

## **Pursuing pole position**

- Information sharing in the Chinese automotive supply chain

Ola Cewers

Michael Friberg

Pursuing pole position – Information sharing in the Chinese automotive supply chain

Pursuing pole position – Information sharing in the Chinese automotive supply chain

© Cewers, Ola; Friberg, Michael

Department of Packaging Logistics, Design Sciences  
Faculty of Engineering  
P.O Box 118  
SE-221 00 Lund  
Sweden

Department of Informatics  
School of Economics and Management  
Ole Römers väg 6  
SE-223 63 Lund  
Sweden

Master Thesis in Technology Management - No 226/2012  
ISSN 1651-0100  
ISRN LUTVDG/TVTM--12/5226--/SE

E-husets tryckeri, Lund 2012  
Printed in Sweden

## **Abstract**

- Title:** Pursuing pole position – Information sharing in the Chinese automotive supply chain
- Authors:** Ola Cewers, M.Sc. in Mechanical Engineering with Technology Management  
Michael Friberg, M.Sc. in Technology Management
- Supervisors:** Markus Lahtinen, Doctoral Student, Department of Informatics, School of Economics and Management, Lund University  
Fredrik Nilsson, Ph.D Associate Professor, Division of Packaging Logistics, Faculty of Engineering, Lund University  
Claes Kalderén, Managing Director, Districom Group Ltd., Beijing
- Background:** With near stagnant growth in most mature car markets, much of the attention of the world’s car industry has during recent years turned to China. The Chinese car market represents an important business opportunity for OEMs and dealers who want to keep growing and making profits. Initially, the focus of OEMs was mainly on setting up new dealerships, often giving processes and technology lower priority. But as competition increases, voices have been raised that OEMs need to rethink the way they are currently doing business in China. According to supply chain management, one way to compete more effectively is to collaborate and to share information with supply chain partners. However, the knowledge of how information is currently shared in the downstream part of the automotive supply chain is limited and the challenges that need to be addressed are not yet fully understood.
- Purpose:** The purpose of this thesis is to explore the challenges that the downstream part of the Chinese automotive supply chain is facing when sharing information, and to show how these challenges imposes limitations to the way business is conducted.
- Method:** The empirical foundation of this study is based on 13 qualitative interviews, performed in China during a three months period. Representatives from OEMs, dealers and third

## Pursuing pole position – Information sharing in the Chinese automotive supply chain

parties were chosen to provide a comprehensive picture of the studied environment. The empirics were gathered and analysed simultaneously in order to calibrate the conceptual framework, later used to identify the challenges and the business implications.

**Conclusion:** Information sharing is an activity that frequently is being conducted by both OEMs and dealers in the Chinese automotive industry, although, the two parties share far from everything with each other. To share everything, as recommended by supply chain literature, seemed far from desirable as several cases of negative consequences as a result of sharing too much information were observed. A number of challenges that impose limitations to the way OEMs and dealers do business were found during the study, mainly originating from *will to share* information. At the same time, the industry seemed to focus on improvement efforts targeting *ability to share*, suggesting that the supply chain members have not yet realised the importance of *will to share*. As the Chinese car market matures, OEMs and dealers will be required to operate their businesses more effectively. OEMs and dealers that realise this, that aim for pole position, and that initiate improvement efforts accordingly, will have a competitive advantage.

**Recommendations:** In order for OEMs to create a beneficial exchange of information with their dealers the following actions are recommended:

- Create win-more-win-less situations
- Adapt shared systems to dealer requirements
- Treat the dealers as information wells, but make sure to refill them
- Review incentive models

**Keywords:** Information sharing, automotive, downstream supply chain, OEM, dealer

## **Acknowledgements**

This master thesis has been the final spurt of our five-year journey at Lund University, including studies at the Faculty of Engineering and the School of Economics and Management. From total rookies regarding the automotive industry and the Chinese context we have now completed this journey with lots of experiences and lessons learned, things that we will never forget. Several persons have through their contributions made this work possible and we would therefore like to thank them.

First of all we would like to thank all of the interviewees that have contributed with majority of the material that this thesis is built upon, without your participation the thesis had not been accomplished. The discussions with you have been extremely interesting and rewarding – thank you!

The opportunity that we received, to conduct this thesis during a three months stay in Beijing, was made possible through the support of Districom Group Ltd. and Claes Kalderén. As our industrial supervisor, you helped us fill our, sometimes big, gaps when it came to the automotive industry. We are very grateful for the time in China which is going to be one the most memorable times of our university studies.

Thank you Thomas Welle, our colleague, dear friend and guide at Districom Group Ltd., who made our stay a blast and introduced us to everything that Beijing had to offer – gan bian dou jiao and fist-pumping among our favourites. Victoria Cheng, though we had short time together we will never forget the dolphin experience you arranged and the support with Mandarin during our interviews.

Hours of Skype sessions with challenging questions together with lots of support, helping us finally crossing the finishing line, for this we would like to thank our academic supervisors Fredrik Nilsson and Markus Lahtinen. Innovation and heavy metal will always have a special place in our hearts.

Ola Cewers

Michael Friberg

Lund, 31<sup>th</sup> of May 2012

Pursuing pole position – Information sharing in the Chinese automotive supply chain

## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION.....</b>	<b>1</b>
1.1	BACKGROUND .....	1
1.2	PROBLEM DISCUSSION – DEVELOPING THE RESEARCH QUESTIONS .....	7
1.3	PURPOSE.....	9
1.4	DELIMITATIONS .....	9
1.5	TARGET GROUP .....	9
<b>2</b>	<b>RESEARCH METHOD.....</b>	<b>11</b>
2.1	SELECTING AN APPROPRIATE RESEARCH METHOD.....	11
2.2	DEFINING THE RESEARCH AREA .....	12
2.3	CREATING THE ANALYTICAL FOUNDATION.....	13
2.4	GATHERING THE EMPIRICAL DATA.....	14
2.5	DATA ANALYSIS.....	17
2.6	REFLECTIONS.....	18
<b>3</b>	<b>FRAME OF REFERENCE .....</b>	<b>21</b>
3.1	THE NATURE AND ROLE OF INFORMATION SHARING IN SUPPLY CHAIN MANAGEMENT.....	21
3.2	WHAT IS THERE TO SHARE? .....	22
3.3	“I KNOW SOMETHING THAT YOU DON’T!” .....	23
3.4	THE ROLE OF BUSINESS CONTEXT .....	23
3.5	WHY COMPANIES MIGHT NOT SHARE .....	24
3.6	IS THERE SUCH A THING AS A “WIN-WIN” SITUATION? .....	26
3.7	STRUCTURING THE LITERATURE REVIEW .....	27
<b>4</b>	<b>INFORMATION SHARING BETWEEN OEMS AND DEALERS IN CHINA.....</b>	<b>29</b>
4.1	THE OEM AND DEALER RELATIONSHIP IN CHINA .....	29
4.2	WHAT KIND OF INFORMATION DOES OEMS AND DEALERS SHARE? .....	30
4.3	HOW IS INFORMATION SHARED?.....	31
4.4	REASON BEHIND SHARING INFORMATION .....	32

Pursuing pole position – Information sharing in the Chinese automotive supply chain

4.5	GOING FORWARD .....	33
<b>5</b>	<b>CONCEPTUAL FRAMEWORK .....</b>	<b>35</b>
5.1	PRESENTING THE CONCEPTUAL FRAMEWORK .....	35
5.2	INTENDED USAGE .....	37
<b>6</b>	<b>IDENTIFYING CHALLENGES AND BUSINESS IMPLICATIONS .....</b>	<b>39</b>
6.1	PUTTING THE CONCEPTUAL FRAMEWORK TO USE - IDENTIFYING CHALLENGES .....	39
6.2	SUMMARISING THE INFORMATION SHARING CHALLENGES.....	45
6.3	KEY BUSINESS IMPLICATIONS .....	46
6.4	THE IMPORTANCE OF <i>WILL TO SHARE</i> COMPARED TO <i>ABILITY TO SHARE</i> .....	50
<b>7</b>	<b>CONCLUSIONS.....</b>	<b>51</b>
7.1	INFORMATION SHARING IN THE CHINESE AUTOMOTIVE INDUSTRY .....	51
7.2	ACADEMIC CONTRIBUTION .....	52
7.3	INDUSTRY CONTRIBUTION .....	53
7.4	RECOMMENDATIONS – OEMS IN THE DRIVING SEAT .....	54
	<b>REFERENCES .....</b>	<b>55</b>
	<b>APPENDIX A – OEM QUESTIONNAIRE.....</b>	<b>A-1</b>
	<b>APPENDIX B – DEALER QUESTIONNAIRE .....</b>	<b>B-1</b>
	<b>APPENDIX C – THIRD-PARTY QUESTIONNAIRE .....</b>	<b>C-1</b>
	<b>APPENDIX D – INTERVIEWEE META-DATA.....</b>	<b>D-1</b>



# 1 Introduction

---

*The introduction will describe the background of the Chinese automotive industry and the role of OEMs and dealers when distributing cars. Further on the importance of information sharing as an activity in supply chain management will be presented. The research area; information sharing in the downstream part of the Chinese automotive supply chain, and purpose of this thesis will be defined and elaborated upon through the problem discussion in this chapter.*

---

## 1.1 Background

As the 10<sup>th</sup> version of the Beijing auto show came to an end the 2<sup>nd</sup> of May this year the event organizers could once again look back at a veritable success. 800 000 visitors were estimated to have attended the event and all global car manufacturers to be reckoned with had exhibited their latest models. To say that the hopes and dreams of an entire industry are placed on the shoulders of a single country might be a little exaggerated, however, China is today the market where car manufacturers can dream of making huge profits and where buyers possess a seemingly endless demand. What makes the Chinese automotive industry so interesting is not just the tremendous growth during recent years, but also the immense potential for future development. Two actors, OEM<sup>1</sup>s and dealers, play crucial roles when trying to convert customer demand into sold cars. As OEMs are not allowed to sell cars directly to the customer, and dealers are required to franchise their operations, the parties jointly have to decide on how to approach the customers and how to integrate their businesses.

Collaborative alliances together with integration are important parts of supply chain management (SCM), where integration includes information sharing as an activity which facilitates collaboration between supply chain partners. However, sharing information in a structured way in a country where transparency have often been seen as undesirable, where fortunes have been made through corruption and fraud, and where telling the truth has not been what people have been awarded for, might not be the simplest of tasks.

### 1.1.1 China – The dragon is awake and growing

As the largest country in the world in terms of population China has during the past twenty years transformed itself, from a country with limited economic development proclaiming international isolation, to an emerging market to be reckoned with on the global economic scene (The Economist, 2012). As many western countries have

---

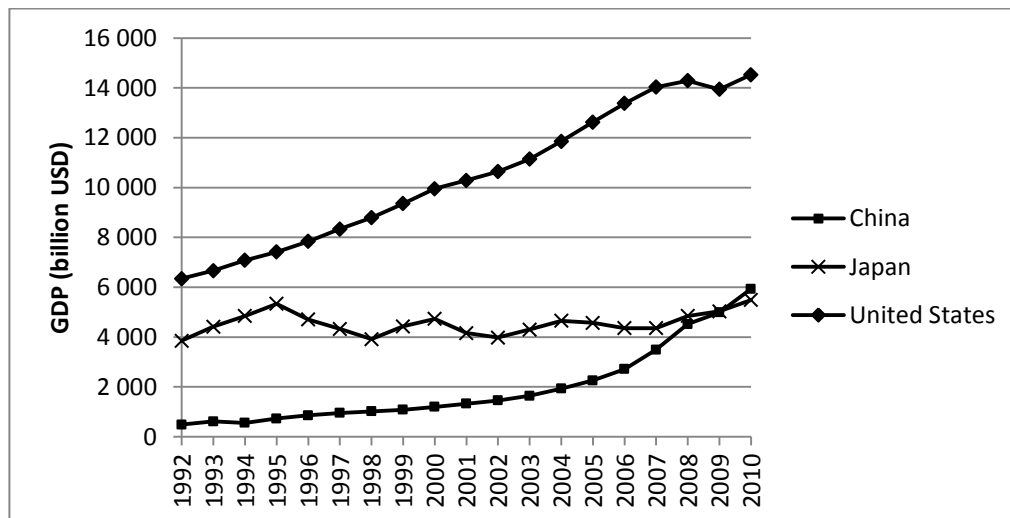
<sup>1</sup> OEM stands for Original Equipment Manufacturer, which in this environment refers to the car manufacturers

<sup>2</sup> The BRIC markets are defined as Brazil, Russia, India and China

## Pursuing pole position – Information sharing in the Chinese automotive supply chain

struggled with low levels of economic growth, the emerging markets, and especially the BRIC markets<sup>2</sup>, have gradually strengthened their positions. Although having their individual set of problems in terms of corruption and poverty, the BRIC countries have experienced an unmatched development pace and today play a role of great importance in the global economy (Rapoza, 2011a). The time when western economies ruled the world is according to an article in Forbes from mid 2011 soon about to come to an end. As debt crises have paralysed many countries, large emerging economies are projected to be the new rulers of the global economy in only a short period of time (Rapoza, 2011b).

