uses a higher ratio of fixtured automation assembly tools such as PowerMacs solutions in the engine line. The end-user can turn to TKSJ or any MTB and give them 35 MUSD to put an engine line in. The end-user can give the MTB all the decision-making on the content equipment that go in. So how do Atlas Copco stop that? How do they sell premium and command higher volume of sales at higher pricing? The answer according to The GKAM for Ford PT is that Atlas Copco have to convince the end-user to buy direct from Atlas Copco and single source them.

The technical manager highlighted the necessity of maintaining and sustaining the information flow between the global key account managers which Atlas Copco currently is facing problem with. There isn't any formal communication platform where exchange of information can be stored. Information flow is today maintained through mail exchange between the GKAMs and the sales force within Atlas Copco (Technical Manager ACA 2016).

5.3 Relations within the supply chain network

The relationship between the actors included in Atlas Copco's supply chain downstream are very important for various reasons. For Atlas Copco the relationship with the MTB as the customer is crucial for its operations as the market is driven by relations. As mentioned above, Atlas Copco's relation with key stakeholders within Ford's organization have been a strong factor as to why Atlas have reached success and a high market share in the North American powertrain producer market (General key account manager Ford, 2016). This despite not having the best relationship with MTB's operating in the American market, while in the central European power train market the relations are poor with the end-customer, and Daimler in particular. This is perceived as a strong reason to why a market entry in the central European market has been so problematic to achieve, and one reason to why Atlas Copco have a low market share in the central European market (Key account manager, Daimler). The relationship within the supply chain for the central European market will be divided and explained in two parts. First the relationship process will be explained, then the relationship between Atlas Copco and MTBs that operate on the central European market will be explained, followed by the current relationship between Atlas Copco and the end-customer (Daimler).

5.3.1 The relationship process between Atlas Copco and MTBs on the central European Market

With complexities in mind of the automotive industry over the years, there was a push for Machine Tools Builders, MTBs, to be those who would place the orders for fastening equipment.

So in other words when an OEM e.g. Ford Motor need a new engine line that is going to be needed to build and assemble a new engine for Ford Focus in the Cologne engine plant in Germany, they will go to the machine tool builders and they would competitively bid the program amongst other MTBs and they would provide the MTBs with the specification and the blueprints for the engine, Ford's standard philosophy for the engine, the process book, etc. The MTBs will have then to come back to Ford with a proposal for how they're going to build the engine plant and pricing, and they would come back with a 35MUSD proposals on how to assemble the engine. The winner of the offer would then get a simultaneous engineering contract and was nothing more than the Ford Motor company would sit down with the selected MTB and negotiating the price. Ford Motor have a target price to counter the pricing offer the MTB proposed, and together with the OEM, the MTB need to find ways to join the simultaneous engineering effort. There the MTB, for e.g. TKS, will go in to their standards and look at their other engine programs that they have done with Ford so that they can take out redundant engineering and focus on increasing the value and streamlining the engine line program.

The MTB is usually given the power when they won the bidding to buy everything on that line that is needed, everything from fastening equipment to automated tools. So Atlas Copco's customers in central Europe was TKS, not Ford Motor company. So what then came from that is internal empowerment, a recognition that the decision maker was TKS, therefore central Europe is empowered by the MTBs in the supply chain network. Atlas Copco has therefore built an organization in central Europe to support MTB sales, and have a very comprehensive and a very strong MTB support and sale structure in central Europe.

So the sales guys of Atlas Copco were calling on all the MTBs in Germany and throughout Europe and the focus was to get the order: "what did we in Atlas Copco have to do, TKS, to get the order for fastening equipment?" TKS would then say, that they were given a target reduction in their negotiations with Ford, so they therefore needed Atlas Copco to reduce their price with e.g. the same target reduction.

To convince the MTB to do business with Atlas Copco, they have a global agreement with TKS that also is a thing that came out in central Europe, which is to create blanket price agreement that the MTBs could depend on. Upon on that, TKS wanted to maintain control over the assembly solution, so they wanted to only buy what they needed from Atlas Copco, which was the base components, and that was it from TKS standpoint. TKS will do the integration, mount those controllers and spindles, program them and install them etc. They will get paid with all the money associated with everything on the line including the fastening equipment. All they going to do is buying components from Atlas Copco in central Europe, making TKS intermediaries in the supply chain, which is one of the key identified problem areas.

TKS will then approach Atlas Copco and negotiate with Atlas Copco to reduce the standard blanket pricing to the discount rate that TKS negotiated with Ford Motors. Since TKS doesn't perceive any difference between Atlas Copco and Bosch, TKS will offer the supplier that can meet the pricing bid that TKS offer. Therefore, Atlas Copco agrees on reducing the offer to the price that TKS was asking about.

5.3.2 The current relationship and business links between Atlas Copco and the MTBs that operate on the central European market

At the moment Atlas Copco have a strategic partnership with ThyssenKrupp that is one of the biggest actors in the MTB market. The relationship and partnership with MTBs in the central European market is – from Atlas Copco's view – seen as a very important relationship at the moment since Atlas Copco is currently dependent on the MTBs and cannot sell its products to the market without them. As a result, the MTB act as an intermediary and bridge between the end-customer and Atlas Copco (Key account manager Daimler). If the MTB refuses to use Atlas Copco's tools in its products the market is locked, not only due to the position of the MTB as an intermediary but also because the MTB manages the relationship with the end-customer. The business link between Atlas Copco and the MTB can be seen as a managed business link, since it is the MTB that manages and controls the relationship between the two parties rather than Atlas Copco. This puts Atlas Copco in a vulnerable position as the MTB, acting as an intermediary has total control and power of its position in the supply chain and downstream. By being the intermediary the MTB can control the relationship with the end-customer better than Atlas Copco can. As a result, the end-customer knows that Atlas Copco relies on the MTB rather than the other way round. The powerful position as an intermediary that the MTB puts itself in forces Atlas Copco to only sell components to the MTB, and not the full product, at a greatly reduced price with low margins (key account manager Daimler). The purpose of the strategic partnership and close relation with ThyssenKrupp was established to understand ThyssenKrupp demands better, so that products with a higher value for the MTB could be produced, and by offering a higher value a higher price for the products can be expected. However, the additional focus on creating value for the MTB has not led to any increments and Atlas Copco is still selling components to the MTB in the majority of the cases. Opinions concerning which type of relationship with the MTB is best for Atlas Copco are divided within the organization. As a result, some see the MTB as an important partner that makes the market more accessible for Atlas Copco, while others within the organization see it as an intermediary that misuses its situation by only utilizing Atlas Copco (global key account manager Ford PT, 2016; key account manager Daimler, 2016; manager Business Development, 2016). It is important to add that Atlas Copco's own local application centres are meant to be a light version of an MTB. However, Atlas Copco does not have the full capability of building an automated production line, which is demanded by the PT market, despite owning its own application centres. As a result, Atlas Copco cannot act on its own in the market.

5.3.3 The relationship and business links between Atlas Copco in Central Europe and end-users

Currently there is not existing relationship between Daimler PT and Atlas Copco (Global product manager at Tools and Assembly, 2016; Global business manager powertrain, 2016; Key account manager Daimler 2016; Global key account manager Ford PT, 2016). Work is currently ongoing to map the organization of Daimlers PT branch to initiate a first contact with key employees is so within Daimlers organization. The goal is to create a relationship similar to the one with Ford on the North American market. As written before the relationship with Ford is so favorable for Atlas Copco that the intermediate have no power in the election of tool supplier. In other words, Atlas Copco is a single sourced supplier on the North American market. This leads to that Atlas Copco in the USA can only focus on creating customer value and work on relationship building processes with the end-customer and not manage two separate customers with two separate demands.

The GKAM for Ford PT mentioned when he approached Atlas Copco in Central Europe to show them the pricing on all of the transmission business, that Atlas Copco will be doing with TKS and they said that Atlas Copco in central Europe need to do differently with TKS because they are strategic partners in Europe, and need therefore to give them a blanket price for these

components. The price needs therefore to be a lot less than the pricing than The GKAM for Ford PT presented. If Atlas Copco price the spindle for USD 15 000, TKS Y will take a grudge and will not going be able to do any more business with Atlas Copco. The GKAM for Ford PT further stated that he was single sourced at this price level that Ford agreed to pay, where he at a negotiation with Atlas Copco in central Europe, was told to reduce the price by 30 percent in order to accommodate TKS Y and their Agreement with Atlas Copco in central Europe, since they are good partners. The GKAM for Ford PT further discussed that Atlas Copco central Europe's explanation for price reduction and blanket price is that TKS Y would help Atlas Copco to increase their market share by introducing them to plants that they're not in. The GKAM for Ford PT further said that Atlas Copco's market share in central Europe is zero and since the agreement with TKS Y in 2000-2001, Atlas Copco had 15 years to increase their market share by their agreement with TKS Y without any result. The GKAM for Ford PT further asked why Atlas Copco do not have any market share in central Europe if they have a strategic partnership with TKS Y since TKS Y states that they have the decision making power to select the suppliers for fastening equipment.

The GKAM for Ford PT concluded that Atlas Copco doesn't have a valid channel of sale with the MTBs and that Atlas Copco in central Europe have a business plan and channel of sale plan that is centered around selling components to the MTBs, rather than selling and convincing the end-user to make the call to use Atlas Copco and force the MTB to do it that way. That's the philosophical difference between what Atlas Copco USA and what Atlas Copco in central Europe is doing. That's according to The GKAM for Ford PT the key route to the cultural and philosophical differences in the USA and Central Europe.

5.3.4 The relationship and business links between Atlas Copco and the end-customer within the North American market

Atlas Copco USA merged the hand tool division and AFS together which is now an application center. Those two entities were merged together in 2002 and in the process Atlas Copco had a big management mentality shift that had to occur because the sales company that used to sell hand tools, has now to understand that it needed to have a kind of automation wing with an application center in order to access the powertrain segment (Global key account manager Ford PT 2016).

Approximately 80 percent of the application of powertrain segment are fixtured automated solutions rather than PowerFocus hand tools. This is entirely different than the sales model that Atlas Copco tools have been using, as they have been using a vehicle assembly plant mentality where for e.g. 500 spindles in the plant were hand-tools that were mounted on a wall, ready for the operator to use the tool. An estimate of between 40 to 100 spindles in the plant were PowerMacs fixtured automation and everything else were hand-tools. Therefore, the sales model of selling hand-tools was different from the sales model of selling fixtured automation tools, which created a very big issue in Atlas Copco USA. As soon Atlas Copco merged the two organizations, employees who were working in the AFS group handling Chrysler and GM powertrain division, retired and Atlas Copco's management team didn't see the necessity of hiring skilled sales guys who had to have a different skillset in the powertrain division. They didn't rehire these sales-force, instead they told the sales-force from vehicle assembly to handle the powertrain division too (Global key account manager Ford PT 2016). Thus creating the same issues that Atlas Copco in central Europe is currently facing. Atlas Copco solved the issue by creating two sales-force entities, one for the powertrain segment and another for vehicle assembly.

Atlas Copco in USA demonstrated to the end-customers that they have the unique capability, to go in and create turn-key functional solutions that meet or exceed the end-customers' need and

reduce their overall cost. Nobody else in the industry has five global applications centers around the world dedicated doing just that. So Atlas Copco can leverage that, by taking advantage of their application centers and selling that capability that was able to bring them value. The GKAM for Ford PT described Ford's key needs which are being able to launch engines at time faster than current "ramp up rate" using equipment and global best practice standards around the world, in other words, globally launch equipment exactly the same in all regions of the world. One of the key things the GKAM for Ford PT used to differentiate Atlas Copco USA was just that i.e. to get the business away from the MTBs. Ford doesn't use TKSYS on all of their engine programs all over the world. Instead Ford uses different MTBs in the world for the same engine programs depending on the geographical location of the planned engine plant. Therefore, Ford gets different solutions since each MTB have their own way of building an engine line in terms of fastening strategies, integrating the components, programming, documenting their fastening control systems, power distribution etc. The GKAM for Ford PT therefore proposed a turn-key control system by designing PowerMacs control systems exactly the same way. In this manner Atlas Copco develops a standards library and as a result Atlas Copco can reduce the engineering time since they design the control system once and don't have to redesign it more than once. The standards library can then be applied by Atlas Copco's application centers worldwide to install the same control systems. The outcome of this proposal today is that the management at Ford values the relationship with Atlas Copco, as Atlas Copco is now the single sourced supplier of assembly tools. And as a result of that, Atlas Copco now have more control of the MTB than they used to have of them, because it's Atlas Copco's standards now and Atlas Copco are working in advance with Ford on their solutions, that they have standardized on and demand that the integrators (MTB) buy these modules from them. This means that Atlas Copco are not selling four sets of tools, cables and controllers for 35 000EUR. Instead they're selling those four sets of components plus the automation for 150 000 EUR and a profit level approaching or exceeding sometimes depending on the competitive nature, the profit margins on that higher volume that are exceeding the profit margins of just component sales.

The business line manager (BLM) in Atlas Copco confirmed what the GKAM for Ford PT said and explained from a BLM's perspective of central Europe, that that's exactly what's not done so well in central Europe. Atlas Copco in central Europe have never managed to get this level of understanding that the GKAM for Ford has just described. That's why Atlas Copco are not so successful in the central European powertrain producer market. However, the GKAM for Ford PT adds that the difference between Germany and the USA is the lines of communication on the corporation which is a little more formal than Ford PT (Meyer 2016).

5.4 Buyer supplier power between actors within the supply chain downstream on the central European market

The buyer-supplier power for the central European market is only described from the focal firm's (Atlas Copco) perspective and downstream in the supply chain. As described before and can be seen in Figure 20 the supply chain for the central European market involves an intermediary that is the MTB.

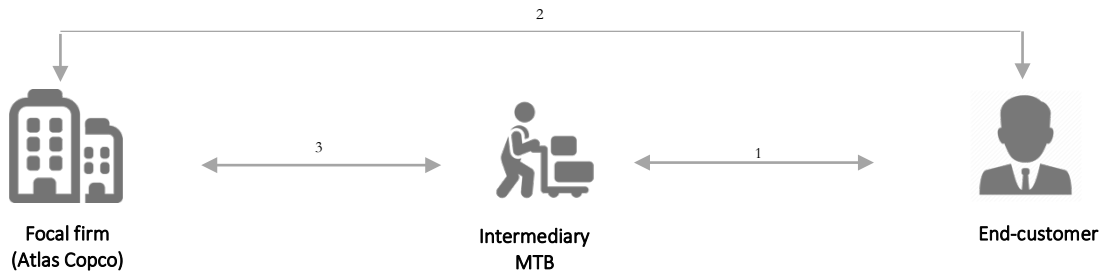


Figure 20: Buyer-supplier power distribution downstream within the supply chain.

The current bargaining power between the actors within the supply chain in the central European market shifts between the different stages of the procurement process. The most influential factor is the relationship between the parties, which can shift the power from one actor to another (Key account manager Daimler, Relation to MTB's in central europe 2016). In Figure 21 the power distribution before an intermediary is elected as a supplier to the end-customer is illustrated. In Figure 22 the power distribution after an intermediary is elected as a supplier to the end-customer is illustrated. The buyer-supplier power between the actors within the central European market can be summarized in three relations. In every relationship one actor in the relationship has a higher bargaining power than its counterpart (Key account manager Daimler, 2016):

1. The end-customer (Daimler) and the intermediary (MTB)
2. The end-customer (Daimler) and the focal firm (Atlas Copco)
3. The focal firm (Atlas Copco) and the intermediary (MTB)

5.5 The power distribution before an intermediate is determined by the end-customer

The bargaining power between the end-customer and intermediary is the first relationship that is initiated when the end-customer decides to buy a new production line for its engine or transmission production. Within the central European market, the end-customer usually contacts MTBs that the end-customer already has a past relationship with or that has a local presence similar to the end-customer's. However, according to the manager of business development, the trend of choosing local MTBs is slowly changing from local to using global MTBs (Manager Business Development, Application centers 2016). During the initial phase of the sales process described on page 52, the end-customer has full control and power in the election of the proper MTB according to its demands. However the MTB still has full control and power in trying to manipulate and convince the end-customer to go with the offer the intermediary is making (Key account manager Daimler, Relation to MTB's in central europe 2016).

As explained on page 52, Atlas Copco have contact with both the end-customer and the MTB within the initial phase of the sales process. As a result, the end-customer provides a list of normally three requested suppliers to the intermediary that must be included in the final production line. Atlas Copco have the full power, ability and control to convince the end-customer that they should be a part of the list of requested suppliers of tools at this stage of the process. However, in the long run customer always has the power to choose the supplier of tools that fits its demands best (Key account manager Daimler, 2016).

In the initial phase of the process, the power between the intermediary and Atlas Copco is equally distributed, as both parties work on convincing the end-customer to choose them as a first- or second-tier supplier. However, Atlas Copco have much to win at this stage of the sales process. This is due to the fact that if Atlas Copco can convince the intermediary to choose it as a supplier of tools, the intermediary can then promote Atlas Copco's tools and convince the end-customer to choose Atlas Copco over others (Key account manager Daimler, 2016).

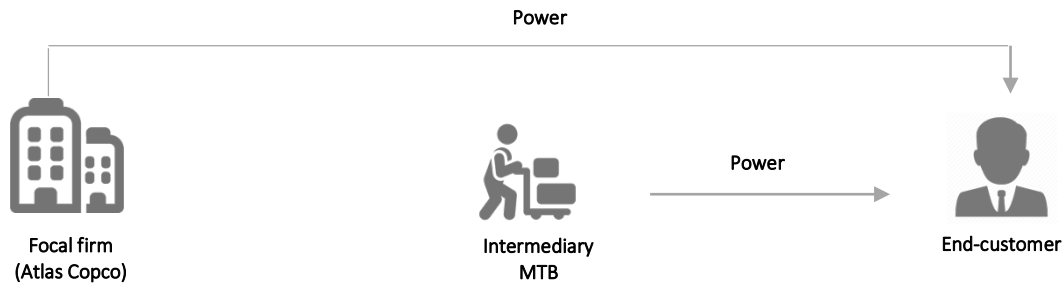


Figure 21: Buyer supplier power in first stage of sales process.

5.6 The power distribution after an intermediate is determined by the end-customer

It is at this stage of the process where the total power distribution of choosing the tool supplier shifts from the end-customer and their needs to almost only considering the needs of the intermediary. At this point the intermediary has the full power of choosing the most suitable tool supplier according to its demands and without considering the end-customer's demands as long as the tool supplier is listed as a requested supplier of tools by the end-customer. This is intended to create a competitive environment between the tool suppliers. However, the competitive environment that is created does not benefit the end-customer or the focal firm as the intermediary has full power over which tool supplier to choose. This leads to the situation where the intermediary is going to choose a tool supplier that suits its demands and not those of the end-customer, which in most cases is the least expensive choice. As a result, the chosen supplier of tools can be the supplier that provides the least amount of customer value to the end-customer but suits the intermediary's demands best (Key account manager Daimler, Relation to MTB's in central europe 2016).

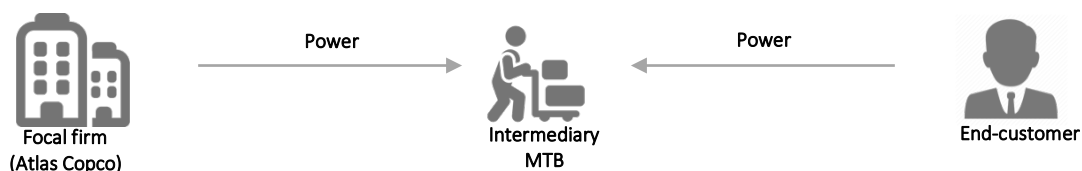


Figure 22: Buyer supplier power in second stage of sales process when MTB is decided.

5.7 Flow of information about the product and services, from and for the customer

Currently Atlas Copco is using one type of formal structure for how to gather and store customer data about the products and services. The system is called Voice of the Customer (VoC) and is

basically a pack of cards. Every card in the pack has a specific aspect regarding either the product or service listed on the card, for example, 'how fair is the price of the product in relation to its performance?'. These aspects were determined in a pre-study made internally by Atlas Copco. The pre-study mainly consisted of in-depth interviews with key customers. The answers from the interviews were then structured into specific groups to finally form the pack of cards with the aspects of the products and services. Below the aspect a scale from one to ten is listed. On this scale the customer grades Atlas Copco's and its competitor's performance regarding the aspect. The final result is then gathered in a database where those in need of this information can download it and use it (General manager Voice of the customer, 2016).

Atlas Copco want to use the VoC tool as a structured way of gathering data about key stakeholders to understand their demands better and to add more value to its product and service provision. The VoC tool is the main and only formal source and stream of information from the customers and intermediaries about its products. The current system makes it easy and time-efficient for customers and intermediaries to grade the various aspects and address their demands. This enables Atlas Copco to update the customer data frequently as customer demands change frequently over time. Other specific preferences that are easy to change and do not demand product development, such as, for example, colour preferences or smaller features, are requested through the sales groups. Even bigger niche solutions are handled through the sales groups and later developed in the local application centres and its capability to solve complex customer problems is seen as one of Atlas Copco's competitive advantages (Manager Business Development, 2016). The information regarding the customers is mainly given to them through the sales force, general key account managers and through service personnel.

The VoC provides a solid stream of information from the customer to Atlas Copco about its products and services. But as it is so formalized and only works when a scheduled meeting with the customer is arranged, a large amount of important customer data is lost between the meetings as no formal structure to handle, process and store data is in place. Key information about customer demands and requests through, for example, the service personnel, sales force or key account managers is not handled in a structured way and often spread through the organization via email or phone calls. As there is no formal structure or routine to handle this information, vital information from customers is lost as it is neither stored nor handled in the right way (Global product manager at Tools and Assembly 2016). Currently, no formal contact is or has been established with Daimler PT and no VoC meetings have been arranged with them so far. The information from and to the customer has been exchanged through email between Daimler and the GKAM for that region from Atlas Copco (Technical Manager 2016).

In Figure 23, the current structure of the flow of information between Atlas Copco, the end-customers and intermediaries is illustrated. At the top of the figure (dashed line) the information flow for the customer from Atlas Copco is illustrated. As previously stated this stream of information is mainly conducted through the sales forces, service personnel and the GKAMs. The black lines represent the information flow of information about and from the customer. The figure is divided into two parts surrounded by a system boundary. The first part explains the formal structure and the second the informal one. The text between the arrows illustrates the stakeholders and the text below or above the lines explains how the information is transferred from stakeholder to stakeholder.

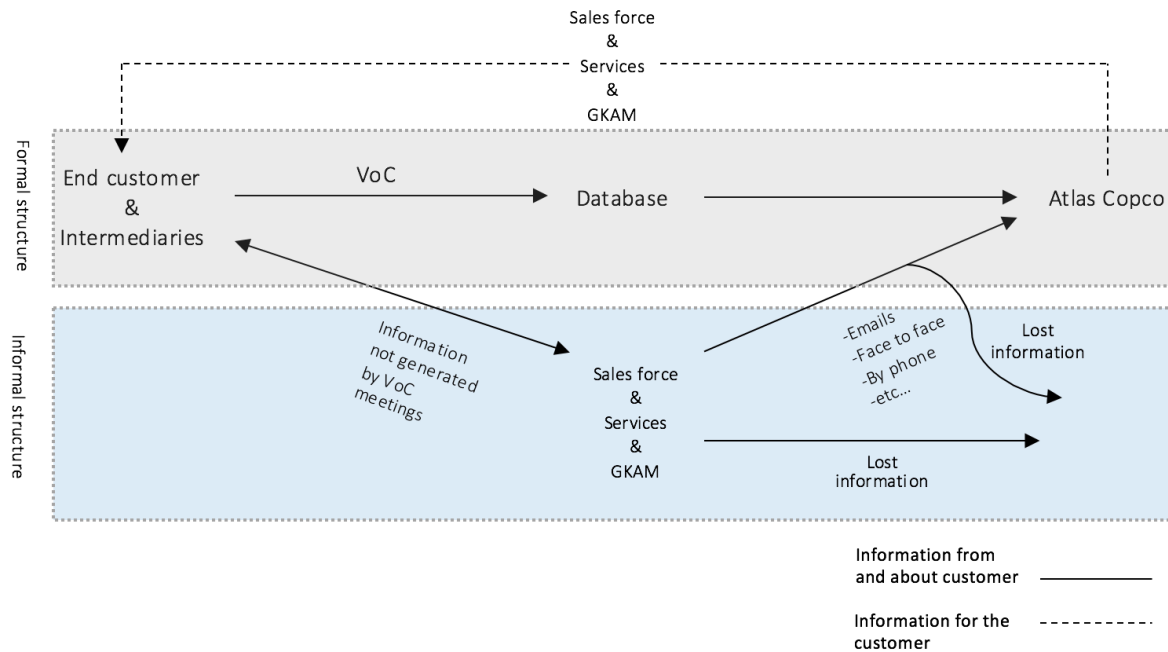


Figure 23: Mapping of current flow of information.

5.8 Market knowledge

To have a deep understanding of the market is a crucial factor for a supplier organization within a three-tier supply chain network in a relationship-driven B2B market. Currently no formal mapping of the current or future location or planned production quantity of the engine or transmission production exist for Daimler (Key account manager Daimler, Relation to MTB's in central europe 2016). Specific information, such as planned production quantities of certain engine or transmission models, facilitates the planning of which plants and new planned plant projects it should focus its resources on. By knowing this, resources can easily be allocated within the right place at the right time. By resources, we mean sales personnel and their relationship-building activities with the end-customer – this is because the relationship is a key aspect when operating in the central European PT market. By providing this information, key aspects of value creation regarding, for example, certain features of the tools or the type of additional services, can be identified for specific engine or transmission models that are produced in higher quantities, which can be translated to a higher demand; a higher production volume of engines or transmission automatically means more sold tools and a higher demand, and also an increased demand for after-sales services, which currently is a very important source of income for Atlas Copco (Löfgren 2016).