Out of the four BRIC countries, China has emerged as the most successful one, strengthening its position as an economic superpower over the last decade. Reaching a gross domestic product of 5 900 billion USD, the country surpassed Japan in 2010 to become the second largest economy in the world, only beaten by the US (IMF.com, 2012). With an annual average growth rate of 15% between 1992 and 2010, far more rapid than Japan and the US (see figure 1), China is predicted to become the largest economy globally around the year of 2020 (Bloomberg News, 2010). The country's rise on the economic scene can also be viewed in world net lending, as China today is one of the world's largest creditors (Justin, 2011)



**Figure 1** – Gross Domestic Product (GDP) development of China, Japan and United States in billion USD, current prices (1992-2010), Source: *International Monetary Fund, World Economic Outlook Database*

With the national income steadily increasing over the last couple of years, so have the wealth of the Chinese population. Approximately 440 million people have lifted

---

<sup>2</sup> The BRIC markets are defined as Brazil, Russia, India and China

## Pursuing pole position – Information sharing in the Chinese automotive supply chain

themselves out of poverty and the purchasing power of the Chinese middle class is constantly increasing (The Economist, 2012).

As the purchasing power of the population has grown, so have the interest from foreign companies to enter the Chinese market. Historically, western brands have viewed the country as a source of cheap labour where products intended for wealthier customers in more developed markets have been produced. Only a few years ago most of the Chinese customers bought their luxury goods outside of China. Today they make 60% of these purchases in Mainland<sup>3</sup> China which have resulted in lots of attention being directed towards the Chinese domestic market, now constituting a large part of total revenue for many global companies (Atsamon & Dixit, 2009).

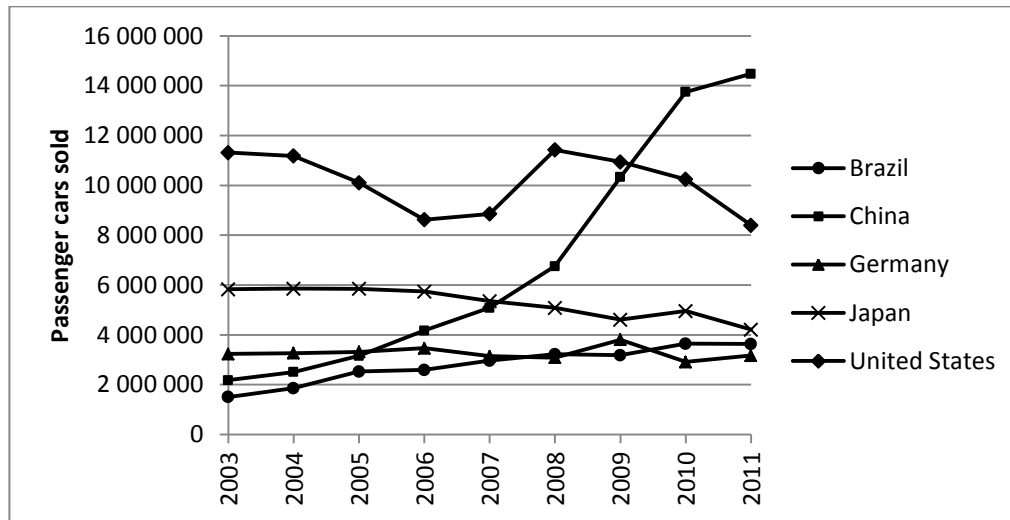
### **1.1.2 The automotive industry in China – big getting bigger**

One of the domestic markets in China that has received most attention from multinational companies is the automotive industry. With near stagnant growth in historically important car markets such as the US, Japan and Western Europe, the global industry now puts its hope to the Chinese car customers (Holweg, Lou, & Oliver, 2009).

As late as the early 1990s, the Chinese car market was of limited importance from an international perspective. Since then, the Chinese automotive industry has experienced rapid development, seeing annual average growth rates of as high as 21% between the years of 2002 and 2007 (People's Daily Online, 2009). Today, China is not only the biggest automotive BRIC-market, but as of 2009 they overtook the US automotive market in terms of sold cars, making it the world's largest automotive market (Ying, 2010). Accentuating the importance of the Chinese car industry, General Motors, the world's largest car manufacturer, announced in 2010 that they for the first time in history had sold more cars in China compared to the US (Business Monitor International, 2012).

---

<sup>3</sup> Mainland China is a geopolitical term excluding Hong Kong, Macau and Taiwan



**Figure 2** – Development of passenger cars sold in China, US, Germany, Japan & Brazil (2003-2011),  
 Source: *China Car Times, Wards Auto, European Automobile Manufacturers’ Association, Japanese Automobile Dealer Association and Associação Nacional dos Fabricantes de Veículos Automotores*

As a result of the staggering growth, virtually all major OEMs are now producing cars within the borders of China. Up until recently the government required foreign OEMs to partner with local car manufacturers in order to be allowed to produce cars in the country. This requirement allowed domestic players to gain access to important technological and financial resources, otherwise difficult to obtain. Today, car manufacturers are no longer in theory forced to engage in joint ventures with their Chinese counterparts in order to manufacture cars, although many still do, mainly as a result of the political and cultural difficulties associated with doing business in China (The Economist, 2008; Holweg, et al., 2009).

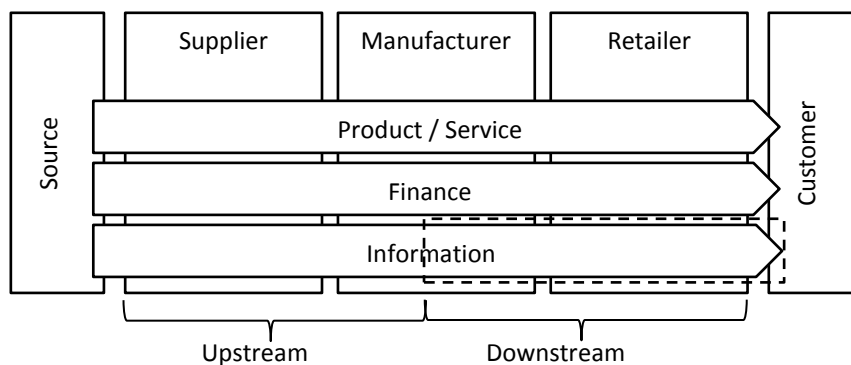
The ever increasing demand for new cars has also imposed problems to the Chinese society. Today, congestion and pollution as a result of the increased traffic are problems that several cities are facing, not only the previously highly motorized cities of Beijing and Shanghai. Government regulations have been put in to place as counter measures, trying to come to terms with the problems. Shanghai has been auctioning out the right to own cars in an effort to restrict the number of new cars being registered, Beijing are using a lottery system, while other cities have introduced congestions charges (The Economist, 2011). As a result of government interventions, in addition to the global economic downturn, the Chinese automotive market experienced a slowdown during 2011. But despite the fact that the market only grew 5%, many analysts believe this only to be a minor bump in the road, not forecasting the Chinese car market to peak until the year of 2020 (Xing, 2012).

Although forecasts indicates that the Chinese automotive market will keep on growing for many years to come, further strengthening its position as the most

important car scene in the world, there might be reasons for foreign OEMs to review the way that they approach their business in China (Xing, 2012). Domestic manufacturers' abilities to compete will gradually increase, eventually imposing a threat even in segments previously dominated by foreign car brands. Together with unpredictable government regulations and maturing buying behaviour of the Chinese customers, the way foreign OEMs are currently doing business has to be challenged.

### 1.1.3 Competing through collaboration

One way of increasing a company's ability to compete in a given market is according to Lambert (2008) to realise that competition is no longer taking place between companies, but rather between different supply chains. The success of a single company would according to his beliefs not be dependent primarily on its individual capabilities and resources, but instead on the collective ability of the supply chain to perform above industry average. These ideas have been more or less predominant within supply chain literature since the term SCM was introduced three decades ago. For the reader's basic comprehension, the following definition will be used throughout this thesis (see figure 3): "Supply Chains are a set of three or more entities (organizations or individuals) directly involved in the upstream and downstream flows of products, services, finances, and/or information from a source to a customer" (Mentzer, et al., 2001, p. 4). Applying this definition of a supply chain highlights the importance of actively managing inter-firm relationships in order to create effective collaborative alliances. One of the cornerstones in doing so is according to Fawcett et al. (2007) to share vital and proprietary information across company borders, allowing supply chain partners to use information captured by someone else to leverage their competitive ability.



**Figure 3** - Definition of a supply chain (Mentzer, 2001). The dashed box indicates this thesis' research area in the supply chain. Throughout this thesis the OEM will have the position as manufacturer and the dealer will have the position as retailer.

#### **1.1.4 Distributing and selling cars in China**

An important relationship in the automotive industry is the one between OEMs and dealers, where dealers can be seen as facilitators, enabling OEMs to sell cars on a certain market. Because of the lack of interface between OEMs and end-customers, dealers are responsible for turning the efforts of OEMs, in e.g. investments in brand, marketing, and research and development, into sales at the dealership level, hopefully generating satisfied customers in the process. In China, as well as in many other countries, OEMs and dealerships are separate legal entities due to governmental regulations not allowing OEMs to own dealerships. Instead, dealers franchise their operations with brand exclusivity.

Authorized dealerships in China offering full-service are often called 4S dealerships, indicating what kind of services they offer to their customers. 4S equals Sales, Spare parts, Service and Survey. 3S dealerships also exist where the difference compared to 4S is that they do not offer survey. Dealers are either organized as independent dealerships or as larger dealer groups, constituting of several dealerships. A dealer group does not have to be attached to a certain OEM and could hence offer several different brands at their different dealers.

As in several areas related to the Chinese automotive industry, the Chinese government has made efforts to regulate the distribution of cars, focusing on the dealerships. In 2005 they introduced the *Implementation Measures Governing the Sales of Brand Autos* act in order to professionalize and consolidate the dealer environment. The main impact was that every dealership had to be authorized by an OEM in order to sell a specific brand. Before this regulation, independent distributors were the main actors importing and distributing cars, especially for foreign brands. Through this regulation, the power on the market shifted from distributors towards the OEMs (Interviewee 13).

As a result of the rapid growth during recent years, much of the focus of OEMs has been on execution, pushing out cars to waiting customers. This has mainly been a consequence of a market environment where demand has been higher than supply. The situation has led to quick set-ups of dealer networks with low investments, resulting in a lack of structure and supporting processes. The market situation with demand exceeding supply has created a push-flow and a top-down environment in this relationship, where OEMs are pushing their available cars out to the dealerships. Seldom are the dealers in a situation where they are able request a specific model or colour.

OEMs and dealers are dependent on each other for running their respective businesses and it is not possible to cut one of them out, though the OEMs could change which dealers they collaborate with. The contract for a dealership franchisee is normally on a year-to-year basis, which is much shorter compared to Europe or the US (Interviewee 13).