By knowing exactly where, how many, when and which type of engine or transmission model is going to be produced, certain plants, engine and transmission models can be targeted by Atlas Copco, as stated previously. If this is done properly, specific resources can be put in place to study the demanded features of these products at the specific locations, which is also a factor that is important to study according to the technical manager when making a market entry within the powertrain producer market (Technical Manager 2016). This is because specific measurements of what is perceived as customer value for specific engine or transmission models are much better than having a general strategy of what is perceived as customer value for the the end-customer's whole product portfolio. The mapping will also help Atlas Copco to direct and focus its resources towards regions of importance and interest. This will facilitate the work of gaining local and specific market knowledge, which is also identified as an important factor for a supplier organization (Global business manager powertrain, 2016; Global product manager at Tools and Assembly,

2016). Currently no up-to-date data of either end-customer or intermediary demands is available and this is seen as a problem area for the supplier organization.

5.9 Summary of problem areas for a supplier within a three-tier supply chain network in a relationship-driven B2B market (RQ1)

As a result of the findings, analysis and answer to RQ1 of the study five problems related to a supplier within a three-tier supply chain network in a relationship-driven B2B market are listed below:

- **Relationship with end-customer**, the first problem area is the dynamics of the relationship within the supply chain network with the intermediate and the end-customer. The findings and analysis suggests the importance of the relationship with the end-customer which is absent at the moment and a big reason to why the case company have not been able to enter the central European PT market.
- **Unbalanced power distribution within the supply chain**, the second problem area is the power distribution between the focal firm, intermediate and the end-customer. The findings prove the asymmetrical power distribution between the parties which is a very big problem for the focal firm, as it needs to focus more on satisfying the needs of the intermediate and not the end-customer which is the real customer of the product. This situation creates an unhealthy competitive environment for the focal firm where it needs to both provide products with a high value for the end-customer to a very low price which is demanded by the intermediate. Furthermore, the intermediate limits the focal firm's capabilities of selling whole product solutions but only sell components to the intermediate as it rather buys components to a low price than whole solutions that are more expensive. This lead to a situation where the focal firm need to sell products with a very low margin and profit that not fully support the needs of the end-customer.
- **Deficit of channels for information sharing and storing**, the third problem area is the deficit of channels for storing and sharing of information from, for and about the end-customer and intermediate. For the case company only one formal channel of information and communication between the customer and the focal firm was identified. This channel is limited and do not cover all information that is flowing between the parties. This leads to the loss of vital information that is not captured by the formal structure. As a result of this the relationship is limited between the parties as the information sharing is a key aspect of having a close relationship with the end-customers.
- **Deficit of customer knowledge**, the fourth problem area is the deficit of customer knowledge. The case company did not have any information about the organizational structure of the end-customer. This information is vital in the initial face of a market entry as the focal firm need to know which individuals to contact, build a relationship with and influence as it is these individuals who choose their supplier. Other absent information that the studied firm did not have where end-customer demands, future demand and factory locations. Information that is vital when making a market entry but also important to strengthen the relationship with the end-customer.
- **Deficit and capability of human resources**, the fifth and final problem areas is the deficit and capability of the human resources and structure in place to enter the central European market. Firstly, the market does not have a dedicated GKAM for the PT market and not

both the general industry and powertrain producer market. Secondly the GKAM do not possess any information about the customer regarding which persons to contact within the organization of the end-customer, customer preferences or future projects. Thirdly the salesforce does not have the knowledge and capability to sell products to the PT market as they work for both the general industry- and powertrain producer market with a strong focus on the general industry market rather than the powertrain producer market.

5.10 Location and quantity of future expected engine and transmission production for Daimler

In Figure 24, Figure 25 and Figure 26 the expected future location and planned production quantity of the future engine and transmission production for Daimler is illustrated. The planned production is only located in Europe and east Asia. The expected engine production in Europe is illustrated in Figure 24. In Figure 25 the expected transmission production in Europe is illustrated and in Figure 26 the planned engine and transmission production in Asia is illustrated. In the figures information about the location and producers can be found in the table to the right of the map. In this case. Below the location and producer of the engine or transmission the specific model/platform is illustrated followed by the planned production quantity, amount of years that the engine is produced and the mean annual production of each year is illustrated.

5.10.1 Expected engine production in Europe for Daimler

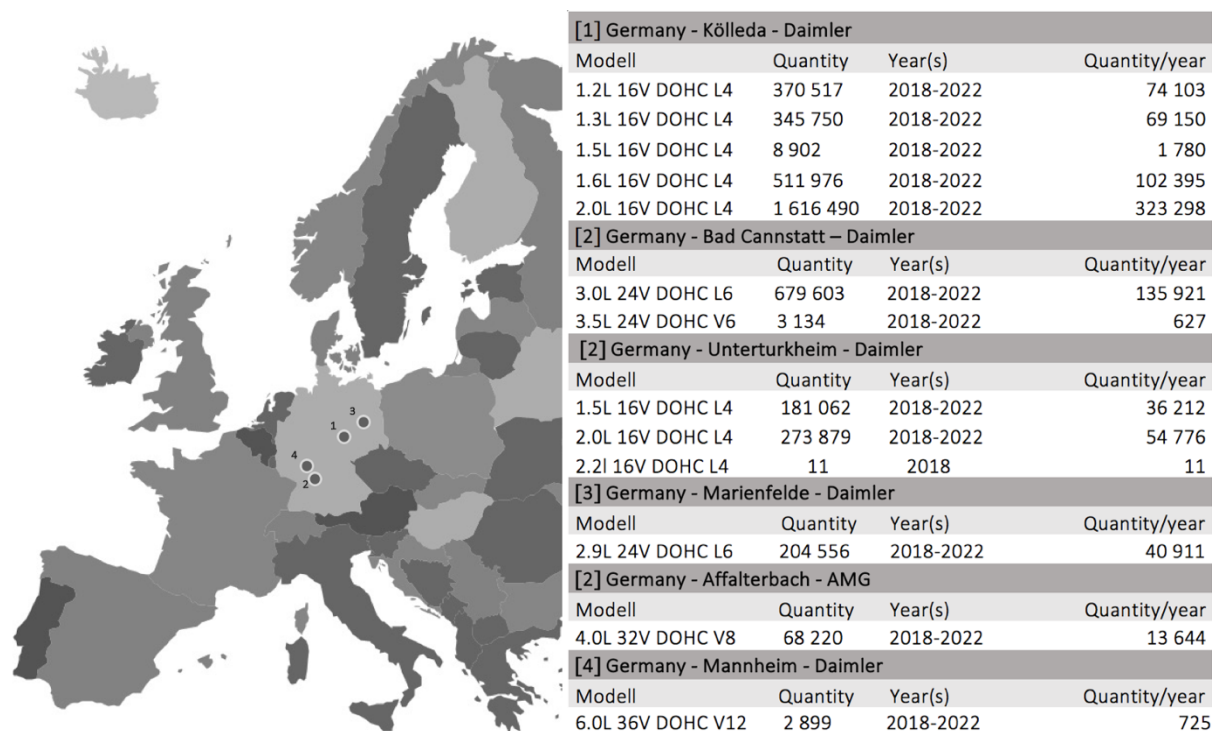


Figure 24: Expected engine production in Europe for Daimler

As written before the planned engine production in Europe is illustrated in Figure 25. As it is illustrated in the figure all of the planned engine production in Europe is located in two main areas in Germany. In the east central part of Germany two of the locations are located. More specifically in Köelleda (1) and Marienfelde (3). In Köelleda (1) one of Daimlers biggest engine factories with a total planned production of **2'853'635** engines in five years (2018-2022). The engines model produced at this location ranges from the 1.2L 16V DOHC L4 engine model up to the 2.0L 16V

DOHC L4 engine model with the biggest production quantity of the 2.0L 16V DOHC L4 engine (**1'616'490** engines). In Marienfelde (3) that is located close to Berlin a total of **204'556** engines are planned to be produced of only one unique model, the 2.9L 24V DOHC L6 engine.

In the south west part of Germany, the second area is located close to the headquarters of Daimler in Stuttgart. In this area four factories are located, three of these are located very close to Stuttgart: Bad Cannstatt (2), Unterturkheim (2) and Affalterbach (2). In Bad Cannstatt the total production is planned to **682'737** engines over five years for two bigger engine models. The 3.0L 24V DOHC L6 engine and the 3.5L 24V DOHC V5 engine. In Unterturkheim (2) a total of **454'952** engines are planned to be produced of the models ranging from the 1.2L 16V DOHC L4 engine up to the 2.2L 16V DOHC L4 engine with the biggest production of the 2.0L 16V DOHC L4 engine (**273'879** engines). In Affalterbach (2) a total production of **68'220** engines are planned over seven years with a production of only one model the 4.0L 32V DOHC V8 engine. This plant is not owned by Daimler but AMG and act as a first tier supplier of engines to Daimler. The fourth and final factory in Mannheim (4) is expected to produce **2 899** engines over five years of only one model, the 6.0L 36V DOHC V12.

5.10.2 Expected transmission production in Europe for Daimler

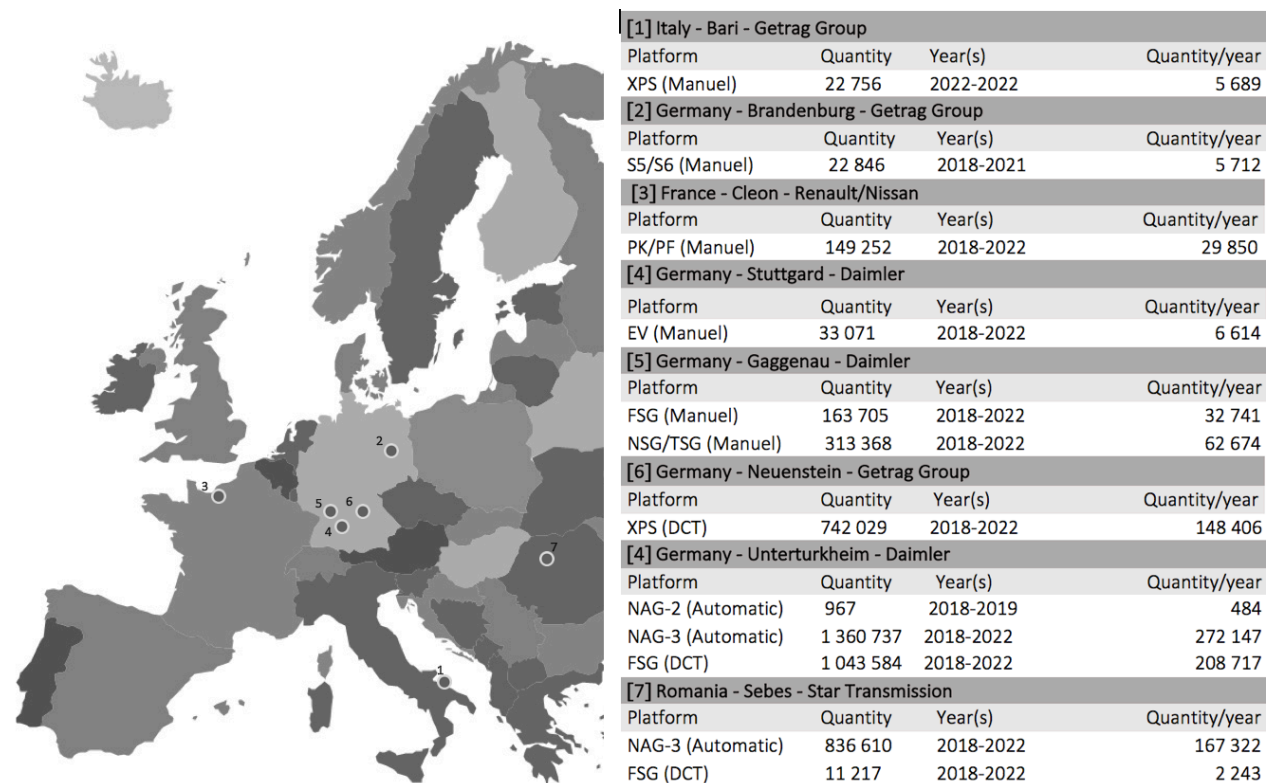


Figure 25: Expected transmission production in Europe for Daimler

In comparison with the engine production the transmission production is spread around in Europe and not only located in Germany which is illustrated in Figure 25. The production is located in four countries: France, Italy, Romania and Germany where the majority of plants are located in Germany. In France, Italy and Romania only one plant is located in each country meanwhile five factories are located in Germany. In relation to the engine production the majority of the factories are not owned by Daimler but other producers as *Getrag Group*, *Renault/Nissan* and *Star Transmission* and act as first tier transmission suppliers to Daimler. The only factory in Italy is located in Bari (1) and is expected to produce **22'756** units in four years of the manual gearbox model that is called

XPS by Getrag Group. In France the factory is located in Cleon (3) and is expected to produce **149'252** units over five years of the PK/PF Manual gearbox model by the Renault/Nissan group. In the Romania the factory is located in Sebes (7) and is expected to produce **847'827** units over five years of the automatic gearbox model NAG-3 and FSG by Star Transmission.

As for the engines the transmission production in Germany is spread around two main areas. One in the central eastern part of Germany close to Berlin in Brandenburg (2). The second area is located in the south west part of Germany close to Stuttgart and Munich and more specifically in Stuttgart (4), Gaggenau (5), Neuenstein (6) and Unterturkheim (4). In Brandenburg (2) the expected production is **22'846** units over three years of the manual gearbox S5/S6 and it is produced by Getrag Group. In Stuttgart the expected production by Daimler is **33'071** units over eight years of the manual gearbox EV. In Gaggenau (5) two gearbox models are expected to be produced by Daimler with a total expected production of **477'073** units over five years of the manual gearbox models FSG and NSG/TSG. In Neuenstein (6) Getrag Group plan to produce **742'029** units of one unique DCT gearbox model called XPS. The fifth and final factory located in Unterturkheim (4) that is owned by Daimler is expected to produce **2'405'288** units over five years of the automatic gearbox model NAG-3, NAG-2 and FSG.

5.10.3 Expected engine and gearbox production in Eastern Asia

China - Nanchang - Getrag-Jiangling			
Platform	Quantity	Year(s)	Quantity/year
XPS (DCT)	119 920	2018-2022	23 984
Japan - Fujinomiya - Daimler			
Platform	Quantity	Year(s)	Quantity/year
NAG-3 (Auto)	5 405	2018-2022	1081
China - Beijing - Beijing Benz			
Modell	Quantity	Year(s)	Quantity/year
1.2L 16V DOHC L4	49 372	2018-2022	9 874
1.3L 16V DOHC L4	70 548	2018-2022	8 819
1.5L 16V DOHC L4	294 016	2018-2022	75 504
2.0L 16V DOHC L4	39 862	2018-2022	4 983

Figure 26: Expected transmission and engine production in Asia for Daimler

In Eastern Asia two factories are planned to produce gearboxes for Daimler and one to produce engines and is illustrated in Figure 26. The factories are located in Japan (Fujinomiya (2)) and China (Nanchang (1); Beijing (3)). The transmission production is expected to be located in Nanchang (1) and Fujinomiya (2) meanwhile the engine production is expected to be located in Beijing.

For the transmission the factory in Nanchang (1) is expected to produce **119'920** units of the XPS gearbox over eight years by the supplier called Getrag-Jiangling. The second factory located in Fujinomiya (2) and owned by Daimler is expected to produce **5'405** units of the automatic gearbox called NAG-3.

The expected engine production in Asia is planned to be produced in the factory located in Beijing that is owned by Beijing Benz. The expected total production is **453'798** units of engine models ranging from the 1.2L 16V DOHC L4 engine to the the 2.0L 16V DOHC L4 engine over five years. The the 1.5L 16V DOHC L4 engine model is expected to be the model with the highest number of units produced with **294'016** units produced over eight years.

5.10.4 Expected engine and transmission production by model

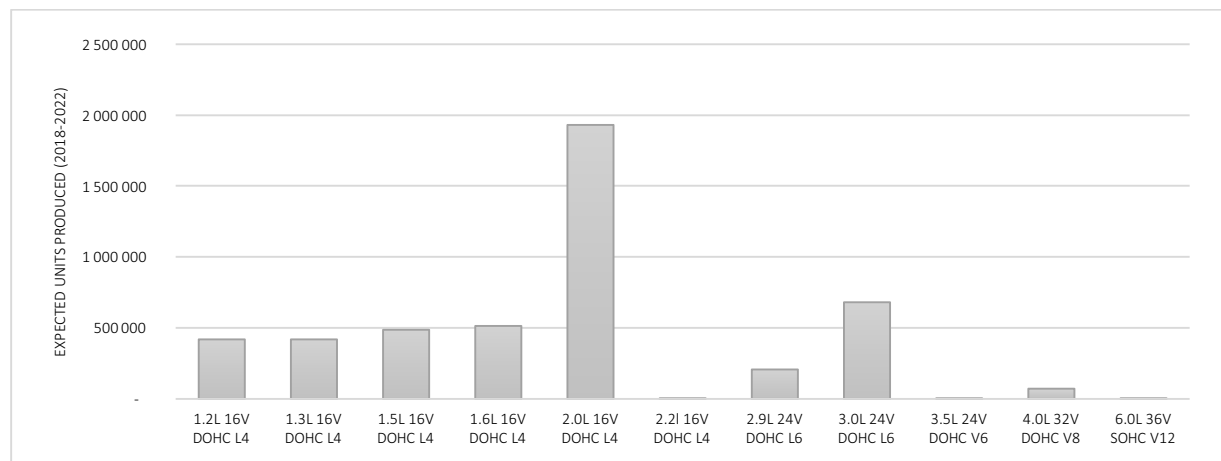
In Table 4 the total amount of each engine and transmission model, amount of years in production and the average production quantity per year is illustrated. This information is visualized in Chart 1 and Chart 2. In the charts the y-axis illustrates the expected units produced from 2018-2022 and the x-axis illustrates the engine or transmission model. In Chart 3 and Chart 4 the expected unit output per plant for engines and transmissions is illustrated. In relation to Chart 1 and Chart 2 the x-axis illustrates the location of the plant.

Table 6: Expected engine and transmission production by model

Engine by model				Transmission by model			
Model	Quantity	Years	Quantity/year	Model	Quantity	Years	Quantity/year
1.2L 16V DOHC L4	419 889	2018-2022	83 978	XPS (Manuel)	884 705	2018-2022	176 941
1.3L 16V DOHC L4	416 298	2018-2022	83 260	S5/S6 (Manuel)	22 846	2018-2021	7 615
1.5L 16V DOHC L4	483 980	2018-2022	96 796	PK/PF (Manuel)	149 252	2018-2022	29 850
1.6L 16V DOHC L4	511 976	2018-2022	102 395	Daimler - EV (Manuel)	33 071	2018-2022	6 614
2.0L 16V DOHC L4	1 930 231	2018-2022	386 046	NAG-2 (Auto)	967	2018-2019	484
2.2L 16V DOHC L4	11	2 018	11	NAG-3 (Auto)	2 202 752	2018-2022	440 550
2.9L 24V DOHC L6	204 556	2018-2022	40 911	FSG (Manuell)	1 218 506	2018-2022	243 701
3.0L 24V DOHC L6	679 603	2018-2022	135 921	NSG/TSG (Manuell)	313 368	2018-2022	62 674
3.5L 24V DOHC V6	3 134	2018-2022	627				
4.0L 32V DOHC V8	68 220	2018-2022	13 644				
6.0L 36V SOHC V12	2 899	2018-2022	580				

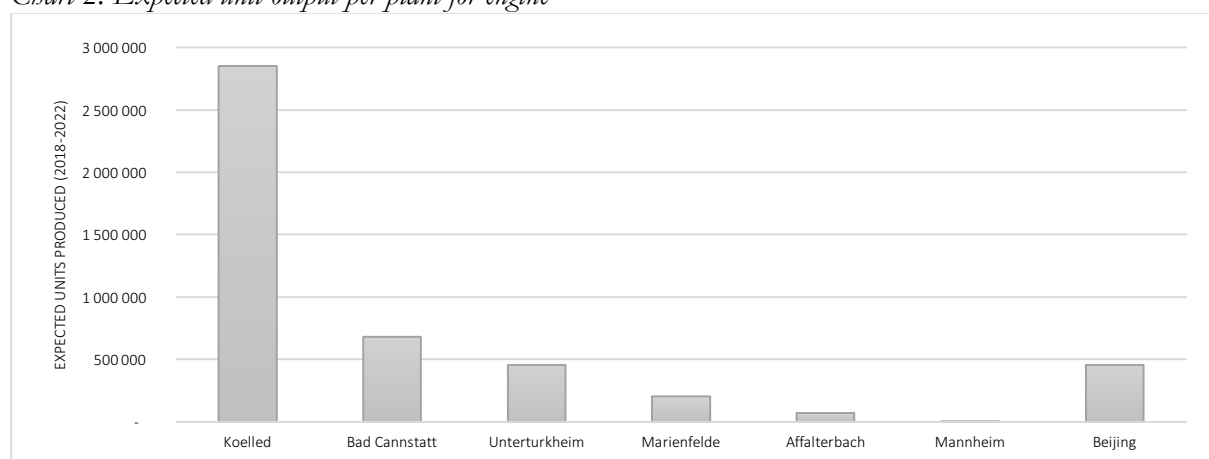
As illustrated in Chart 1 the 2.0L 16V DOHC L4 engine model stands for 41% of the total engine production with 1'930'231 units produced in five years. This can also be observed in Chart 2 where the majority of the produced engines are produced in Köelleda. That is the location where 84 % of the 2.0L 16V DOHC L4 engines are produced. Seen at the other engine models the volume is fairly distributed between the rest of the engine models (9-14% of total production) with the exception of the 2.2L 16V DOHC L4, 3.5L 24V DOHC V6, 4.0L 32V DOHC V8 and 6.0L 36V SOHC V12 which have a very low production volume.

Chart 1: Expected engine production by model



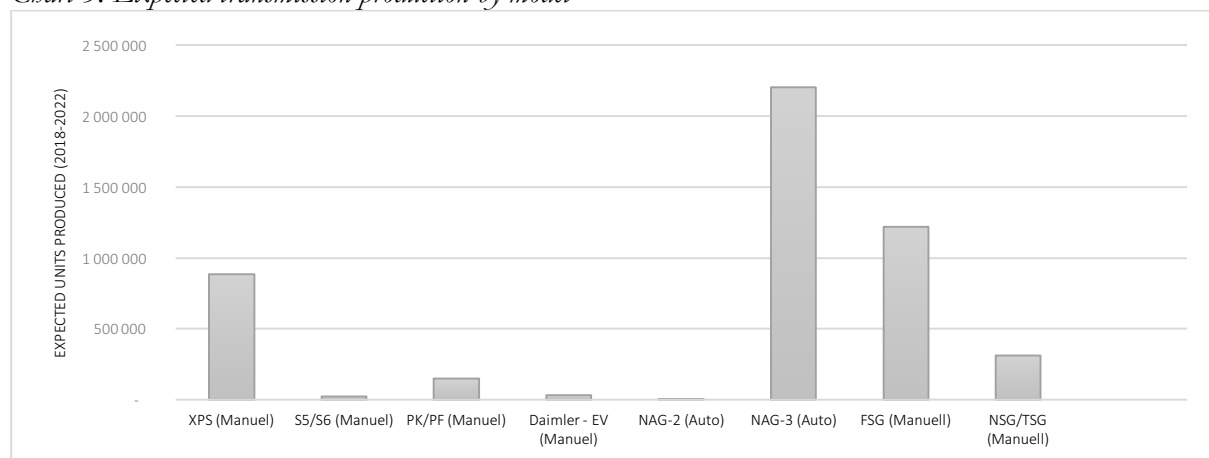
Seen at the location and volume of the expected production of engines the highest volume is produced as written before in Köelleda with 60% of the total production of engines for Daimler. This due to the reason that the majority of the volume produced for the most popular engine model the 2.0L 16V DOHC L4 is expected to be produced in that plant. The plant in Bad Cannstatt, Untertürkheim and Beijing are expected to produce 10-15% of the total production for each plant. The plant in Marienfelde, Affalterbach and Mannheim are expected to produce the smallest amount of engines in comparison with the rest of the factories.