As the customers and the market mature it will be important for dealers to become life-cycle partners with their customers, increasing the possibility to make money on after-sales, and eventually to sell new cars to old customers. Together with decreasing margins on new car sales at dealerships during the last ten years, these changes will inevitably impose new challenges to the OEM and dealer relationship (KPMG, 2010).

## **1.2 Problem discussion – developing the research questions**

If collaboration and information sharing is the path to take for OEMs and dealers, then what are the benefits of doing it, and do the different parties in the supply chain really understand the potential gains? To share as much information as possible is often the recommendation found in supply chain literature (Yu, Yan, & Cheng, 2010). However, when investigating what kind of information that is actually shared within supply chains it becomes clear that sharing everything is seldom the case (Kembro & Näslund, 2011). How come supply chain actors seem to disregard the recommendations from the academia? Either they do not understand the value of sharing information, or they have come to the conclusion that sharing information is less beneficial compared to keeping it to themselves. Seidman and Sundararajan (1998) argue that there might be advantages in not sharing everything as they discuss how information sharing affects bargain power among supply chain actors. Other examples are situations where information is withheld in order to gain power in a relationship (Munson, Rosenblatt, & Rosenblatt, 1999). These examples could be categorized as conscious choices, where companies are able to make rational decisions regarding information sharing. However, limitations in information sharing could also be a result of less conscious choices.

In supply chain literature, the potential gains from sharing information with supply chain partners is thoroughly investigated, whereas little information is to be found regarding what to consider when taking decisions of what to share (Kembro & Näslund, 2011). Together with a scarce research body on the downstream part of the supply chain, as much research have traditionally targeted the upstream part of the supply chain, there is not much support for OEMs and dealers to be found when deciding on how to structure the act of sharing information. As dealers are representing the OEM on the automotive market, they are also to a large extent responsible for the success of the OEM (Caicedo, Mitchke, & Ark, 2007). Because of this, it would be possible to argue that as much information as possible should be shared since the parties depend heavily on each other. At the same time, OEMs and dealers are competing for the returns generated by the supply chain, causing a sense of rivalry between the two parties. Based on these conflicting relationship characteristics there is a need to investigate how OEMs and dealers currently approach information sharing in the Chinese automotive industry. The first research question for this thesis will therefore be as follows:

*What information is currently being shared between OEMs and dealers in the downstream part of the Chinese automotive industry?*

In order for two parties in a supply chain to share information a platform or facilitator need to be in place that allows information to flow between the parties. Fawcett, Wallin, and Allred (2009) describe this part of information sharing as the connectivity dimension, and state that this is an important dimension when considering information sharing capability. Hence, the following research question is designed in order to understand how OEMs and dealers currently share information:

*How is information being shared in the downstream part of the Chinese automotive supply chain?*

Together with technological difficulties there are also factors associated with business context and willingness of firms to share information to consider (Fawcett, et al., 2007). Unevenly distributed power between OEMs and dealers, or cultural differences in an industry dominated by foreign OEMs and domestic dealers, are bound to affect the way information is being shared. Childerhouse et al. (2003) are for example in addition to technological barriers considering cultural, organisational and financial barriers when discussing information sharing. To exclude these factors completely and look at information sharing through technical or financial models, where scenarios of information sharing are used in order to minimize cost, will fail to capture the complex areas that influence this research topic. This leads us to the third and final research question:

*What are the main challenges when sharing information in the downstream part of the Chinese automotive supply chain?*

### **1.2.1 Research questions**

Through the problem discussion in 1.2, the following research questions were developed:

- (1) What information is currently being shared between OEMs and dealers in the downstream part of the Chinese automotive supply chain?
- (2) How is information being shared in the downstream part of the Chinese automotive supply chain?
- (3) What are the main challenges when sharing information in the downstream part of the Chinese automotive supply chain?

## **1.3 Purpose**

The purpose of this thesis is to explore the challenges that the downstream part of the Chinese automotive supply chain is facing when sharing information, and to show how these challenges imposes limitations to the way business is conducted.



#### **1.4 Delimitations**

The thesis solely focuses on the OEM and dealer relationship, and the information that is being shared between these two parties. Hence, information that might be shared with other supply chain partners has been disregarded. As the Chinese automotive industry contains a vast amount of automotive manufacturers and dealers it was necessary to segment the market participants in order to provide a coherent picture of the relationships between OEMs and their dealers. As a result, the study only focuses on foreign OEMs and their dealers within the premium segment and will not investigate whether the same characteristics can be observed in the volume segment. Furthermore, horizontal information sharing within the same supply chain will not be considered, an example of this would be if dealers share information with other dealers within the same distribution network.

#### **1.5 Target group**

The main target group of the thesis is researchers and scholars within the field of SCM, especially the ones focusing on distribution in the automotive industry. Research on this particular theoretical topic, as mentioned before, is scarce and the findings should hence be considered valuable to the academia. The findings should also be of interest to actors in the Chinese automotive industry as they are to decide on future information sharing within the supply chain. Hopefully, business managers with a general interest in the Chinese business environment will also enjoy reading this thesis.

Pursuing pole position – Information sharing in the Chinese automotive supply chain

## 2 Research method

---

*This chapter aims at describing the chosen research method and the different crossroads that the authors have faced during the writing of the thesis. It will provide the reader with the reasoning behind everything from going to China to talking to third party representatives. Further on, the theoretical study and the process of collecting data, including interviews and field study are presented. Finally, a section is presented where reflections on the research method are discussed.*

---

### 2.1 Selecting an appropriate research method

The abductive research approach, which has been used throughout the thesis, is a research method that combines the characteristics of the inductive and the deductive methods as it allows the researcher to revise the theoretical framework against the empirical findings throughout the entire research process (Alvesson & Skoldberg, 1994). Choosing this approach allowed for an initial theoretical study to be conducted in order to provide the authors with a basic understanding of the area that was to be covered. As the empirics were later collected, new insights were generated and the theoretical foundation was reviewed and revised accordingly. The abductive approach supported a flexible and iterative research process, a necessity for this study as the purpose and the research questions were changed several times due to the exploratory nature of the study.

Determining the appropriate research method for a study, and consequently choosing which kind of data to base the study on, the central topic of discussion should not be whether qualitative or quantitative data *in general* is superior compared to one another. Instead, the focus should be on gathering the most appropriate kind of data in order to serve the purpose and the research questions of the study (Bartezzaghi, 2007). As the research body on information sharing between OEMs and dealers in China was scarce, together with limited empirical data on information sharing in the downstream supply chain in general, a qualitative case study approach was chosen as it served the purpose of exploring and understanding the environment. A second circumstance behind choosing a qualitative approach was the lack of a large number of contacts, needed if a quantitative questionnaire had been used. The qualitative approach allowed the authors to focus on questions of *how* and *why* something was happening, rather than on exactly *how much* it was happening, an important benefit because of the lack of earlier empirical findings in this area (Meredith, 1998). Furthermore, the fact that researchers have been encouraged to conduct qualitative case studies within the field of SCM, to enhance the understanding of the dynamics related to this field of research, assured the authors of the importance of such a study (Seuring, 2008).

## 2.2 Defining the research area

SCM and the Chinese automotive industry was the starting-point when defining the research area together with the research questions, this process can be seen in figure 4.

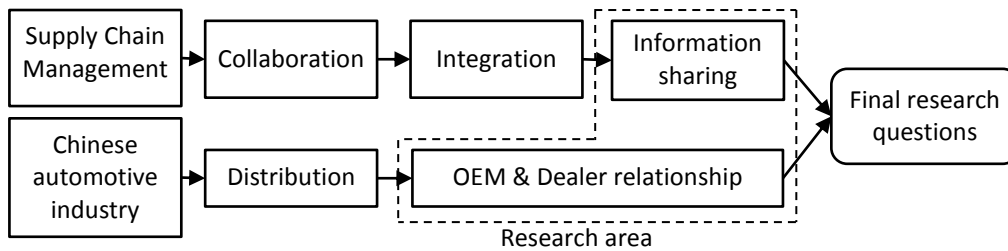


Figure 4 - The process of defining the research area and its final research questions

### 2.2.1 Choosing the initial research area

Two requirements were in an early stage formulated by the authors that inevitably were going to have an impact on the process of writing this master thesis. The conditions that had to be met in order to conduct a study were as follows; the study was going to take place outside the borders of Sweden, preferably in an Asian context, and it was going to involve SCM. Asia because of the authors' desire to take part in the dynamic and exciting business scene in this part of the world, SCM because of previous experience and a general interest in this field of expertise. After initial talks with the to-be industrial supervisors, China and the automotive industry were added to the previous mentioned areas to form the overall focus of the study. In conjunction with this, an initial theoretical study was performed, providing the authors with an understanding of the previous research and the potential problems in this context. This led us to the importance of the relationship between OEMs and dealers when competing in the automotive industry. The previous theoretical and empirical research ensured the authors that the chosen topic was relevant in relation to the studied context.

### 2.2.2 Framing the final research questions

After determining the initial research area, a stage that could be compared to choosing in which direction to start running, the authors entered a stage where a narrower field of research had to be framed. As for the "runner", so comes the time when the researcher has to decide on a final goal and select a suitable route taking him from start to finish (Bryman & Bell, 2011). The process of framing the final research questions was neither easy nor done in an instant, although, in retrospective it can be said that it was a truly essential part in creating a solid research topic. The framing was done through multiple brainstorming sessions and through sharing of thoughts with both the scholarly supervisors and the industrial supervisor. Their critical yet encouraging mind-sets were essential during this phase

as it forced us to constantly rethink the theoretical, as well as the methodological approach. The choice to focus on the relationship between OEMs and dealers were mainly a product of the discussions with the industrial supervisor. After deciding to focus on the interaction in this particular part of the supply chain, an even further framing was needed as the two parties interact in multiple ways. Through additional research, and reasoning with our scholarly supervisors, it was decided to target information sharing and the difficulties surrounding this activity between OEMs and their dealers in China.

## **2.3 Creating the analytical foundation**

The analytical foundation was based on a literature review performed throughout the whole process of writing the thesis, but with emphasis on the earlier parts of the process. The findings from the literature review was combined with input from the Chinese automotive industry through reviews of consultancy reports and discussions with the industrial supervisor.

### **2.3.1 Literature review**

The starting point of the literature review was Summon, which is a search engine provided by the University of Lund, and Google Scholar. As a result of writing the thesis in China, there was limited availability of printed literature to be accessed during the execution of the study. Hence, much of the reference literature was collected through online resources. Key words when searching for articles during the literature study were for example China, automotive, information sharing, SCM, and downstream integration. After performing individual searches using these key words they were later combined in order to generate more specific results. For more detailed searches, business specific scholarly databases, such as Business Source Complete, have been used.

Along the process, as new insights were gained from the empirical data, additional searches for theoretical support were conducted in order to find new explanations and to further understand the unit of analysis and the environment.

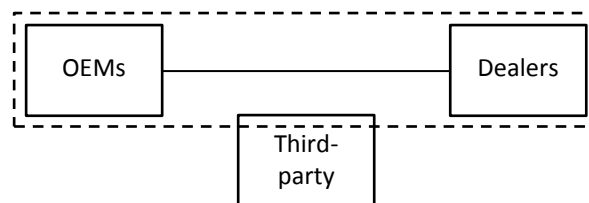
### **2.3.2 Understanding the environment**

The opportunity to actually spend three months in Beijing proved to play an important role in understanding the relationship between OEMs and their dealers in China. During this period of time, insights were gained, not only into the automotive industry but also into the overall way of doing business in China. The industry supervisor at Districom Group Ltd, Claes Kaldéren and Thomas Welle, were both instrumental in the process of understanding the environment and the dynamics in this context. A number of workshops were held where their knowledge of the industry, acquired during several years in the Chinese automotive industry both as OEM representatives and consultants, were shared in order for the authors to

understand the complexities in the downstream part of the Chinese automotive supply chain. Furthermore, articles and reports from consultancy firms such as McKinsey & Company, Boston Consulting Group, Bain & Company and KPMG have been read. Some of these reports have been included in the final thesis whereas others have been used to further understand the dynamics of the industry. The large amount of consultancy reports being produced on the relationship between OEMs and dealers in the Chinese context stand in stark contrast to the limited work available from the academia. Although being highly informative, these consultancy reports must be read with caution since they are mainly produced with the intention of generating new business. Exaggerating problems that match the competence of their own firms might be in the interest of these companies.

## 2.4 Gathering the empirical data

All the empirical data was gathered through semi-structured interviews. Different questionnaires were used, targeting the three different groups (as shown in figure 5) chosen to provide a comprehensive picture of the research area; information sharing between OEMs and dealers.



**Figure 5** - The three different sources of empirical data and their relationship, the dashed box indicate the studied relationship between OEMs and dealers

In order to capture different perspectives of the OEM and dealer relationship it was decided to interview several different brands within the premium segment. Doing this allowed for a rich description of the current situation to be created at the same time as it minimized the effects of brand specific information sharing behaviour. An alternative way to structure a study similar to this one could be to focus on a single relationship between an OEM and a dealer in order to gain in depth knowledge of the conditions in that particular environment. Choosing that research design would allow the researcher to come closer to the unit of analysis, at the same time it would not give the researcher a broad understanding of the overall situation.

### 2.4.1 Interviews – whom to talk to?

When creating the research design for this thesis, the goal was never to cover all the possible perspectives of information sharing environment between OEMs and dealers, but rather to create a study where multiple views were presented and where the gathered data was not only based on one party's opinions. According to Yin (2003), case studies often fail to give different descriptive interpretations of the

studied context and thereby fail to present alternative descriptions, an essential part in creating a good case study. With the chosen research design, three different perspectives of the environment were selected as sources of empirical data.

Firstly, representatives from OEMs were selected. OEMs often consist of several different departments, where the network and the sales departments were chosen for interviews since these departments are the ones primarily involved in the contact with the dealers. In addition, these departments represent different views of the relationship, where sales are more focused towards the daily operations and network more towards long-term strategy. Secondly, the dealers were targeted as interviewees. Business developers and general managers were chosen as the primary representatives to talk to because of their overall view of the situation at the dealership and their frequent contact with the OEM. Thirdly, third party representatives were selected as source of data in order to get an external perspective of the environment. This category consisted of consultants working with issues related to the OEM and dealer environment.

#### **2.4.2 Designing the questionnaire**

The main guideline during the creation of the questionnaires, which were used during the interviews, was the research questions. The intent was to cover all areas included in the research questions in order to generate enough data for the analysis. The actual design of each question was an iterative process that started with a brainstorming session where the authors created questions addressing the research questions. All the questions were then categorized into overarching groups, each containing a number of sub-questions. As a last stage, some questions were discarded based on the objective of being able to conduct an interview in maximum one hour. Several questions were also constructed to probe for the same information although they were phrased differently. This was done in order to increase the probability to touch upon important areas for the thesis.

The questionnaire was then reviewed several times together with the industry and academic supervisors and changed according to comments on the structure and design. After completion of one interview in each category the questions were evaluated a final time in accordance with the gathered answers. The main evaluation concerned if enough data was gathered to be able to answer the research questions, though it was found that there was only need for small adjustments of the questions.

The result of this process was three different types of questionnaires (see Appendix A, B and C), each of them addressing a specific category of interviewees. The questionnaire for OEMs and dealers were designed exactly the same because of the intent to address possible contradictions between these parties. The questionnaire intended for the third party interviews was designed to address all of the research

questions, but also included questions about the overall relationship of OEMs and dealers in order to increase the authors understanding of this environment.

### **2.4.3 Conducting the interviews**

Before conducting the interviews, all interviewees received the questionnaire via e-mail in order for them to prepare for the interviews accordingly. Questions could be raised against this approach because of the interviewees' possibilities of preparing standardised answers, securing the answers with the rest of the organisation instead of answering the questions from their personal perspective. In the end, the value of having prepared interviewees, because of the sometimes short interviews, was a decision-making factor.

In total 13 interviews were conducted, seven of them were performed face-to-face and six of them via Skype. Every interview was recorded after the permission of the interviewee in order to allow for transcription. There were both pros and cons regarding the ways that the interviews were conducted. When performing face-to-face interviews there is always the possibility that the interviewee could be affected by the interviewers characteristics (Bryman & Bell, 2011). During this study the telephone interviews lasted on average shorter than the face-to-face ones, which could be an indication of interviewees having a harder time staying focused over telephone. There is also a higher risk of misunderstandings when conducting the interviews through telephone or similar mediums (Bryman & Bell, 2011).

The interviews lasted on average 50 minutes, where the shortest one took 26 minutes and the longest one 90 minutes. All face-to-face interviews were performed in the interviewees working environment, usually in their office or in a meeting room. English, and in one case Swedish, was used as the language during 11 of the interviews, whereas two of the interviews required a translator to be used as the interviewees only spoke Mandarin.

During the interviews, one of the authors was in charge of the interview, asking the main questions and deciding when to move on, while the other author was in charge of taking notes and asking follow-up questions. The questionnaire was followed throughout the interviews, however, as interesting discussions arose new conversational questions were asked. There were also cases where the interviewers did not feel that the interviewees answered thoroughly enough, further probing questions were then asked in order to secure detailed answers. Directly after the interviews both authors wrote down their thoughts from the interview in order to secure this information.

All of the interviews were kept anonymous in order to create an environment where the interviewees would feel secure and where they would be able to talk freely.



#### **2.4.4 Field study**

In order to understand how cars were actually being sold in China, three visits at different dealerships were carried out. All dealerships were situated in Beijing, owned by a larger dealer group and selling cars from foreign premium brands. Walkthroughs of the complete facilities were performed, including observation of the operations in the sales showrooms, the workshop areas and the offices. Although not being able to ask in-depth questions to employees during the walkthroughs it allowed for direct understanding of the studied environment. What became clear during the visits was the importance of the dealer as the supply chain's sole connection to the market, interacting with potential as well as old customers.

#### **2.5 Data analysis**

Due to the iterative nature of the abductive research approach, the act of analysing the gathered empirics was an on-going process throughout the writing of the thesis, starting already after the first interview. In order to structure the thoughts after each interview, short sessions were held where post interview thoughts were written down. The conceptual framework, generated through the literature review, has continuously been tested and revised based on these findings.

The structured analytical process that took place after all the interviews had been completed consisted of three main steps. Firstly, the interviews were transcribed in full, resulting in over 100 pages of material, which allowed for a detailed examination of the interviews to be performed (Bryman & Bell, 2011). Although being tedious in its nature, the act of transcribing the interviews proved to be valuable as it allowed for repeated reviews of the answers from the interviews when analysing the content. It also opened up future possibilities for other researchers to scrutinise the analysis performed in this thesis, rather than having to base such a review on brief summaries of the interviews. In step two, a pattern matching technique was used in order to cluster the collected data (Yin, 2003). Based on the conceptual framework, answers that concerned the following areas were grouped together:

- Statements regarding how willing the two parties were to share different types of information with each other
- Statements regarding the two parties ability to share different types of information with each other
- Statements regarding how the business context affects the information sharing between the two parties

The analysis and pattern matching of the transcribed material were divided into two stages. Firstly, the authors individually reviewed the material and clustered the data according to the parts in the conceptual framework. This was done in order to increase the number of findings and to decrease the risk of influencing the analysis

with the authors' preconceived thoughts of the gathered material. Secondly, the authors created a clustered picture of the transcribed material through a joint discussion and workshop.

In the final step, similarities and deviations in the answers were analysed in order to explain the behaviour related to information sharing of OEMs and dealers. During this phase of the analysis the attention was not only focused towards what the parties did talk about, but also what they chose not to talk about. Based on the challenges and the business implications that OEMs and dealers are facing when trying to share information in China, derived from the previously explained analysis, recommendations on how to manage these issues were developed.

## **2.6 Reflections**

A number of factors with the potential to affect the analysis and the conclusions have already been brought up during the writing of this chapter. Pros and cons of different interviewing techniques as well as questions regarding whether or not to send questionnaires in advance have been discussed. However, the authors were of the opinion that a few additional considerations had to be made.

### **2.6.1 Interviewing problems**

During two of the interviews the interviewees spoke very limited, or no English at all. Since none of the authors are proficient in Mandarin, an interpreter had to be used. Questions were asked by the interviewer and then translated into Mandarin by the translator. Several times during these interviews the interpreter had to further explain the questions after phrasing the initial questions, explanations that the authors had no possibility to control. After the interviews, the interpreter read through the transcribed material to check whether there were any content that had been left out.

Throughout the interviews a re-occurring problem was that the interviewees wandered of from the initial questions, talking about other topics. Although being highly interesting to listen to it often did not contribute to answering the research questions of the thesis. In addition it also added more weight to the transcription workload. As the familiarity of doing interviews grew, the ability to steer the interviews increased, thereby minimizing the amount of side-tracks. Worth noticing is that topics that initially felt as side-tracks sometimes resulted in interesting statements from the interviewee, highlighting the importance of not steering the interview too much.

### **2.6.2 Interviewees' biases**

Interviews are always carried out in a social context where for example status and trust affects the persons that are being interviewed. To what extent the interviewees answered the questions truthfully depended on factors such as if they

dared to tell the truth, or if they tried to impress the interviewers by their answers. Although keeping the interviews anonymous, the overall feeling was that some interviewees were holding back on information about the relationship and the way OEMs and dealers share information. Information sharing and transparency are topics that potentially could be hard to talk about in China, a factor that probably influenced some of the interviews. In terms of impressing the interviewers, the OEMs seemed most eager to show a good façade, often initially claiming that everything was up to standards.

### **2.6.3 Authors' biases**

The basic problems regarding information sharing between OEMs and dealers, discussed during the initial brainstorming sessions with the industrial supervisor, were to a large extent also found when later performing the interviews. This could be the result of a successful initial framing of the problem, leveraging the knowledge and the experience of the supervisor. It could also be a case of researchers being so sure what to look for they will find it irrespectively of what the environment actually looks like. By collecting data from three different types of categories, all providing their view of information sharing between OEMs and dealers, conditions for the initial assumptions to be challenged should be considered to have been present.

Pursuing pole position – Information sharing in the Chinese automotive supply chain

### 3 Frame of reference

---

*Information sharing, an important part of SCM, is in this chapter thoroughly reviewed and discussed. Recommendations from the academia regarding what information to share are not only scarce but to a large extent also contradictory. Everything from operational to strategic information can be shared and multiple dimensions are found to impact what companies actually share with each other. In the last section of the chapter a summarised view of the theoretical findings is presented.*

---

#### 3.1 The nature and role of information sharing in Supply Chain Management

Perhaps the most dominant concept within SCM literature today is that of close collaboration and integration between different companies as a way of enhancing the performance of an entire supply chain. According to Lambert (2008), the act of integrating and managing relationships with supply chain partners is a key management activity as it has the potential to generate “*business performance greater than would be achieved by the two firms working together in the absence of partnership*” (Lambert, 2008, p. 13). Integration and collaboration is according to Bowersox, Closs, and Stank (1999) defined as the mechanism that allows the exchange of material and cash flow between different companies to take place. However, to be able to manage and coordinate the different flows across company borders, sharing of information is crucial (Cai, Jun, & Yan, 2009; Yu, et al., 2010).

Within the field of SCM it is often proposed that information sharing within the supply chain has the potential to improve the performance of the entire supply chain (Childerhouse, et al., 2003; Fawcett, et al., 2007; Lyons, et al., 2004). Several studies on information sharing have been performed using different research methods, for example Yu et al. (2001) who are investigating optimal inventory policies through a cost-minimizing model where an important aspect is the reduction of the bullwhip-effect<sup>4</sup> as a result of increased information sharing. Information sharing could also be used as a facilitator when trying to create good relationships within the supply chain (Hsu, et al., 2008). In a literature review made by Yu, Ting, and Chen (2010) it was found that SCM literature often recommend companies to share all available information with supply chain partners as a way to enhance performance.