Chart 2: Expected unit output per plant for engine



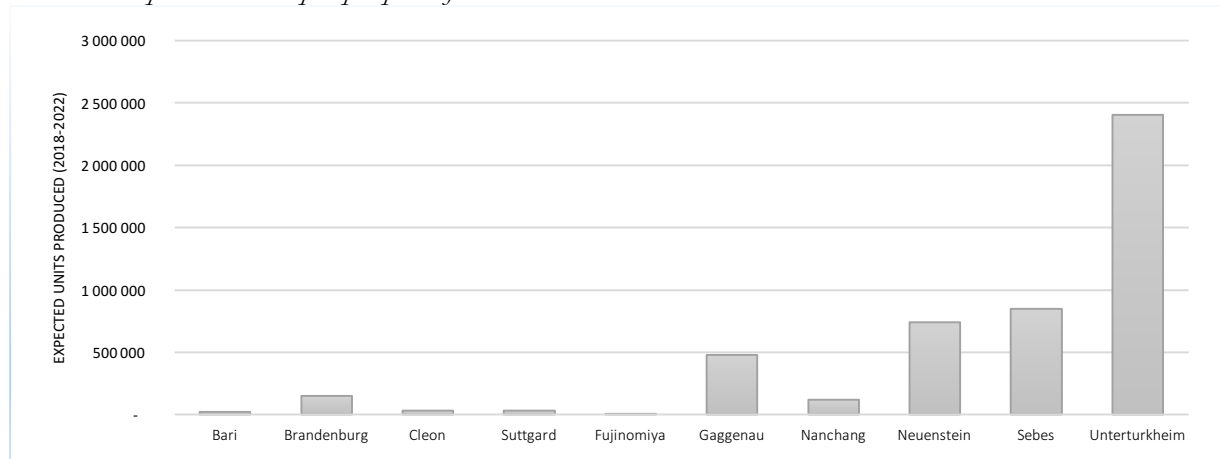
In Chart 3 the expected transmission production by model is illustrated. As is illustrated in the chart the NAG-3 (Auto) transmission model stands for 39% of the total transmission production with 2'202'752 units produced over a five-year period. This is the transmission model that have the highest production volume in comparison with the other models. The FSG (Manuel) and the XPS (Manuel) transmission models are the second largest models in produced volume with around 20% of the total production. The S5/S6 (Manuel), PK/PF (Manuel), NAG-2 (Auto) and the NSG/TSG are all produced in small volumes below 7% of the total production of transmissions.

Chart 3: Expected transmission production by model



In Chart 4 the expected unit output per plant for transmission is illustrated, as is illustrated in the chart the majority of the production volume is located in Unterturkheim. In number this plants stands for 50% of the expected production output that is 2'405'288 transmissions of various models over a five-year period where the majority of the production of the NAG-3 (Auto) is conducted. More specifically 62% of all produced NAG-3 (Auto) transmissions are produced in Unterturkheim. In Sebes 18% of the total expected production of transmissions is made followed by Neuenstein with 15 % and Gaggenau with 10%. The rest of the listed factories are expected to produce 3 % or below the expected production of transmissions for Daimler each.

Chart 4: Expected unit output per plant for transmission



5.10.5 Identified first tier PT suppliers to Daimler

As a big part of Daimlers PT production is outsourced is it important to identify these first tier suppliers as they are also identified as potential customers to Atlas Copco. All of them are listed in Table 7. AMG is the first supplier on the list and is Daimlers affiliated company. AMG have its headquarters in Affalterbach, Germany and is engineering, manufacturing and customizing high performance engines independently for Daimler (AMG 2016). Beijing Benz is the second independent engine manufacturer for Daimler with its headquarters in Beijing, China. The company is a joint venture between Beijing Automotive Group and Daimler.

Getrag Group is the world's largest supplier of transmission systems for passenger cars and its headquarters is located in Untergruppenbach in Germany. Their factory in Bari, Brandenburg, Neuenstein and Nanchang is producing transmissions for Daimler. They stand for 22 % of the total transmission production for Daimler. The two other supplier are Renault/Nissan and Star transmission. The transmissions produced in Cleon by Renault/Nissan stand for a very small amount of the total production but are the only producers of the PK/PF (Manuel) transmission. The third and final supplier is Star Transmission with its factory in Sebes, Romania with 18% of the total transmission production is it also an important producer for Daimler and customer to Atlas Copco.

Table 7: First tier suppliers, partners or companies owned by Daimler

Company	Type	Location
AMG	Engine	Affalterbach
Beijing Benz	Engine	Beijing
Getrag Group	Transmission	Bari, Brandenburg, Neuenstein
Renault/Nissan	Transmission	Cleon
Star Transmission	Transmission	Sebes
Getrag – Jiangling	Transmission	Nanchang

6 Discussion

Comparing the findings from the data collection offers us four dominant themes common to all findings. These themes are structural power within the supply chain network, relationship stability with the end-customer, market knowledge and network position. Power appeared according to the findings to be a function of the structural network position in the multi-tier supply chain structure (MSC) while relationship stability within the MSC was affected both positively and negatively depending on the relationship dynamics between the buyers and end-customers. Lack of market knowledge appeared also to be a function of the structural network position and relationship stability between Atlas Copco and the end-customers. In our discussion, we looked for common denominators to formulate our propositions. We organized the propositions in each of the four key themes that emerged from the findings. Following the inductive nature of the research, we incorporated literature at this stage to compare and contrast our findings, essentially using the literature study as an additional source of validation.

6.1 Multi-tier Supply Chain structure

To study the complexity of multiple relationships within the supply chain network using Atlas Copco as focal firm within the supply chain network, a combination of a resource-based view (Barney, 1991; Barney, 1991a; Wernerfelt, 1984) and relational view (Dyer & Singh, 1998) was used as a method, as well as the three-tier system model of analysis has been chosen since a three-tier system allows the analysis of the impact of a third party on a relationship between two other organizations. The network context studied was the aspect of service and product outsourcing where firms contract out specific functions to reduce transaction costs, where the buyer, i.e. the intermediaries, needs to coordinate multiple tiers in the supply chain network. In this network context, the buyer sells the customer a service which is provided by its suppliers (Mena, et al., 2013).

Comparing the findings from the interviewees, an essential and key problem expressed by the interviewees is Atlas Copco's network position in the multi-tier supply chain structure as they act as a supplier in an open triad shown in Figure 6. In this MSC network context, each member in the network contributes in different ways to the relationship. In this research scoping on the central European powertrain producer market, Atlas Copco (suppliers) provides assembly tools to their strategic partners ThyssenKrupp (buyers) which holds most of the responsibility within the network as an intermediate that maintain a knowledge- and information sharing routines with both end-customers and suppliers. The buyers possess a long-term safe-guard mechanism with both the upstream suppliers and the downstream suppliers and thus invests its resources to strengthen the relationship and knowledge-sharing processes with its main customers. The buyer in a downstream network dominance have an advantageous position with the downstream network dominance relative to its upstream, i.e. the suppliers, since the informational and social relationship with the end-customers is richer. Increased responsibility represents increased power for the buyer ThyssenKrupp who has the most power since they have resources such as, the ability to offer contracts in an open bidding market for suppliers, the fact that ThyssenKrupp is the conduit to market (i.e. positional power) and an intermediate between the supplier and end-customer. The buyer, i.e. the machine tool builders might have a positional power as long as they remain the intermediate between the suppliers and end-customers and as long as the end-customer and the suppliers do not exchange information. Although the assembly tools supplier Atlas Copco has minimal power in the Open MSC, it has access to technical resources and a unique competitive advantages which is essential for a success and shift of power in the supply chain network using Atlas Copco US as a reference.

Implementing successful supply chain strategies leads to a higher efficiency of the activities within the supply chain network with reduced costs and a higher added value. Comparing the supply chain of Atlas Copco in central Europe and the USA, two clear and stable MSC structures were identified: open MSC and closed MSC structures. In the open MSC structure identified in the central European powertrain producer market, placing Atlas Copco as supplier, the buyer, ThyssenKrupp had taken a bridging role between the supplier and the end-customer, which provided the buyer with a source of power, mostly a huge power source over the suppliers, since the open triad network is linear with no direct connection between the end-customer and the supplier. The findings further revealed the shift in power between the end-customers and the buyers, from the end-customers holding all the power by offering contracts to the buyer given the power when they won the bidding contract to buy everything that is needed on the engine line and choosing suppliers. Therefore, Atlas Copco's customers in central Europe was the buyers and not the end-customers, thus giving the decision power to the buyers which resulted in an open MSC with no direct relationship with the end-customers as can be seen in Figure 6. The current open MSC in central Europe show how the buyer's structural position within the network between the end-customer and the supplier plays a significant and central role which Hingley (2005b) refer to as "super middleman". The role of the middleman in the MSC can be defined as bridging between two actors as a result of lack of connection between the actors that are not directly linked together (Burt, 1992, 2000; Simmel, 1950). Due to this structural position as a middleman, Burt (1992) therefore concluded that any firm that finds itself in a bridging position may possess power that comes from its structural position.

Atlas Copco has therefore built an organization in central Europe to support MTB sales, and have a very comprehensive and a very strong MTB support and sale structure in central Europe. However, this bridge might shift to a supplier-customer relationship, hence eroding the buyer's bridge position within the supply chain network, as the supplier have enhanced the relationship with the customer and thus creating a direct bridge with the end-customer. This would result in giving the supplier, Atlas Copco, the unique responsibility of delivering the services. However, as a result the buyer might lose information sharing and knowledge transfers if the supply chain network is not carefully managed, which would expose the buyer to opportunistic behavior on the part of the supplier (Peng et al., 2010). Initiating a direct relationship with the end-customers through information sharing routines as a result of improvements of the supply chain downstream would increase the customer satisfaction. These supply chain improvements can be the disintermediation of the buyers to get closer to the end-customers. As current supply chain structure in central Europe restricts Atlas Copco in initiating information-sharing routines and relationship with the end-customers, then the existing channel of sale is not efficient. By implementing customer relationship and disintermediating strategies related to supply chain management, Atlas Copco can therefore build a more efficient channels of information and knowledge of the customer, thus serving its needs needs in a better way. Another incentive to to initiate a direct relationship with the end-customer is the nature of services, as value driven by a services to the customer is no something that is produced and then sold, but something that is co-created with the end-customers (Hua et al., 2011). Co-creation of services and complete solutions of Atlas Copco's product offerings would provide the ability for firms to adapt to customer needs as co-creation provides a unique and new channel of information between the company and the end-customer, thus building the relationship as a result of the collaboration.

Meanwhile in USA, Atlas Copco had a similar open MSC structure, positioning Atlas Copco as suppliers, ThyssenKrupp as buyers and Ford as end-customers in the network structure. To overcome the intermediaries, Atlas Copco applied a combination of resource based view and relational view to approach the end-customers, thus demonstrating to the end-customers that they have the unique capability to create turn-key functional solutions, by taking advantage of their five

applications centre. Atlas Copco in USA listened to Ford's key needs which was to being able to launch engines at time faster than current ramp-up rate using equipment and global best practice standards around the world, in other words, globally launch equipment exactly the same in all regions of the world. A shift of power in favour for Atlas Copco, thus overcoming the bridge position has created a Closed MSC, giving Atlas Copco a direct exchange of information and relationship with the end-customers. In the closed MSC, ThyssenKrupp has very limited power since they are no longer undertaking a bridge position since Atlas Copco is now single sourced supplier working closely with the end-customers with value adding activities.

The current open MSC in central Europe could shift to a Transitional MSC structure where it is possible to see a change in the power structure if the bridge position of the supplier decays. This shift in power appears to be produced by structural changes alone in a function. Based on this analysis, we propose that:

Proposition 1: When the structure of an MSC changes from open MSC to closed MSC, the positional power shifts away from the intermediaries, enhancing the suppliers' information exchange and relationship with the downstream network dominance.

6.2 Power Within the Supply Chain Network

Normally, inter-organizational power and structural power within a given supply chain has originated from resources, i.e. tangible and intangible assets possessed by and tied to the firm (Wernerfelt, 1984). In MSC context, resource based power is when a firm within the supply chain network possesses resources that others in the network do not have, which in turn affect their costs and/or revenues. These firms will use their resources to strengthen their position within the supply chain network. Companies use their resources to strengthen their position in the supply chain network which might help to increase the company's performance and can result in a competitive advantage. David and Barney (1985) argue for that a firm will gain power and competitive advantage if another company is dependent on the first firm's resources. As an upstream firm in a downstream network dominance, Atlas Copco experience a high search cost since the resources offered are homogenous and thus have slight degree of substitution for the buyers (component sales), while buyers as downstream firms in the powertrain producer market experience a low switching cost for its upstream and a high search cost for its downstream (Donaldson, 2001). Atlas Copco competes with two other major tool suppliers, Apex and Bosch which places Atlas Copco in a weak spot since they cannot use their resources to strengthen their power position in the network. The tool builders will therefore take the advantage of Atlas Copco's weak spot in the supply chain network by offering blanket prices for the fastening equipment, thus buying only fastening components, rather than complete solutions with services.

A resource-based view as a basis for the competitive advantage of a firm lies mostly in the application of a firm's valuable resources or intangible assets to gain competitive advantage. However, these resources must neither be perfectly imitable nor substitutable without a great effort (Barney, 1991). Since Atlas Copco's resources, i.e. assembly tools are substitutable with other competitor's tools, they don't have major competitive advantages in relation to their major competitors and cost will therefore be a determinant factor to win a bidding. To achieve a competitive advantage, Atlas Copco needs therefore to implement different strategies depending on the context of the supply chain network. There are opportunities to influence a network in subtler ways using the relational view. Atlas Copco's position and behaviour within the network will therefore be mainly determined by its relationships with the actors, in this case, the end-customers. Relational view advocates for the value of using inter-organizational relationship to gain

critical network resources from four primary sources as mentioned in the literature study; (1) relation-specific assets, (2) knowledge-sharing routines, (3) complementary resources and capabilities, and (4) effective governance. This would eventually result in a sustainable competitive advantage for Atlas Copco.