---

<sup>4</sup> The bullwhip-effect refers to pendulous movements in inventory level at each party in the supply chain, which become larger and larger the longer you move from the market. This is a result of demand forecasting made by each party.

Through the above discussion the following conclusions were made:

- To share information with your supply chain partners is an important part of SCM
- Information sharing has a positive impact on supply chain performance
- Studies on information sharing often lack empirical findings as a result of the chosen research approaches
- Companies should share as much information as possible according to SCM literature

### **3.2 What is there to share?**

When performing the literature review, several different definitions of levels of information sharing were found. The definitions are presented below to be used as a starting point when discussing information sharing between organisations further on.

Kembro and Näslund (2011) present a matrix consisting of two dimensions where the first one addresses the organisational level that the information concerns: *operational, tactical or strategic*. The second dimension addresses which type of information that is shared: *data, information or knowledge*. Data is defined as transactional POS<sup>5</sup> data, information as data that has been interpreted and/or processed, and finally knowledge as information that has been interpreted and put in to a context, for example improvement suggestions on the business.

Seidmann and Sundararajan (1998) identify four different levels of information sharing between organizations: *ordering information, operational information, strategic information* and *strategic and competitive information*. The first level includes transactional information, for example order quantities. The second level includes, as the name indicates, operational information, an example would be inventory levels. The third level is described as the level where the shared information has a strategic importance for the receiving party. The fourth and final level includes the previous level together with information that holds a competitive value for the receiving party. The two first levels are focusing on the actual information that is being transferred, while the two highest levels include the value of the information according to the receiving party.

Simatupang and Sridharan (2005) categorise information sharing into three different levels: *one-way communication* consisting of transactional data, *data exchange* including sharing of private data, for example POS data, and thirdly *exclusive*

---

<sup>5</sup> Point of Sales (POS) is referring to the actual place where a business transaction occurs

*visibility*, including sharing of proprietary data such as information about strategic planning.

The common denominator in these different definitions of information sharing is that they differentiate the information and create levels depending on which organizational level that is affected by the information, from operational to strategic information. Throughout this thesis the information levels will be divided into operational and strategic information because of the difficulties in defining proper definitions that distinguish each level.

### **3.3 “I know something that you don’t!”**

The value of information, and the ability to make better use of information relative to your competitors, has been thoroughly discussed throughout the years. Porter and Millar (1985) argue that having more information compared to competing firms generates competitive advantages as it creates opportunities to outperform other companies through the usage of proprietary information. Seidmann and Sundararajan (1998) take a different approach when discussing the value of information as they focus on information as a source of bargain power rather than a competitive advantage. As more information is shared, the bargain power of the company holding the information decreases. According to their research, companies will choose to share information that generates the most value to the own company at the same time as it affects bargain power the least. Similarly, Fawcett et al. (2007) contend that many organizations view information as a source of power and hence something that must be managed carefully. What can be concluded is that the extent to which a certain firm chooses to integrate with other companies is not only a question about which information to share or what IT-systems to use. Essentially, this problem addresses the fundamental questions of how to compete in a given market, and what role information should have in the concerned company’s business model. Roh, Hong, and Park (2008) are considering four different supply chain strategies that are connected to a company’s business model, thereby affecting the way information flows through the supply chain. Viewing information as your source of competitiveness, it is not surprising that companies do not engage in information sharing, or are hesitant to share information with supply chain partners.

### **3.4 The role of business context**

The degree to which information sharing is carried out in a relationship can take multiple forms, ranging from full integration where lots of information is being shared, to more of an arm’s length relationship where only limited amounts of information is shared across firm boundaries. Since information sharing in itself does not add value to a partnership, the level of information sharing must be tailored according to the business situation and the surrounding context (Lambert, 2008).

Contradictory to what many supply chain scholars suggest, more information sharing should hence not be considered superior to less information sharing without taking contextual factors into consideration. According to Cox (2001), it is easy to be led to believe that completely integrated supply chains should be seen as “best practise”. This has resulted in many companies replicating what others have already done, often with limited success as the result. The key according to Cox (2001) is for companies to understand the contextual implications in order to make good decisions related to information sharing.

According to Vanpoucke, Boyer, and Vereecke (2009), the business context and the dynamism within the supply chain will affect the information flow taking place between different supply chain partners. Dynamism is here described as the amount of unpredictable changes taking place in the market related to products, technologies and demand. As dynamism in the market increases, the information processing capacity must be tailored accordingly. The article also concludes that higher levels of dynamism lead to higher level of information sharing within the supply chain. Similarly, Samaddar, Nargundkar, and Daley (2006) propose that industry characteristics will have an impact on the information that is being shared within a supply chain. They too discuss the effects of dynamic business contexts, and the role that information sharing can play in this environment as a way of quickly being able to respond to rapidly changing markets, particularly important in the downstream part of the supply chain.

Furthermore, Vanpoucke et al. (2009) argue that the relative size of the companies engaging in information sharing, as well as the extent to which power in the supply chain is concentrated to a single firm, will affect the level of information that is being shared. The supply network configuration has also implications on information sharing; Samaddar et al. (2006) are defining vertical structure as the number of stages in the supply chain, and horizontal structure as the number of channels, as two important variables. The relative position of a specific company in the supply chain affects the level of bargain power it has against other members, where the buyer in the downstream part of the supply chain closer to the end-customer has more relative bargain power and should therefore share more strategic important information (Seidmann & Sundararajan, 1998).

### **3.5 Why companies might not share**

In spite of the academia advising companies to share information, the majority of supply chains do not share information in a theoretically ideal manner (Childerhouse, et al., 2003). In an article by Kembro and Näslund (2011), where the two authors discuss various kinds of information that is being shared in supply chains, they conclude that the amount of information that companies actually share differs greatly from what the academia recommends them to. This phenomenon



indicates that there might be aspects regarding information sharing that is not yet fully understood by the academia.

### **3.5.1 Lack of trust**

Cai et al. (2009) point to the fact that level of trust plays an important role when it comes to information sharing between different companies. Providing the other party with critical information that might be used against the own company demands the parties to trust each other. Vanpoucke et al. (2009) are defining trust, and dividing it into two dimensions; the first one as objective credibility, to what extent one company can rely on another. The second one as benevolence, in other words interest in the welfare of the counterpart and the attitude towards potential shared benefits.

In China, the term *guanxi* refers to a network or relationship where informal communication and exchange of favours are taking place. The *guanxi* network could be said to exist upon common understanding of informal rules, making it possible for members to predict other members' behaviour. Companies and individuals in the same *guanxi* network are committed to each other and are hence more likely to share potentially sensitive information, whereas outsiders have a harder time being trusted (Cai, et al., 2009).

### **3.5.2 Technological barriers**

An important enabler of information sharing across supply chains is information technology. It allows companies to collect, analyse and distribute information, not only internally but also externally. Advancements in terms of technological developments have increased the possibility for companies to connect and to share information across company borders (Fawcett, et al., 2007). But in spite of recent IT innovations, the barriers to share information from a technological point of view are far from removed (Childerhouse, et al., 2003). Giving all members of the supply chain access to the same information often requires complex systems. Companies regularly experience problems when implementing these systems and they seldom perform as advertised (Fawcett, et al., 2007). Another problem associated with information sharing from a technological point of view is that of incompatibility in terms of systems and formats of the information. It is not unusual that a company receives information from a supply chain member in one format, having to manually re-enter the information into the internal system where another format is used. This might especially be a problem when industry standards does not exist or are not being used, effecting in particular smaller companies not having the resources to invest in advanced systems (Childerhouse, et al., 2003; Fawcett, et al., 2007). A different level of connectivity throughout the supply chain is another problem that makes it difficult for companies to leverage their shared information. If a company receives all information from one supply chain member electronically but has to use

fax or phone when transmitting it to another one, the ability to make use of the shared information is reduced (Fawcett, et al., 2007).

### **3.5.3 The importance of people**

Although showing that technology can be of great hindrance to information sharing, people within an organization are often the ones affecting the information sharing capability the most (Childerhouse, et al., 2003). The people who are using the systems, sending and receiving information, are important to consider. People involved in information sharing often have their own agendas and interpretations of whether or not there is value in sharing information. Users of the system, especially when a new way of sharing information is introduced, are often reluctant to change (Kirveenummi, Hirvo, & Eriksson, 1998).

### **3.5.4 Financial barriers**

When creating a platform and structure for sharing information between supply chain partners the cost of the system is a major challenge (Fawcett, et al., 2007). Four categories of cost should be considered: feasibility studies & system design cost, hardware cost, software cost, and management cost (Childerhouse, et al., 2003). The platform and structure is at least used by two parties when sharing information and questions of how much each party should contribute to the total cost often arises, increasing the challenges.

## **3.6 Is there such a thing as a “win-win” situation?**

When the benefits of sharing information are discussed in supply chain literature it is often from the perspective of the whole supply chain (Yu, et al., 2001; Lambert, 2008). The act of sharing information will according to these articles increase a supply chain's ability to compete effectively against other supply chains. What is seldom considered is that supply chains consist of individual firms, with their own needs and goals, and the value generated from information sharing must hence be distributed among these firms. Vanpoucke et al. (2009) conclude that all concerned parties in collaboration must perceive that benefits are distributed fairly among the parties sharing the information. Similarly, Mehrtens, Cragg, and Mills (2001) suggest that one of the main factors influencing a supply chain initiative is that the benefits from doing it are perceived valuable to all supply chain members. This suggests that creating win-win situations are essential when designing information sharing partnerships. Another perception of information sharing on a strategic level is that it will take place only if the company that possesses the information can derive little or no value from it while the recipient can benefit from having the information (Seidmann & Sundararajan, 1998). This implies that actually creating a situation where both parties benefit from sharing information might be difficult.

### 3.7 Structuring the literature review

Several studies, as mentioned in this chapter, highlight important areas to consider when studying and analysing information sharing. They have commonalities, which make it possible to categorize them temporarily (see table 1). In order to conduct a structured in-depth analysis of the empirical data there is a need to further define common categories and arrange the areas according to causality.

**Table 1** Summary of the literature review and the different areas that concerns information sharing

<b>What to share</b>	<ul style="list-style-type: none"> <li>• (Kembro &amp; Näslund, 2011)</li> <li>• (Seidmann &amp; Sundararajan, 1998)</li> <li>• (Simatupang &amp; Sridharan, 2005)</li> </ul>
<b>Importance of context</b>	<ul style="list-style-type: none"> <li>• (Lambert, 2008)</li> <li>• (Cox, 2001)</li> <li>• (Vanpoucke, et al., 2009)</li> <li>• (Samaddar, et al., 2006)</li> <li>• (Seidmann &amp; Sundararajan, 1998)</li> </ul>
<b>Barriers towards information sharing</b>	<ul style="list-style-type: none"> <li>• (Cai, et al., 2009)</li> <li>• (Vanpoucke, et al., 2009)</li> <li>• (Childerhouse, et al., 2003)</li> <li>• (Fawcett, et al., 2007)</li> </ul>

Fawcett et al. (2007) define a company's information sharing capability as the two dimensions connectivity and willingness. These dimensions were chosen as starting points when trying to structure the theory. What was found to be disregarded by these authors was the context that surrounds the supply chain, contrary to the findings from the literature review which emphasises the importance of taking business context into consideration when analysing information sharing.

To summarize, there was a need to categorize and structure the areas found in the literature review that affect information sharing, including business context. To further define these areas and to eliminate factors not present in the Chinese automotive industry a further review of the empirical data was required.

Pursuing pole position – Information sharing in the Chinese automotive supply chain

## 4 Information sharing between OEMs and dealers in China

---

*OEMs and dealers were found to be very dependent on each other in several areas at the same time as OEMs had the most power in the relationship. A wide range of information, from operational to strategic, was shared between the parties through several different mediums, from sophisticated shared systems to face-to-face meetings. OEMs and dealers had different reasons behind sharing, where OEMs seemed to gain more from sharing information. Establishment of new shared systems and improvement of current ones were most important when discussing how to go improve information sharing between OEMs and dealers.*

---

### 4.1 The OEM and dealer relationship in China

A dealer network, managed by one OEM, can consist of around 200 dealerships (Interviewee 2). The dealers could be categorized as either independent, as a single legal entity, or included in a dealer group, which could include between 50 and 80 dealerships with several different brands (Interviewee 2, 11). One OEM can sometimes manage a dealer network consisting of four to five dealer groups plus independent dealers (Interviewee 2). The OEMs organisation is often divided into several regions with underlying districts including several management levels working together with a field force that frequently visit the dealerships.