According to the GKAM for Ford PT, Atlas Copco should go in and start selling to the end-user, and offering the end-user to be their single sourced partner. Atlas Copco should further offer the end-user to be the company that the end-users buy the fixtured solutions from and to be in control of putting in turn-key control systems, fastening control systems rather than just selling components to the MTBs and having them be responsible of the integration. Atlas Copco wants to be responsible for the reliability of this equipment long-term beyond the one year the integrator, the MTB is having. And then all that constructs great and at the end of the day it has to bring value to the OEM, usually saving them money, showing that they're going to have a higher quality solution and basically having solutions that meet their needs. So in many cases in central Europe, Atlas Copco haven't penetrated deep enough with the end-user, to truly understand what their needs are. And until Atlas Copco can do that, it's difficult for them to penetrate the market. That means covering questions like: what's your expectations for turnaround time? What's your expectations for support? What's your rate of cline/clime? Until we understand those nuances of MTB, it's not possible to adequately go in to the toolbox of Atlas Copco relevant to its capabilities, its products and its support structure to put together value propositions that meet those needs if Atlas Copco don't know the needs. Once they have established the needs which by the way come on the heels of creating relationships in the plant. So the step one is the creation of relationships in the plant.

Atlas Copco in USA is taking advantage of their application centers to create value-adding for the end-customers by offering complete turn-key solutions such as the global standards library mentioned above. Nobody else in this industry has five global applications centers around the world dedicated doing just that. So Atlas Copco leverage that, by taking advantage of their application centers and selling that capability that was able to bring them value. Atlas Copco in central Europe should therefore shift in mentality from component selling to offering the end-customers complete solutions, thus taking use of their competitive advantages to initiate a direct relationship with the end-customers. To do that, Atlas Copco must rethink their sales channel strategies.

Proposition 2: A supplier who wants to influence key product characteristics and sales, thus enhancing the resource based power, need to connect directly with the end-customers through information-sharing routines and a stable trust-based relationship.

6.3 Establishment of relationship enhancing processes

The relationship between Atlas Copco, the MTB (intermediaries) and the end-customer (in this case Daimler) is proven to be very important by the findings of the study. Many individuals within the organization of Atlas Copco point out the relationship as an important factor to make a successful market entry in the central European market. All parties within the organization agree on the fact that a better relationship with the end-customer and the MTB will result in a higher market share in the central European market and is the key to a successful market entry. This is also proven by Keith et al., where the advantages of an improved relationship within the supply chain by implementing CRM to the organization helps the company to improve its sales force efficiency and effectiveness, while also enabling it to offer a higher product and service value for its customer at a lower cost (Keith A. Richards and Eli Jones, 2006; Rollins & Halinen, 2005; Yichen & Hwan-Yann, 2003). What divides the opinions within the organization of Atlas Copco

is which relationship is most important, the relationship with the MTB (intermediaries) or with Daimler (end-customers).

The GKAM for Daimler argues for the importance of the relationship with the MTB, as it is the MTB that takes the final decision of which tool supplier is contracted. If Atlas Copco focus on the relationship with the MTB, it can develop products and services especially suited for the MTB providing it with the highest value, but will only minimally satisfy the demands of the end-customer. By offering a higher value to the MTB than Atlas Copco's competitors, the MTB will be willing to pay more as it gets more. This will end the trend of selling only basic components and enable the selling of especially suited packages to the MTB. To do this the MTBs currently used by Daimler must be identified and resources should be invested in activities stimulating a better relationship between the parties (Key account manager Daimler, 2016).

The idea of improving the relationship with the MTBs' sounds good in theory but Atlas Copco must learn from its history and previous mistakes, as the current close relationship with ThyssenKrupp (MTB) has not yet benefited Atlas Copco in the central European market – indeed, ThyssenKrupp has aggravated the situation by taking advantage of Atlas Copco in certain cases. This is because Atlas Copco has no bargaining power as it puts itself beneath the MTB due to the relationship between the two parties. To avoid this issue, contact and improved relationships should be established with several MTBs of the central European market to increase the bargaining power against them. If one MTB is not fulfilling the agreement or is utilizing its position against Atlas Copco, Atlas Copco should break the relationship with that MTB. But it is important to remember that Atlas Copco is still placing itself in a poor position due to the fact that it focuses more on its relationship with the MTB than with the end-customer. It will only have the best product offering according to the demands of the MTB and not the end-customer. Furthermore, having the best relationship with the MTB puts Atlas Copco in a situation where contact with and the ability to affect the end-customer is very low compared to what it would be if the focus was on the relationship with the end-customer.

Therefore, the alternative is to focus on the relationship with the end-customer, which does not currently exist with Daimler. Not even a formal mapping of which individuals to contact within the organization of Daimler is in place, i.e. the potential and the effect of small changes towards an improved relationship with Daimler will have a major effect on Atlas Copco's position in the central European market. Currently, and according to the majority of the findings, an improved relationship with the end-customer is preferred before an improved relationship with the MTB due to various reasons. Firstly, the PT market where Atlas Copco has achieved its best success (Northern America) is due to the hard work put in towards building strong relationships with key figures within the organization of, for example, Ford or General Motors. Within the North American market, the MTB knows that the demanded supplier of tools by the end-customer is Atlas Copco and it should always choose Atlas Copco for a reasonable price when deciding between the listed tool suppliers (Global key account manager Ford PT, 2016). The good relationship with the end-customer has led to the total control of power by the end-customer at all stages of the buying process. This means that Atlas Copco can focus on creating value for the end-customer only and not the MTB, which also proves the benefits of CRM explained by Keith et al. (Keith A. Richards & Eli Jones 2006; Rollins & Halinen 2005; Yichen & Hwan-Yann 2003). As good as this sounds, it is important to remember that the creation of this close relationship with the end-customers in the North American market required a large amount of resources over a long time. In addition, it is important to highlight the cultural differences, whereby the culture in the central European market is more formal, which makes CRM implementations harder to conduct. For example, relationship-building activities such as business lunches' are more common in the North American market than they are in the central European one. Furthermore, the relationship in the North American market can be viewed as less formal and the two parties can be seen as

friends outside of the business context, while this is not common in the central European market (Global key account manager Ford PT 2016). Secondly, it is the end-customer who is the most important actor for Atlas Copco and not the MTB. It makes products that are going to be used by the end-customer and not by the MTB. As previously described, a better relationship is equivalent to a higher product and service value, which in the end leads to increased revenues if that relationship is better with the end-customer, but not necessarily with the MTB.

A greater focus on building up the relationship with the end-customer can benefit Atlas Copco in many ways, as discussed previously, but it is important to remember that the MTB is the intermediary in the supply chain. This means that the chain is incomplete if the MTB refuses to act as one. Despite having its application centres, which act as a light version of an MTB, Atlas Copco do not have the resources or knowledge to put together a whole PT production line and need this help.

The relationship within the central European PT market between the actors is clearly a parameter that is important to consider for a supplier organization within a three-tier supply chain network in a relationship-driven B2B market. If no relationship is established with the intermediary or the end-customer before or during entry to the central European market, the chances of making a successful entry is limited. As discussed previously the relationship with the end-customer is of more importance than the relationship with the MTB. But it is still important to manage the relationship with the MTB as the MTB still works as an intermediary and without it no tools can be sold to the end-customer. Atlas Copco should strive towards having a monitored business process link (Hokey & Zhou, 2002; Lambert et al. 1998) between itself and the MTB. By not prioritizing the relationship with the MTB it is hard to have a relationship that enables an integration of the MTB into Atlas Copco's supply chain. But the relationship should be so good that the business link between the parties can be monitored by Atlas Copco and information between the parties can flow. This is to prevent any issues with the MTB, since Atlas Copco is still dependent on it and cannot act by itself in the market. But it can, through a strong relationship with the end-customer, make the MTB dependent on Atlas Copco as the end-customer will only want to receive offers from MTBs that offer Atlas Copco's tools.

To establish a good relationship with the end-customer (Daimler), Atlas Copco needs to map the organization of Daimler to target individuals of importance in their organization. In the next stage, the GKAM and the sales personnel should work on establishing a personal relationship with these individuals. The sales persons and the GKAM both have a very important function in the establishment of the relationship with the end-customer because it is they who meet the customer face-to-face when selling Atlas Copco's tools. According to Mendoza, it is important to establish processes for how these interactions should be conducted. In Atlas Copco's case many aspects of the processes of the North American market – for example, how to communicate with the end-customer – should be implemented in the central European market, but with modifications due to the cultural differences. In relation to this, the relationship can also be improved by always fulfilling the needs of the end-customer. To do this the overall quality of the products and especially the services provided by Atlas Copco to the end-customer should be high, because the quality of the services are directly related to the satisfaction level of the customer, according to a study conducted at Harvard (Mendoza, o.a. 2006). With the increased satisfaction level of the end-customer, the willingness of that customer to share valuable information with Atlas Copco increases. In simple terms, Atlas Copco should change its focus from the product and services to its customers.

To be able to work towards a better relationship with the end-customer it is important to follow Mendoza's four success factors, as 70% of all CRM implementation projects fail (Keith A. Richards & Eli Jones 2006). First of all, it is important for Atlas Copco to involve every part of the

organization related to the end-customer in the work of improving the relationship with Daimler. Secondly the management team leading the work of improving the relationship with Daimler needs to form short-, medium- and long-term goals to be able to measure the results and whether the project is heading in the right direction. Thirdly the whole organization needs to understand and be involved in the change from a product and services focus to a customer focus. The mission is not to have the best products and services on the market but the best products and services for the customers in the central European market. Fourth and finally it is important to instigate as many relationship-improving processes as possible to make the work towards an improved relationship second nature within the organization.

Proposition 3: The relationship with the end-customer is directly related to the success for a supplier organization within within a three-tier supply chain network in a relationship-driven B2B market as the market is driven by relationship rather than other factors. Relationship-improving processes should be established to create a better relationship with the end-customer. The relationship with the intermediary should not be prioritized but should rather be monitored by the focal firm.

6.4 Have a deep understating of future demands

To have a deep understanding of future customer demands before and during a market entry is a crucial success factor when entering the central European market, according to the findings (Key account manager Daimler 2016; Global business manager powertrain, 2016; Technical Manager 2016; Global product manager at Tools and Assembly, 2016; General manager Voice of the Customer, 2016). The information about the future demand can be fixed by a mapping of the future engine and transmission production for Daimler in the coming years. First, the mapping of the future engine production is illustrated followed by an analysis.

Information of the mapping of the current and future engine production is crucial information that is needed to enable a successful market entry. If this information is absent no strategical decision can be made about which new projects to invest resources in and which ones to not. This information is also vital for the sales force and GKAM, as they will know which plants and individuals to contact and which to not. A formal mapping based on formal documents given by Atlas Copco can be seen in the section below, called 'location and quantity of future expected engine production for Daimler'. As the title states, the mapping is only done for Daimler and not the whole central European market. According to the analysis made in section "*5.10 Location and quantity of future expected engine and transmission production for Daimler*" the most common engine to be produced between 2018 and 2022 will be the 2.0L 16V DOHC L4 engine model, with 41% of the total engine production and 1,930,231 engines produced. To put this information in relation to the other models, each model only accounts for 14% or below of the total production. The information about which model to focus on can help Atlas Copco to make specially suited tools for the most attractive engine and transmission types. Most attractive is defined as the highest quantity produced. This is because a higher production quantity means more sold tools and services to the end-customer, which means more profit for Atlas Copco. Looking at the transmission systems, the most common system is the NAG-3 automatic transmission system with 39% of the total transmission produced. This system is followed by the FSG and XPS transmission, with around 20% of the total production. To summarize, Atlas Copco should focus on building tools and services that fit the needs of the 2.0L 16V DOHC L4 engine model and the transmission models NAG-3, FSG and XPS as these are the models with the highest expected production volume. Looking at the geographical locations most of the engines, including the 2.0L 16V DOHC L4 engine model, are produced in Köelleda, which is the location that should be targeted by Atlas

Copco's sales force and the GKAM. With regard to the transmission systems, the majority of these will be produced in Untertürkheim, which is the second geographical location that should be targeted by Atlas Copco's sales force and the GKAM.

Proposition 4: The focal firm needs to specify the attractiveness, demand and geographical locations before making the market entry to enable strategic decisions based on this information. In this specific case Atlas Copco should focus on relationship-enhancing activities with key individuals within the organization of the customer related to the plant in Köllda and Untertürkheim. It should also focus its R&D resources to produce specific product and service features or solutions to the 2.0L 16V DOHC I4 engine and the transmission models NAG-3, FSG and XPS, as these are the models with the highest expected production volume.