The focus of the OEM and dealer relationship has during years with tremendous growth relative to mature markets been on getting cars to the market and establishment of new dealerships (Interviewee 3), this as a result of demand being higher than supply (Interviewee 1). An example of this is the number of potential customers that a salesman at the dealerships handle per day, which could be two or three times as big compared to the western market (Interviewee 1).

Dealers are except from vending cars to the market also the main interface for the OEMs, thereby playing a critical role in having insight into the current market situation. This was formulated by one interviewee when talking about the dealers as *“they are just an extension of your company in a way, in fact a very critical one since they face the customer”* (Interviewee 7). The dealers are also the OEMs direct interface to its customers regarding feedback on marketing, complaints and claims.

The OEMs, who have the overall brand responsibility have big influence in this relationship, for example was the shared systems in place in all cases owned by the OEM. The OEMs in China were considered to have more control over the relationship compared to Europe or the US (Interviewee 13). Although they hold a strong position in the relationship they work with support of the dealers through standards, guidelines and sales planning.

Both the OEMs and dealers could be regarded as immature players because of their relatively short presence in the Chinese automotive industry. The OEMs have a solid experience of doing business in the automotive market but has very little knowledge of the special circumstances in China, whereas the dealers on the other hand are, compared to dealerships in the mature markets, relatively new in their business.

#### 4.2 What kind of information does OEMs and dealers share?

Throughout the interviews it was found that information sharing is an important and frequent activity taking place between the OEMs and dealers. The OEMs have the intention to share much information with the dealers, but only shares around half of it due to problems internally when collecting the data (Interviewee 4). For example did OEMs have difficulties to share an accurate and correct view of the current supply situation regarding delivery-time, car model, colour, and type of engine with the dealers (Interviewee 6).

Both OEMs and dealers were found to share both operational and strategic information with each other. The different types of information that were found to be shared is presented in table 2.

**Table 2** – Information shared in the studied relationships, divided into operational, strategic and according to who is sharing the information

	Operational	Strategic
<b>OEM to Dealer</b>	<ul style="list-style-type: none"> <li>• Supply situation</li> <li>• Allocation of products</li> <li>• Technical guidelines</li> <li>• Sales target</li> <li>• Policies</li> </ul>	<ul style="list-style-type: none"> <li>• Sales plans</li> <li>• Marketing plans</li> <li>• Product strategy</li> <li>• Information about market trends</li> <li>• Business improvement suggestions</li> <li>• Dealer benchmarks</li> <li>• Consolidated view of the situation at several dealerships</li> </ul>
<b>Dealer to OEM</b>	<ul style="list-style-type: none"> <li>• Customer data</li> <li>• Customer complaints and claims</li> <li>• Quality issues</li> <li>• Inventory situation</li> <li>• Sales data</li> <li>• Financial information</li> </ul>	<ul style="list-style-type: none"> <li>• Market observation and current market situation</li> <li>• Customer feedback regarding car models</li> </ul>

Regarding what was not shared was often a matter of when to release the information, the accuracy and authenticity of the information. Several entities in table 2 were partially, or sometimes in a to late stage shared according to the interviewees. Due to confidentiality the OEMs waited as long as possible to release

information about for example their product strategy for up-coming car models. The dealer on the other hand was found to be providing the wrong information to the OEMs about their sales volumes in order to match the predefined sales targets. There was also reluctance among the dealers to share information about their true financial situation.

### **4.3 How is information shared?**

Every relationship studied had common systems in place to be used for sharing information; the most common one that were used by everyone was the DMS<sup>6</sup>. This system was designed, implemented and financed by the OEMs and were thereby in their control. This system was the primary link between the two parties and was a way for the OEMs to extract information from the dealerships. The intention of using a DMS was originally to support the operations at the dealers, but it was found that the dealers also used local systems to support their business in parallel with the DMS. A standalone CRM<sup>7</sup> system or a specific CRM module included in the DMS were also in place and were used by both the dealers and OEMs to manage their customers.

Other systems found were web-portals or similar web-based systems to be used by the OEMs to provide the dealers with information regarding for example a specific marketing campaign or information on upcoming product launches. The web-portals were also found to be used by the dealers to book and order cars from the OEMs.

The dealers had limited ability to change and customize the shared systems according to their needs, which was specifically mentioned when discussing the DMS (Interviewee 5, 10).

A part from sharing information through systems several other ways of sharing were found:

- Meetings
- Dealer conferences
- Manual excel sheets and similar reports
- Surveys sent out by the OEM
- Phone, email and SMS
- Dealer visits by the OEM

---

<sup>6</sup> Dealer Management System (DMS) is a system to be used by the dealers to support their business and could include modules for sales, after-sales, stock-keeping and administration.

<sup>7</sup> Customer Relationship Management (CRM) is a term used to describe the interaction with current and potential customers

- Newsletters (e.g. information to the dealers about last month's performance and the business focus for the upcoming month)

When not communicating through the shared systems the dealers had several different connections to the OEM, resulting in a general manager of a dealership communicating with several different management levels and departments at the OEM, regarding different matters.

#### **4.4 Reason behind sharing information**

Both OEMs and dealers explicitly expressed reasons and value of sharing information with the other party, but a question could be raised whether the dealers had the same understanding of the benefits and value of sharing information. One dealer for example said that they did not see any benefits at all from sharing information with the OEM (Interviewee 10).

##### **4.4.1 OEMs**

The OEMs' reasons behind collecting and receiving information from the dealers could be divided into two different categories; to gain benchmarking information, and to collect market knowledge. All of the OEMs had a need to benchmark individual dealers against each other in order to find areas of improvements as well as managing the risk of having low or non-profitable dealerships. This information did also enable the OEMs to have a consolidated view of the status on the dealer network. Collecting information regarding each dealership's current market situation, and their customer data, was important for the OEMs in order to gain market knowledge. Through this information the OEMs could adapt to the market situations and take measures accordingly. An example could be changes in sales policies or to design a specific marketing campaign addressing a certain dealership. This information did also help the OEM when taking decisions about how to further develop and expand the dealer network.

There was also an intention from the OEMs to share information to the dealers in order for the dealers to be able to plan their businesses. The future supply situation was one example which was found to be important for the dealers in order to plan their financing of working capital to bear future possible increases in stock levels (Interviewee 7).

Further reasons for OEMs to share information with the dealers was to make the dealers able to handle customer care – when an OEM releases a new model in a new segment it is important for the dealers to be able to provide the customers with an accurate release date. Without this the brand might have a hard time to attract new customers in this newly established segment (Interviewee 7). There was also a desire to get feedback from the dealers regarding the current products on the market (Interviewee 5).



#### **4.4.2 Dealers**

In order for dealers to get proper support from the OEMs, they needed to update the OEMs on their status. If the information provided to the OEM was insufficient, or incorrect, the measures and policies applied would not fit the current situation at the dealership. The dealers seemed to understand this as they felt that there was a need to share information with the OEMs in order to get the proper type of support that could enhance their business performance.

The dealers also explained the importance of understanding the OEMs intentions regarding new products, future strategy and marketing in order to plan their business accordingly. Delivery status and information about complaints and technical issues was also considered valuable for the dealers in order for them to handle customer care properly, and in the long run to ensure customer satisfaction.

#### **4.5 Going forward**

When talking about future plans in terms of sharing information it became clear that most of the interviewees realised a need to devote resources towards improving the ways information is being shared between OEMs and dealers. As the dealer networks grow it is essential that the systems supporting the networks will be able to handle the increased complexity (Interviewee 7).

The interviewees that had plans on changing the way they share information can be divided into two groups; the first ones stating that they have plans on investing in new systems and processes, the second ones stating that their intentions are mainly in improving the existing ways they share. The findings from the interviews also implied that most of the investments would be directed towards improving DMS or web portals, hence suggesting a focus on technical aspects of information sharing. What seemed to be a common problem was the ability to view all the information at the same time, much of it was scattered in different systems and several of the interviewees expressed the desire to be able to better consolidate the data (Interviewee 1, 8 and 12). A reoccurring topic when talking about future plans and improvement efforts to come was also the lack of time the parties felt that they had to engage in these kinds of projects. They often saw the need for improvements, but finding the time to do so was hard as the daily operations required much attention (Interviewee 5 and 11).

Pursuing pole position – Information sharing in the Chinese automotive supply chain

## 5 Conceptual framework

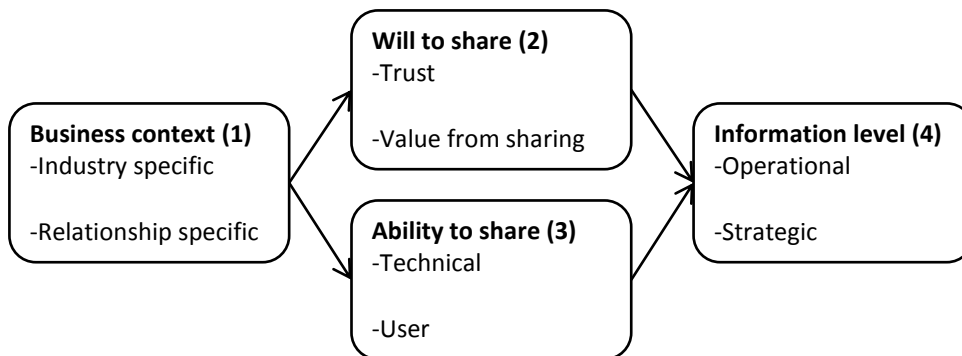
Through a brief analysis of the empirics, together with the theory on information sharing, a conceptual framework was created. The conceptual framework was then used for an in-depth analysis of the empirical data. Through this approach, variables not present in the empirical data were removed from the conceptual framework and hence not considered during the in-depth analysis. Throughout this chapter each part of the conceptual framework together with the intended usage will be described.

### 5.1 Presenting the conceptual framework

The conceptual framework is a result of the theory discussed in chapter three and the initial findings in the empirical data presented in chapter four.

Part four (4) in the conceptual framework in figure 6 consists of the actual information shared in the relationship between OEMs and dealers, which is divided into operational and strategic information. The level of information sharing is affected by *will to share* (2) (compared to willingness (Fawcett, et al., 2007)), which includes trust and the perceived value from sharing, and *ability to share* (3) (compared to connectivity (Fawcett, et al., 2007)), which includes the technical and user dimensions. (2) and (3) is then affected by the *business context* (1) described in 3.4, including *industry* and *relationship specific* context.

The arrows in figure 6 represents how each part affects each other and how it in the end affects the shared information level.



**Figure 6** - Conceptual framework of three different categories of dimensions that affects the information sharing and their inter-mutual connection

The financial barrier towards information sharing, discussed in 3.5.4, was in the downstream part of the Chinese automotive supply chain not considered important, and therefore not included in the conceptual framework, because of OEMs implementing, financing, maintaining and owning the shared systems in place.

Therefore the problems regarding who should finance a shared system were not found to be present.

### **5.1.1 Business context**

The reason behind extending the dimensions presented by Fawcett et al. (2007), (2) and (3) in the conceptual framework, with *business context* (1) was based on the findings from the empirical data. These findings indicated the importance of the implications that the *business context* had on information sharing, especially in China with the high dynamism and growth compared to more mature markets. In Fawcett et al. (2007), these implications are not included in the defined dimension; connectivity and willingness. As presented in 3.4, earlier studies have indicated the importance of considering *business context* when studying information sharing, this was another reason considered when deciding to include it in the conceptual framework.

The *business context* is divided into *relation* and *industry specific* context. *Industry specific* context includes characteristics of the specific industry, in other words factors not derived from a specific relationship but rather from the industry where the studied relationship is found. The second part, *relationship specific* context, includes factors that are specific for the studied relationship, including firm size, supply network configuration, relative position in the supply chain and distribution of power among the concerned companies.

### **5.1.2 Will to share**

Will to share resembles willingness as described by Fawcett et al. (2007). The difference between *will to share* and willingness is that willingness was never explicitly defined, whereas *will to share* is defined by the two dimensions *trust* and *value from sharing*. As described in 3.5.1, trust is affecting the will for an organization to share information. Fear of what the information is going to be used for, and the risk of information ending up at an unintended third-party, will affect a company's decision to share.

The value of sharing information has an impact when taking the decision whether to share or not, where value is seen as the potential gains from sharing certain information with another party. One example of this would be the dealer sharing information regarding a specific customer complaint with the OEM. Since the dealer is dependent on help when solving this specific claim they gain value from sharing this specific information.

Another dimension of value, described in 3.3, is the intrinsic value of information, where an example would be customer information that in itself is valuable for supporting sales activities. The intrinsic value is often decreasing when information is shared and should hence be considered when deciding whether to share or not.

### **5.1.3 Ability to share**

The importance of technology and its role in determining the ability to share information is thoroughly discussed by Fawcett et al. (2007), also reviewed in this thesis in 3.5.2. What is often disregarded is that technology in itself cannot explain everything. The role of technology is merely as a facilitator in the hands of people, as described in 3.5.3. Hence, the ability to share information is determined by the technological set up, and the ability of the people to make use of the technological systems, this dimension is referred to in the framework as user in part three; *ability to share* (3).

### **5.1.4 Information level**

In 3.2, categorization of information into specific levels were discussed and the conclusion was made that it is difficult to divide information into specific levels because of the problem defining distinct levels with clear boundaries. As a result of this, shared information was divided into operational and strategic as dimensions to consider.

This part of the conceptual framework contains the actual information being shared in the studied environment, an outcome of how the three parts to the left (*business context*, *will to share* and *ability to share*) in the conceptual framework affect what and how information is being shared.

## **5.2 Intended usage**

The conceptual framework is meant to be used in order to highlight important areas that affect how and what information is shared. Starting from the left in the framework, *business context* affects *will to share* and *ability to share*, which then in turn affect the *information level* that is actually being shared. The conceptual framework is to be used as a tool in order to explain the current level of information shared in a specific relationship, in this thesis the OEM and dealer relationship in the Chinese automotive industry. How the conceptual framework was used in conjunction with the empirical data can be found in chapter six.

Pursuing pole position – Information sharing in the Chinese automotive supply chain

## 6 Identifying challenges and business implications

---

*In this chapter the empirical data is analysed through the usage of the conceptual framework. How the business context, will to share, and ability to share affected the operational and strategic information level was analysed. By doing this, reasons behind the challenges could be explained and business implications could be elaborated upon. It was found that most of the challenges originate from will to share compared to ability to share. Further on it is concluded that the business context addressed with the conceptual framework has an apparent impact on how information is being shared in the Chinese automotive industry.*

---

### 6.1 Putting the conceptual framework to use - Identifying challenges

A detailed analysis of the areas specified in the conceptual framework is presented below. Firstly, the will to share information was investigated. This was done based on the trust that OEMs and dealers felt towards each other, and on the value that they perceived that sharing information generated. Secondly, the ability to share information was explored and analysed from the perspectives of technology and users. The last part of this analysis was carried out in order to define how the business context affected information sharing between OEMs and dealers. These analyses were performed in order to identify challenges that OEMs and dealers are facing when trying to share information with each other.

#### 6.1.1 Trust

In accordance with Cai et al. (2009), six of the interviewees, from all three interviewee categories, confirmed the importance of trust when sharing information. They did this by explicitly talking about trust as an important factor when describing the act of sharing information with supply chain partners.

Benevolence is described by Vanpoucke et al. (2009) as a dimension of trust, i.e. interest in the other party's welfare. During the interviews, questions concerning the reasons for sharing information, and specifically what the reasons might be for the other party to share information were asked, both to the dealers and to the OEMs. The purpose of these questions was mainly to investigate benevolence. The answers showed that both OEMs and dealers had understanding of the other party's intent to share information, and what the potential value would be to the recipient. An example was the OEMs understanding of providing the dealer with information to allow them to plan their business. The dealer on the other hand had an understanding of their importance as an information source to the OEMs, providing them with important information about the current market situation.

Indications of distrust between OEMs and dealers were also found during the study, mainly related to how the parties relied on each other, the second dimension of trust defined by Vanpoucke et al. (2009). From the OEMs point of view they did not rely on how the dealer would behave if they decided to share sensitive information regarding for example upcoming models. Three OEMs also stated having experienced negative effects as a consequence of sharing too much information, where the negative effects concerned opportunistic behaviour from the dealer (e.g. early information on low supply of a car model, resulting in dealers withholding these models from the customers in order to increase the market price). Secondly, three OEMs described how they did not rely on the dealers enough to share confidential information due to the risk of the information leaking and ending up in the hands of competitors. As further confirmation of this, one dealer expressed his understanding for the OEMs view of the dealers as potential information leaks.

Dealers' mistrust in the OEMs could mainly be seen in their reluctance to share financial information with the OEMs. They felt that the information that they shared might be used against them, and therefore hesitated to share information with the OEMs. The financial information was often requested by the OEM in order to benchmark dealerships, which could result in changed measures or changed policies for the dealers, interpreted as negative consequences of sharing information.

*Guanxi*, mentioned by Cai et al. (2009) as a factor to consider when describing trust in China, was never touched upon explicitly in the interviews. Although, it was found that two dealers had closer connections with their OEMs in terms of personal relations, something they felt increased the trust between them and the OEM. One of the OEMs expressed his dissatisfaction of not having time to "become friends with the dealers" and therefore not being trusted by the dealers.

To conclude, both positive and negative implications of trust were found throughout the empirical data.

### **6.1.2 Value**

When considering the value of sharing information, two distinctions were made; value gained because of the shared information (e.g. the dealer shared information about a customer claim and through this got help from the OEM to solve the claim), and the intrinsic value of the information (e.g. information about current and potential customers).

Market knowledge from the dealer was the information that was considered most valuable to the OEMs, expressed by all of the OEMs. This information was not found to be on an unsatisfied level when received from the dealer. On the other hand, the OEMs (4 interviewees) believed the dealers to have limited awareness of the value in sharing information at the same time as they thought that there was value in the shared information to be captured by the dealers (3 interviewees).



## Pursuing pole position – Information sharing in the Chinese automotive supply chain

The main reason for dealers to share information was in three of the cases found to be that OEMs required it. These dealers also perceived that they received limited value from sharing information (3 interviewees), where lack of support and low attention of urgent matters were examples given. Contradictory to the opinion of these dealers, two other dealers gave examples of situations where they had experienced positive effects of sharing information. To receive more strategic information, for example information concerning product strategy, was considered valuable to the dealers (4 interviewees).

Problems concerning ownership of customer data were something that was only touched upon by two interviewees from the third-party category. The customer data is sensitive in its nature because of the value related to current and potential customers, and the fact that the value decreases as more parties get hold of it.

To conclude, there are differences in the perceived value of sharing information between OEMs and dealers, where the dealers feel that they don't have as much to gain from sharing information, affecting how the dealers feel about sharing information with the OEMs. Whether or not the parties see value in sharing information will affect what they actually share in this relationship. There is clearly a value in sharing information between the parties, empirical examples of value created from sharing information were found at both OEMs and dealers.

### **6.1.3 Technology**

This category can be related to information technologies with the purpose of enabling information sharing between supply chain partners. Despite advancements in technology during recent years, barriers towards information sharing in this area still exists according to Childerhouse (2003), which is supported by the findings from this study. Although issues regarding technology were often not regarded as the most demanding information sharing challenge by the interviewees, several of the interviewees expressed their concerns about problems related to this area.

As mentioned earlier, the most important technology used to transfer information between dealers and OEMs was the DMS. The official purpose of this system was according to all interviewees to support the dealers in their daily operations at the dealerships. However, the majority of dealers did not consider the DMS to meet the requirements of their businesses. Dealers explicitly stated that the DMS systems did not provide enough flexibility, and also lacked functionalities which the dealers valued, for example features associated with CRM activities (4 interviewees). Only one dealer said that the DMS provided good support to his operations. Instead, the DMS was considered to be designed mainly to extract information from dealers, providing OEMs with information. When approaching the OEMs with the desire to adapt the DMS the OEMs were often reluctant to listen to the dealers' needs and did rarely improve the DMS according to their wishes (2 interviewees). The only dealer that felt as if he had the possibility to influence the OEM was the largest dealer,

member of a large and influential dealer group. *“Larger dealer groups more often have a saying when systems are about to be changed, whereas smaller dealers just have to follow”* (Interviewee 2).

From the OEMs’ perspective the technological challenges were not considered as significant. They were generally less concerned with the DMS and instead claimed that they experienced difficulties with having too much information and having trouble to consolidate this information. In China, opposite to most other mature car markets, OEMs have managed to standardize the DMS systems and have required all dealers within their dealer networks to use the same system. This finding can be related to the industry standard aspect found in Childerhouse (2003) where the problem with several different systems throughout a supply chain is discussed. This study shows that OEMs, in an attempt to standardize the usage of DMS systems, have imposed significant constraints to dealers’ abilities to make use of the DMS. Instead of supporting the dealers’ daily operations, the DMS were often considered not to match the dealers’ needs, resulting in dealers having to use their own systems in parallel with the DMS. When asking the third party interviewees about how OEMs should approach the DMS problem the answers deviated. One opinion was that OEMs should implement systems that they have experience from using in other markets whereas another opinion was that systems have to be developed locally in order to match the needs of the Chinese dealers.

#### **6.1.4 Users**

Childerhouse et al. (2003) conclude that although technology issues can be of great hindrance to information sharing, it is often people within the organizations that are affecting the ability to share the most. This category addresses the challenges related to the people who are using the information sharing systems and the problems that might arise in connection with those activities. In accordance with Childerhouse et al. (2003), eight of the interviewees (from all of the categories) stated that there were considerable challenges related to the users of the implemented systems. The study shows two main problem areas related to system users, firstly the reluctance to use the shared systems, secondly the lack of required skills to operate the systems. Whereas the dealers mainly emphasized the second problem area, both OEMs and third party representatives talked about the first as well as the second area.

One reason for the reluctance to use the implemented systems seemed to be unfamiliarity with complex systems, such as the DMS that OEMs provide its dealers with. According to two of the interviewees, employees at dealerships rather preferred to rely on less complex systems, for example Word or Excel. When information was to be sent to OEMs information had to be extracted from the simpler systems and manually keyed in to the shared systems. Another reason for not wanting to use the DMS was that sales people at the dealerships had a tendency

### Pursuing pole position – Information sharing in the Chinese automotive supply chain

to consider customer information as their own, hence trying to keep it to themselves. Instead of entering information into the shared systems it was kept in personal notebooks, limiting the transparency of customer information throughout the supply chain. These findings support the belief that people involved in information sharing often have their own agendas, affecting the way information is being shared (Kirveenummi, et al., 1998).

The second problem area, which refers to the lack of knowledge of the users, was brought up by three OEMs and three third party representatives. They all felt as if there was a gap between the required skills to operate the shared systems, and the current skills of the employees at dealerships. High turnover of employees at dealers, and the inability of OEMs to find time to train the staff at newly opened dealerships were mentioned as reasons for the gap. The turnover problem was further highlighted by one of the third party representatives as one of the main challenges, *“the problem here in China is in my opinion to keep a stable level of standards in the dealerships since the employees change very fast”* (Interview 2). The lack of knowledge from the users contributed according to the interviewees to incorrect information being entered into the shared systems, lowering the quality of the information.