6.5 Customer and Market Knowledge

The information about the customer is all crucial information that is needed to make a successful market entry, according to the findings (Key account manager Daimler 2016; Global business manager powertrain 2016; Technical Manager 2016; Englesson, 2016; General manager Voice of the Customer 2016), because it is not the best product or service on the market that will sell best but the product or service that has the highest value for the customer. According to the findings, only one formal channel for information exists and that is the VoC. This channel of information is used for both information gathering and relationship building, with both the intermediary and the end-customer. It is a well-developed tool by Atlas Copco, but as it is the only source of information from and about the customer a large amount of information is lost. As illustrated in Figure 23, the second channel of information that is informal is through the individuals working face-to-face or very close with the customers. As no formal system is in place to store the information gathered by this channel, crucial information about the customers disappears as it is never stored or spread through the organization in an efficient way. For example, as the findings of the study show, important information is sent by email and never stored (Key account manager Daimler, Relation to MTB's in central Europe 2016). It is not available for everybody in need of it and some individuals within the organization that may be in need of this information are never informed that it exists.

As discussed previously, the relationship is affected by the value provided by the focal firm for the end-customer and the highest value should only be provided for the end-customer. A high value for the end-customer can only be offered if information of what is perceived as value by the end-customer is provided by the end-customer and transferred and stored by the focal firm. According to Rollins & Halinen, knowledge management (KM), which is the capturing and management of knowledge, information and data about the customers, helps people within the organizations to share and put knowledge into action by creating access context-based infrastructures' and simultaneously reducing learning cycles (Rollins & Halinen 2005). Both CRM and CKM are included within KM and discussed in the literature review. The current formal system (VoC) of gathering information about the customer is a solid and well-developed tool. It works well and is the main source of information used by R&D at Atlas Copco when developing new products, features or services. The problem is the information that is not captured by the formal information flow structure, the information that flows through the not yet formalized information structure – through email or by phone, for example – where crucial information from and about the customer is lost. Based on the findings, two informal channels of information exist, through the GKAM and sales force and through the services. These channels must be formalized and be a part of the database to prevent any loss of important information and to stimulate the gathering of customer

data, because if an IT system is in place to store data in a database it is easier for the employees to share the information.

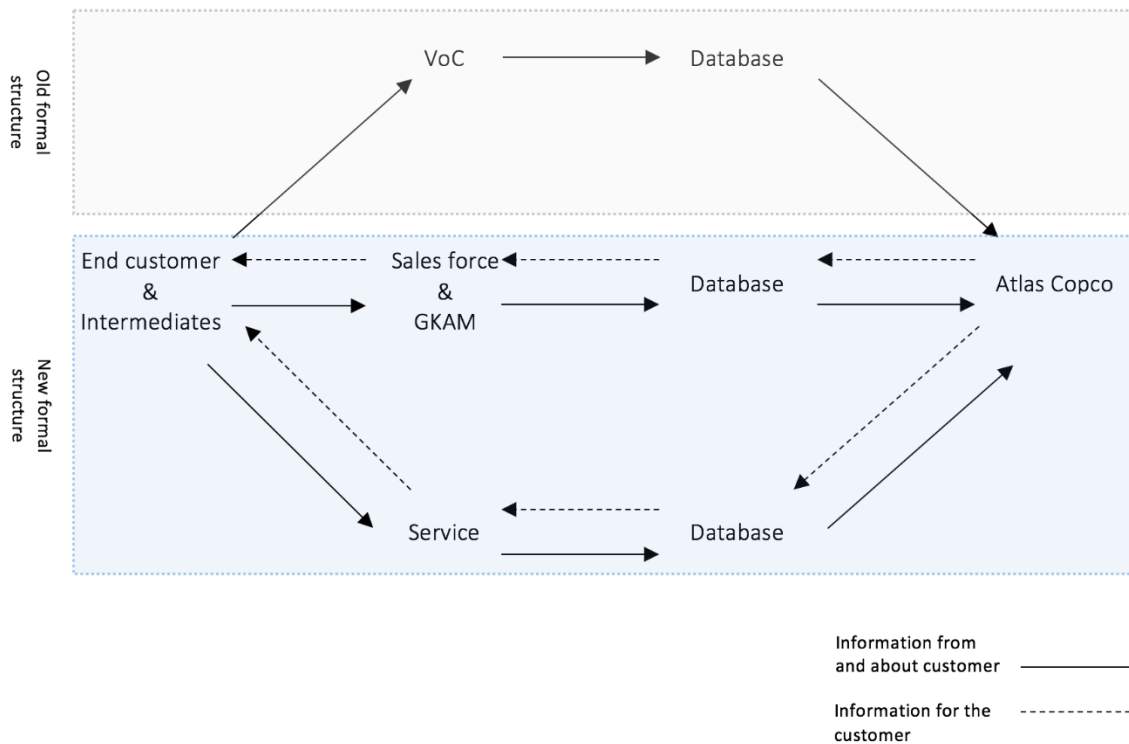


Figure 27: New infrastructure for flow of information.

Both channels (services, GKAM and sales force) will be used not only to gather information about and from the customer but also to give information to the customer to strengthen the relationship with them. The information to the customer will not only be generated by the sales force, GKAM or service force but also by other employees within the organization who can store this information within the database so that it can be transmitted through the channels. Since both channels already gather information through working face-to-face with the customers, no additional costs will be needed to form these new channels. For example, services are co-created with the end-customer, so as the service is consumed by the customer it can transmit his/her preference for the products. The same applies for any improvements that the service personnel spot during their work. Processes for how to handle information about the customer need to be established in order to stimulate the customer to transmit information through these channels. To make it easier for the sales force, GKAM and the service force to store information, a user-friendly and easy way to store the information must be in place, such as a phone application where an individual can store vital information on the go. This database can also be used as an information pool of other information of importance for Atlas Copco, such as key individuals within the organization of the end-customer or information from previously successful or unsuccessful completed projects.

The new and improved infrastructure for the flow of information is illustrated in Figure 27. As illustrated in the figure, the old formal structure is placed in the grey area while the new extended structure is situated in the blue area. The information from and about the customer is illustrated by the solid arrow, and the dotted arrow illustrates the information for the customer from Atlas Copco HQ or any other individuals within Atlas Copco's organizational structure. Within the blue area, which is the new formal structure, two channels are illustrated, one through the sales force and GKAM and one through the service force. All data from all three channels (VoC, sales force & GKAM, service force) are stored in the same database.

Proposition 5: To enable a successful market entry and form an infrastructure for relationship relationship-enhancing activities, information about customer demands must be gathered and stored to enable efficient use of this information. To do this two new formal channels of information need to be created. These channels enable relationship-enhancing activities and the gathering of crucial customer data. The former channel did not support these two functions effectively.

6.6 Four Factor Framework

In Figure 28 a framework based on the findings, analysis, discussion and the propositions is illustrated. The framework is a result and a conceptualization of the propositions listed in the discussion and is the contribution to the literature by this study. In relation to the propositions, the framework consists of four factors instead of five which are the number of propositions. This is made as two of the propositions (proposition 4 & 5) are similar and related to the same field which is market knowledge. As the purpose of the study, the framework visualizes the four critical success factors identified from the analysis of the study. The purpose of the framework is to visualize the four critical success factors and serve as a framework and tools for a supplier organization within within a three-tier supply chain network in a relationship-driven B2B market with similar characteristics as the market that was studied in this research. The framework serves as a guide on how to act and form the best conditions for a supplier organization within within a three-tier supply chain network in a relationship-driven B2B market.

6.6.1 Constrains

The framework that is developed by the findings and the analysis of the study have its constrains and cannot be applied to every market neither can it be used if the focal firm does not meet the characteristics that are listed below. The framework aims for improving suppliers' structural power and relationship with the end-customer in a competitive downstream network dominance with with an intermediate and a linear information flow within the network structure. As the framework has not been used within any other studies it is assumed that it can only be used efficiently if the following conditions are met. Firstly, the market should be dependent on relations between the actors within the multi-tier supply chains in a downstream network dominance. Secondly, the market should already be analyzed and viewed as an attractive market for the focal firm (supplier), thus the framework assumes that the market is attractive and profitable for the focal firm. Thirdly, the offered product or service in the new market is diversifiable and can be customized to fit specific customer needs, e.g. a product that have various features and quality levels. Furthermore, the focal firm should operate in a B2B market within a multi-tier supply, having the possibilities and resources to establish distribution channels demanded by the market and have the economic resources to cover the investment cost of entering the market. Finally, the focal firm should already have the human resource demanded by the new market in place before entering the market e.g. a competent sales force or dedicated GKAM for that specific market.

6.6.2 Four factor framework

The purpose of the framework is to serve as a guide for industrial B2B companies in a downstream network dominance when making a market entry. The goal when using the framework is to make a successful market entry that is represented by the core and bulls eye in in the middle of the framework. The model consists of four different areas called critical success factors that are illustrated in Figure 28. All four of these factors must be met as they are dependent of each other. For example, trust-based relationships cannot be established with the targeted actor if the market knowledge and customer preferences are limited. The market and focal firm must also fulfill the constrains listed in the previous paragraph if no other research have proven it to work within other conditions. The four factors included in the model are the supply chain structure, market knowledge, power distribution, market knowledge and market relations. Supply chain structure is

a function of market relations, market knowledge and consequently the parameter that determine the structural power within the supply chain network as can be seen in Figure 28. For example, the characteristics for a closed multi-tier supply chain structure is a direct trust-based relationship with the end-customers and buyers with a triangulated information flow across the network, thus giving the focal firm (suppliers) a good market knowledge and a positional power that is at least equal to the buyers' power. All the factors are explained in detail in Figure 28. The strategic objective is aiming to influence the supply chain network structure towards a closed network structure which is done by focusing at relationships within the structure, having an extensive market knowledge and customer preferences at the operational level. The functional level of the plan is focusing in specific fields of management to operationalize the strategy such as customer relationship management, knowledge management and supply chain management shown in Figure 28.

These propositions and framework involved an organization in a downstream network dominance at two supply chain levels and in two geographical locations, Europe and USA. However, it is likely that these proposition applies to longer supply chains in a downstream network dominance, aimed to giving the suppliers guidance and support on how to overcome intermediaries within multi-tier supply chain networks.

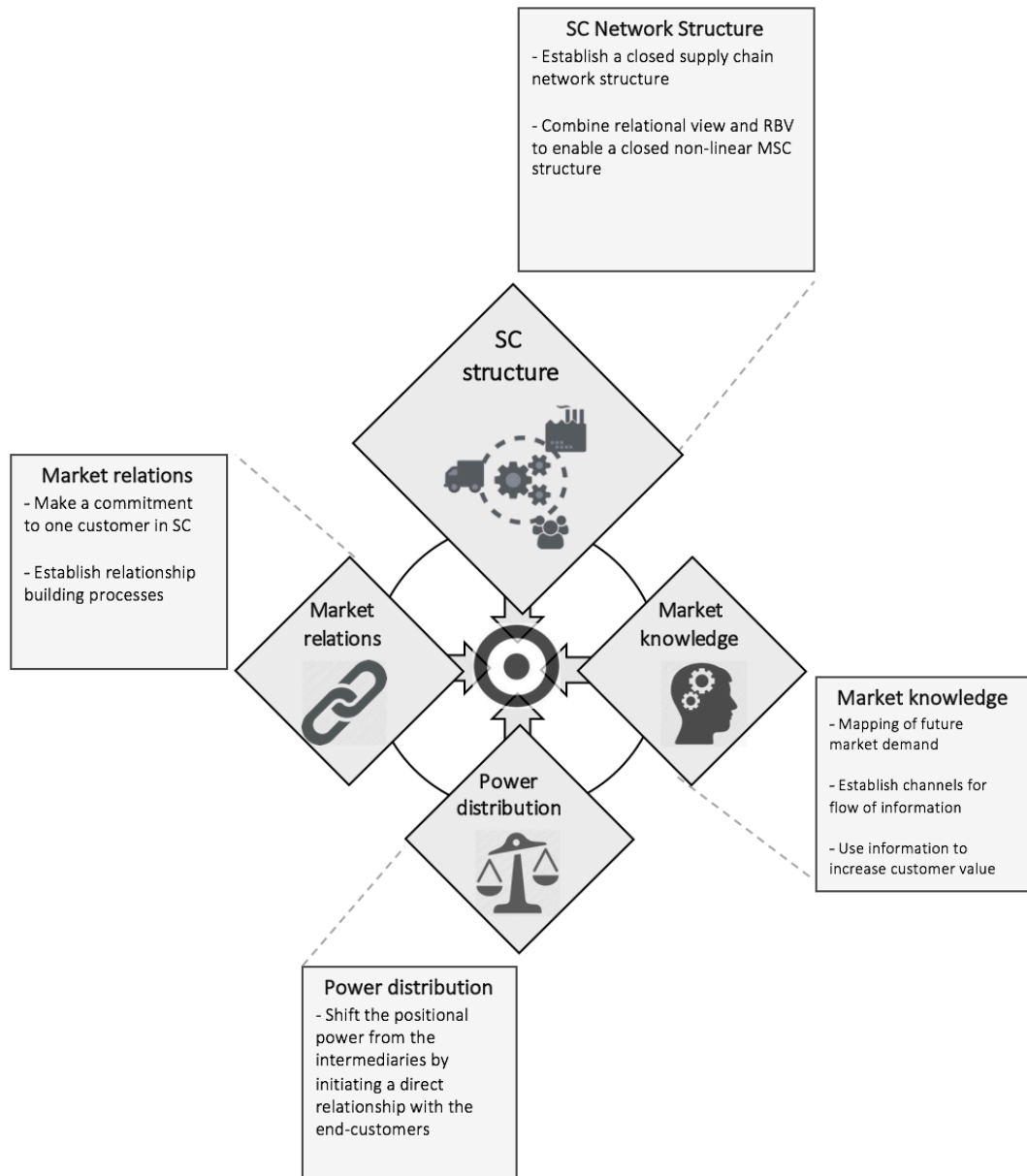
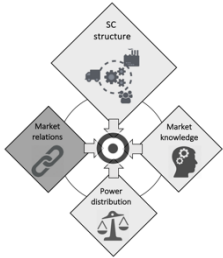
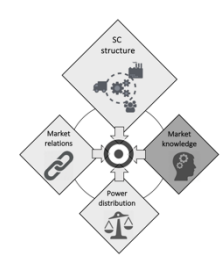
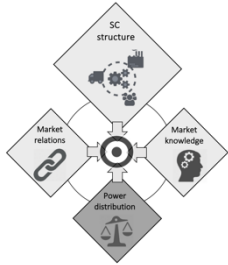
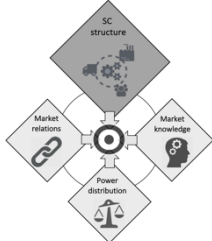


Figure 28: Four factor framework

6.6.3 The four critical success factors

 <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Market relations</p>	<ul style="list-style-type: none"> - Identification of the most important actor within the supply chain downstream. It should then prioritize and actively work on improving the relationship with one specific actor and monitor the rest of the relationships with the rest of the actors downstream. This as the intermediate and the end-customer usually have two different views of what is perceived as customer value for them. Only one actor should be targeted due to that literature proves that products and services that have a high value for the customer is directly related to the relationship between the parties. If two actors have conflicting demands only one should be targeted. - Identification of the key individuals with decision making authority within the organization of the targeted actor and initiate a relationship with these figures. In most cases the GKAM should initiate and nurture the relationship with these persons. - Establish relationship enhancing routines and processes with the targeted actor. One example of a processes is knowledge sharing routines to understand the targeted actor's demands better and improve the communication with it. These processes should be as automated as possible. - To successfully establish theses relationship enhancing routines and processes all persons within the organization of the focal firm should be involved in the change from product to customer focus. Short, mid and long term goals should be established and measured continuously.
 <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Market knowledge</p>	<ul style="list-style-type: none"> - Mapping of the current and future demand. Both by product and quantity but also by geographical location. This to enable strategic allocation of resources in form of sales force to a certain plant or development of specific features or characteristics that are demanded by the customer for a specific product. - Establish solid and well-functioning channels of information between the targeted actor and the focal firm. This to enable a solid stream of information for, from and about the targeted actor. But also to eliminate any loss of important information. - Establish well-functioning processes of gathering, storing, analyzing and sharing of information for, from and about the targeted actor. For example, a databased where the sales force can store customer preferences which can be for example used by persons at the HQ of the focal firm. - Use the gathered information from and about the customer to create products and services that do not necessary have the highest value on the market but the highest value for the targeted actor. This as the relationship between the focal firm and the targeted actor is affected by the created value for the customer in the form of a product or service. If products and services with a high customer

 <p>Power distribution</p>	<p>value are offered to the targeted actor from the focal firm it creates better conditions for a good relationship between them.</p> <ul style="list-style-type: none"> - Shift away the power from intermediaries by being a selective partner for the key downstream customers. - Enhance the positional power by possessing a long-term safe-guard mechanism with the key supply chain network actors and thus invest your tangible and intangible resources to strengthen the relationship and knowledge-sharing routines.
 <p>Supply chain structure</p>	<ul style="list-style-type: none"> - Depending on the supply chain network structure establish a direct connection with downstream network to enable information-sharing routines and relationship-building. - Aim to remove the structural position from the intermediaries by initiating a direct relationship with the key downstream-network - Develop an organization and network to support key downstream sales by having a strong end-customer support and sale structure. - Improve the supply chain efficiency by implementing customer relationship and disintermediation strategies.

7 Conclusion

The purpose of this study is to identify and understand problem areas and critical success factors in a market entry on the central European powertrain producer market and how businesses adapt their sales processes to the supply chain network. More specifically, the structural dynamics involved in two multi-tiered supply chains (MSCs) was studied and how different structures affects the buyer- seller relationship, buyer-supplier power and market knowledge. The first research question proposed in the study was: *What are the identified problem areas for a supplier within a three-tier supply chain network in a relationship-driven B2B market?* The second question proposed in the study was: *What critical success factors (CSFs) should be considered for a supplier organization within within a three-tier supply chain network in a relationship-driven B2B market?* Our methodical approach was an abductive, theory-building methodology using qualitative case studies about the case company as a focal firm using data collection methods including, documentations, interviews and site visits. Based on these cases RQ1 and RQ2 were answered.

As an answer to RQ1, five problem areas for a supplier organization within within a three-tier supply chain network in a relationship-driven B2B market were identified. The first problem area identified is the relationship dynamics within the MSC network. The findings and analysis suggests the importance of trust-based relationship and information-sharing routines with the end-customer which is a crucial problem area identified in the case company. The second problem-area identified is the power distribution between the focal firm, intermediate and the end-customer. The findings reveal a power distribution asymmetry between the actors within the three-tier supply chain network, giving the buyers a positional power. The third problem area identified is the deficit of information-sharing routines within the supply chain network. The case company has only one formal channel of information flow and communication with the customer. This channel is limited and do not cover all information flow between the parties, which leads to the loss of vital information that is not captured by the formal structure and hence leads to a lack of market knowledge. The fourth problem area is the deficit of customer and market knowledge. The studied company did not have any information about the organizational structure and supply chain of the end-customer. Other information that the focal firm did not have includes end-customer demands and factory locations which is critical when making a market entry but also important to strengthen the relationship with the end-customer. The fifth and final problem areas is the deficit and capability of the human resources and structure in place to enter the central European market.

As an answer to RQ2 and the identification of the critical success factors that should be considered for a supplier organization within within a three-tier supply chain network in a relationship-driven B2B market, five propositions were formed. The first proposition refers to the structural position within the supply chain network in a downstream network dominance. In an open three-tier supply chain in a downstream network dominance including supplier, buyer and end-customer, the intermediaries hold a positional power relative to the network members, thus bridging the gap between the end-customers and suppliers. Disintermediation of buyers will shift the open MSC to a closed MSC, enhancing the suppliers power within the MSC by exchanging information with end-customers and initiating a trust-based relationship. A fully closed MSC is more stable since each member within the network are in a better position to triangulate the information flow received from the network members. This proposition is consistent with the literature that conceptualize intermediation within supply chain networks (Mena, Humphries & Choi 2013). To enable a fully closed MSC, Atlas Copco need to build and support an end-customer channel sale structure. The second proposition deals with the buyer- supplier power that exists among the members within two different MSC networks; open MSC and closed MSC, comparing the Atlas Copco central Europe case with the Atlas Copco USA. The power will shift away from the intermediaries by, as a supplier, being a selective partner for the end-customers, thus possessing a

long-term safe-guard mechanism with the key supply chain network actors and investing tangible and intangible resources to strengthen the relationship and knowledge-sharing routines. The third proposition refers to the level of relationship that the focal firm should have with the end-customer and intermediate. The study suggests a closed relationship with all network members as the study prove that the level of the relationship is directly related to the success for the supplier organization within within a three-tier supply chain network in a relationship-driven B2B market. The fourth and fifth proposition suggests that the level of the information sharing and storing routines between the members of the supply chain network are directly related to the level of the relationship between the parties. The third proposition suggests a close relationship between the members of the network and solid channels for information-sharing routines must be established. As a result of the establishment of these channels, the flow of vital information about the end-customer and intermediates can be assured. This will give the best conditions for the focal firm to provide products and services with the highest customer values possible.

7.1 Conceptual Contributions, Managerial Implications and Future Research

This study incorporated theories and concepts from three different management fields of research: supply chain management, customer relationship management and knowledge management. This study contributes primarily to research in supply chain management and customer relationship management within supply chain networks in a downstream network dominance with reference to disintermediation in a supply multi-tier supply chain network. The main theoretical contributions of this research involve targeting a new area of importance in the crossroads of supply chain management, customer relationship management and knowledge management, and identifying four critical success factors in a market entry on a relationship-driven industrial B2B market. Previous research has recognized intermediation in supply chain networks, where Simmel (1950) defined the concept of structural hole as any firm finding itself in a bridge position over a structural hole, possesses power from the structural hole (Mena, Humphries och Choi 2013). Against earlier theoretical contributions on supply chain networks, it is surprising how little scientific research has been conducted on the relation of customer relationship management to supply chain network management and particularly disintermediation within multi-tier supply chain networks. There are studies focusing on topics such as power distribution and relationship dynamics within different supply chain networks. However, extant research has not focused on how and why supply chain network is contingent on relationships within the network and the interplay of customer relationship management and knowledge management play to overcome disintermediation in the supply chain network. However, the scope of this study was the disintermediation of multi-tier supply chain networks, applying supply chain network management on strategic level, customer relationship management and knowledge management in operational level to operationalize the strategy towards disintermediation. This study combines previous studies and models such as the downstream network dominance by Chang et al. (2012), which focused on power possessed by end-customers and buyers over the suppliers within the supply chain network. Additionally, the propositions presented in this study is inspired by a study on disintermediation within multi-tier supply chain networks by Mena et al., (2013). The three types of multi-tier supply chain networks described in the literature review and throughout the study was used as a lens through which we could recognize and understand the relationship dynamics and power distribution between the actors within the networks. The four propositions formed the layers of the framework which could function as a tool by which industrial firms can understand and consider critical success factors in market entry on a relation-driven industrial B2B- market.

Our propositions and four factor framework offer academics a new perspective on supply chain network management, considering four critical success factors to manage a multi-tier supply chain network. Our research suggests that the structural position within the network is what determines

the power within the MSC and that structural position and power is a function of customer relationship management, market knowledge and knowledge management. Our study investigates only three-tier supply chain networks, and academics could further extend the research within MSC by exploring more tiers as companies forgoes new relationships and knowledge sharing routines across supply chain networks for many reasons including sustainability, cutting costs and technological trends. This enables academics to further understand the dynamics of MSC networks. For companies operating in complex multi-tier supply chain structures, our findings and framework can help understand the changes in power balances with stakeholders within the structural network and possible implications related to customer relationship management, supply chain network management and knowledge management. For instance, the propositions and framework gives the practitioner a guidance to build relationship with the end-customer to influence the structural position within the network to influence key product and service characteristics and build information-sharing routines. Similarly, the framework and propositions indicates the importance of market knowledge in order to facilitate the relationship building with the end-customer. As a result of the framework, the practitioners can efficiently decide where and how to invest their resources to successfully influence specific parts of the supply chain network and thus manage relationships within the network effectively depending on the network dynamics.

The study can be extended for future research mainly in four ways. First and foremost a comparative study can be made for a case similar to the one studied in this study. This with empirical data from another perspective for example by doing the study and base the findings on empirical data from a competitor to the case company. These findings can then be compared and add validity to the original study. Furthermore, the framework of the critical success factors can be used in other studies to test the validity of it. The framework can be used within a market with similar characteristics as the one studied in this study. Each critical success factor of the four factor framework can be tested within different markets and industries to extend its application area. The third extension towards future studies can be the use of the problem areas found by this study. Future studies do not need a pre study to determine these problem areas but base the study on these problem areas and extended it from that point on. Finally, the aspects of the framework can be confirmed by future studies to later develop the framework to an applicable model that can be used practically.

7.2 Sustainability

Sustainability is mainly viewed in three ways within management, economical-, environmental- and social sustainability. This specific study has mainly impact two of these aspects, economically and socially. Firstly, the study and more specifically the contribution which is the framework can help and guide businesses to successfully enter markets and solve issues within the supply chain mainly related to intermediates they couldn't with the old strategy. With other words the framework and the study could if used and applied in the right way influence the long term profitability in a positive way. Furthermore, the framework drives relationship enhancing activities and improved relations with its suppliers and buyer this can lead to a healthy partnership between the parties. This partnership enhances the formation of long term- and sustainable agreements between the parties. Finally, the framework provided by the study contributes and drives communication between the employees within the firm which affects the social sustainability.

8 References

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Appendix 1

Questionnaire for semi structured interviews

Part 1 Introduction

1. About us
 - a. Background and education
 - b. Purpose and goal of our thesis at Atlas Copco
2. About the interviewed person
 - a. Background– tell me about yourself and role in Atlas Copco

Part 2 Problem areas related to a market entry on the central European PT market

Part 3 Core competencies related to central European market