#### **6.1.5 Industry specific**

The influence of business context when sharing information was explored in line with the earlier discussion, based on the findings during the literature review. This is considered an important area of the thesis as the attitude towards business context in relation to information sharing differs greatly within supply chain literature. The findings during this study suggests that the Chinese market characteristics have had an impact on how information is being shared, and on how important the supply chain partners think it is to share.

In eight (all categories) of the interviews, when asked how important it was for dealers to improve information sharing with their OEMs, the respondents said that it was currently not a prioritized issue. Instead focus had to be on the daily operations, in other words generating sales. Succeeding in the Chinese automotive market has historically been about *“getting products to the shelf, not necessarily focusing too hard on people, processes and technology issues”* (interviewee 3). This opinion was further established by one of the interviewees when he was asked what he thinks about the information that is presently being shared between him and his OEM, *“The current situation is not ideal, but it is working”* (Interviewee 1). These statements support the previously discussed perception that information sharing in itself does not add value to a partnership but must instead be tailored to the business context (Lambert, 2008). The interviewees depicted it as a trade-off, where they either had to focus on maximizing revenues in the short term, or on issues related to future performance improvements, such as how to share

information effectively. So far it seemed as if the high growth had made it more attractive to focus on the daily operations, both from the dealers' and OEMs' perspective. The decision to focus on what currently generates more value can be a sign of the supply chain taking the contextual implications into consideration when deciding on how much information to share, as discussed by Cox (2001).

Besides making it less attractive to focus on information sharing, four of the interviewees stated that the heavy growth, together with the constant changes in the market, has imposed significant challenges to OEMs and dealers trying to share information in this environment. Much of the difficulties can be related to planning the capacity of the shared systems as the market has been growing tremendously during recent years. *"OEMs are often opening a new dealerships every week, a huge task to manage in terms of internal processes [...] and reporting"* (Interviewee 2). A key activity when acting on a dynamic market like the Chinese is to tailor the information processing capacity in accordance to the changing requirements (Vanpoucke, et al., 2009).

Although not being the highest priority looking back, all third party interviewees believed that information sharing will play a larger role going forward. As the Chinese car market matures, they believed that higher demands would be placed on OEMs and dealers to run their operations more effectively. *"China is still a sales driven market, but as it matures [...] you need to have a 360 degree view of customer insight, which is dependent on good data quality"* (Interviewee 2). As the market becomes more customer-centric, the need for rapid adjustments in response to changing customer demand might increase, as discussed by Samaddar et al. (2006).

#### **6.1.6 Relationship specific**

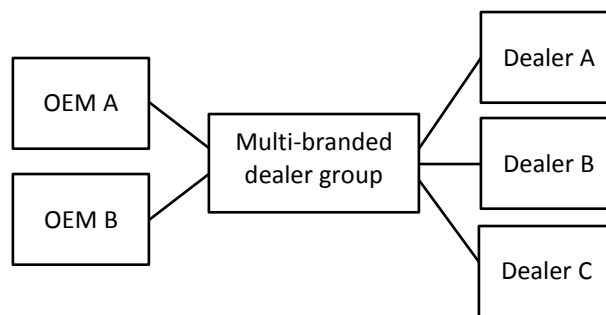
The power that supply chain partners have is used when trying to get hold of certain information from each other. OEMs were found to be the party that clearly had an advantage due to their power relative to the dealers. The dealers (3 interviewees) felt that the OEMs had power to demand the information that were to be shared by the dealers, the OEMs (2 interviewees) thought that they had more power and were more experienced compared to the dealers, the third-party representatives (2 interviewees) agreed through phrasing that OEMs have a big influence in this relationship.

When signs of power in the relationship were noted at the dealership level it was connected to if it involved a large dealer group, or an important dealership with high sales volume or high profitability. Two of the dealers gave examples of how this power had an influence in the relationship; one example was a dealer group that managed to make design requests on the DMS that were later on realised. One OEM and one third-party confirmed the fact that large dealer groups had influence in this relationship.

## Pursuing pole position – Information sharing in the Chinese automotive supply chain

Though not further investigated, one could make the conclusion that the relative firm size in this relationship correlates with power, which was found with the big OEMs and large dealer groups. This is in line with earlier research by Vanpoucke et al. (2009).

Seidmann & Sundararajan (1998) argue that a firm has more bargain power as a consequence of their position in the supply chain relative to the market/customer. The dealer is relative to the OEM closer to the customer in their role as a retailer vending cars directly to the customer. Whether this enhances their bargain power is hard to say due to the huge power that the OEM was found to possess. What can be said is that the market knowledge that the dealer has is of high interest to the OEM. On top of this is the situation that the dealer does not have any substitutes to choose from, i.e. the dealer can only order cars from one specific OEM. This decreases their relative bargain power as they are in a way are in the hands of the OEM that they franchise through.



**Figure 7** – Example of supply network configuration between two OEMs and a multi-branded dealer group

Supply network configuration is another part of the relation specific context that affects the information sharing (Samaddar, et al., 2006). In this relationship it was found to have an impact on the reluctance of the OEM to release confidential information due to the vast number of dealers each OEM is connected to and the fact that a dealer group could be multi-branded, see figure 7 for an example. These two configuration elements increase the OEMs reluctance to share confidential information that could get into the hands of their competitors.

## **6.2 Summarising the information sharing challenges**

As were found in the analysis in section 6.1, challenges were found in several of the areas addressed by the conceptual framework, however, some of them seemed to be more present than others.

Mistrust towards each other in the relationship was present and affects *will to share* and must be regarded as a challenge to address in order to improve the current situation. The dealers' mistrust of the OEM could have a connection to their perceived value of sharing information as the dealers experience far less value from sharing information compared to the OEM.

The shared systems not being adapted to the dealers' requirements, together with users that do not have the required knowledge to use the systems, makes the situation even more challenging.

Several elements in the business context impose challenges for OEMs and dealers, these elements are however inflexible in terms of how the parties could affect and change their presence. The vast number of dealers is one example affecting the will of OEMs to share confidential information, a circumstance that is hard to change.

### **6.3 Key business implications**

Addressing the second part of the purpose of this thesis required a further analysis to be made, namely, how the above presented challenges affect the way OEMs and dealers do business with each other. Six key business implications were identified, related to information sharing on an operational, as well as a strategic level.

Identified business implications:

- (1) OEMs receiving limited or incorrect financial information
- (2) Dealers receiving limited logistical information
- (3) Dealers receiving limited strategic information
- (4) Dealers receiving different amounts of information based on their network affiliation
- (5) OEMs receiving limited operational information
- (6) OEMs receiving incorrect sales information

The effects of these business implications are discussed in the following sections.

#### **6.3.1 OEMs receiving limited or incorrect financial information**

During eight of the interviews, the interviewee touched upon the problem with limited or incorrect financial information from the dealers. This was found during interviews with OEMs, dealers and third-party representatives. Either the dealer shared very limited financial information with the OEMs, or they manipulated the information, hence providing the OEMs with incorrect financial information. The usage of several financial books at dealerships was a reoccurring topic during the interviews. What book to use when sharing financial information was dependent on the situation, and on who requested the information. This seemed, according to the interviewees, as a common way of treating financial information in China. In summary, the dealers were reluctant to disclose financial information.

The reason behind OEMs trying to extract financial information from dealers was based on their attempt to create a comprehensive picture of their dealer network status, allowing them to allocate resources to help dealers who performed poorly. Secondly, OEMs were also in need of the information in order to do profitability analysis as a way of managing their risk associated with their dealer networks.

This business implication could be explained by the trust dimension within *will to share* information. It is obvious that the dealers' fear of what the financial information could be used for, especially that it will be used against them, are deterring them from sharing.

### **6.3.2 Dealers receiving limited logistical information**

Three interviewees expressed problems for the dealers because of limited information on logistical status from the OEMs, for example how many, and what kind of cars, that were to be delivered during the forthcoming month. Two reasons were found why the logistical status was limited: firstly, the OEMs had internal problems regarding the transparency of their own logistical flow, which could be a result of problems establishing transparency through structures and processes in a market with high dynamism and growth. Secondly, OEMs did intentionally withhold information of their supply situation because of fear of unwanted behaviour from the dealers. For example, if there was a shortage of a certain car-model and this was shared with the dealers, dealers were believed to start withholding these models from the market in an attempt to increase the prices as supply decreased. According to OEMs, this would in the long-term have negative implications on their brand because of the fluctuations in price.

Not knowing what cars will arrive affects the dealers' ability to plan their operations, and also the extent to which they can commit to a certain car when a customer places an order. The findings show that OEMs does not fully rely on the dealers and the decisions they make, which according to Vanpoucke et al. (2009) is one component of trust. To withhold information is also a way for OEMs to gain power in the relationship (Munson, et al., 1999).

### **6.3.3 Dealers receiving limited strategic information**

Every dealer indicated a need for more and earlier long-terms strategic information from the OEM in order to plan his or her business accordingly. OEMs on the other hand indicated that strategic information was one of the things that they found challenging to share with the dealers. Strategic information included for example future product strategies and information about upcoming models.

The motive behind OEMs not sharing strategic important information with the dealers was because of the risk of this information getting in to the hands of competitors. Samaddar et al. (2006) discuss the importance of the number of channels as a variable having impact on how information is being shared within a

## Pursuing pole position – Information sharing in the Chinese automotive supply chain

supply chain. In this case, OEMs are working with dealer groups, who in their turn are working with several different OEMs. Hence, the risk of a competitor getting hold of the information was considered high. The vast amount of dealers in the networks further aggravates the OEMs' possibilities to hinder information from getting outside of the dealer network.

An additional motive for not sharing information was the OEMs lack of trust in the dealers, whom according to the OEMs were to take undesirable actions when receiving too much information at an early stage. An example could be information about an upcoming model, which could make the dealer stop ordering the current model and instead focus his efforts on the future one.

### **6.3.4 Dealers receiving different amounts of information based on their network affiliation**

The study further showed that depending on whether the dealers were independent or belonged to a dealer group they received different information from the OEMs. Larger dealers, or dealers belonging to a dealer group, gained access to strategic information earlier compared to smaller dealers who did not belong to a dealer group. This was contradictory to what the OEMs said as they tried to give a picture of treating every dealer equally, independent of their size or profit contribution. This mainly affected strategic information that was not shared through standardized processes or shared systems.

This behaviour was connected to the perceived value of the OEMs when sharing information as well as to the leveraged power a larger dealer has compared to a smaller one.

### **6.3.5 OEMs receiving limited operational information**

Throughout the interviews a reoccurring problem was that of the quality of the information that the dealers provided the OEMs with. A large part of the problem seemed to derive from the fact that the OEMs had problems implementing information sharing infrastructures in new dealerships at the required pace, resulting in inadequately implemented information sharing systems and processes. Vanpoucke et al. (2009) conclude that increased supply chain dynamism should lead to higher levels of information sharing between companies in such environments. In the Chinese automotive industry, which is very dynamic with a high growth compared to other automotive markets, one would assume that the information sharing in this market was going to be at a high level. Through the empirics it was found that this dynamism and growth rather makes it harder for OEMs and dealers to share information in a proper manner. The growth has implications on the ability to share since the information flow very quickly outgrows the system capacity.

Another factor affecting the quality of the data was the implemented DMS imposing constraints on the dealer's ability to make use of the systems in an effective way.



## Pursuing pole position – Information sharing in the Chinese automotive supply chain

Firstly, the empirical data shows that the DMS currently in place at the Chinese dealerships are mainly designed to extract information from dealerships, rather than supporting the dealers in their operational work. Evidence from the study also shows that these systems are often not flexible enough and in addition often lack functionalities that dealers value. Secondly, the implemented systems are often globally used and ill adapted to the Chinese dealers and the prevalent market situation.

An additional variable imposing limitations to the operational information was the knowledge level of the users utilizing the shared systems. This resulted in incorrect data being entered into for example the DMS.

It was found in the empirical data that the dealers had a low interest in measuring for example the showroom traffic; how many visitors a dealership have during a day. This could be because of two reasons; firstly the focus of the dealerships have as earlier described been on getting products to the customers, therefore little has been made on measuring and improving the operations, secondly the knowledge at the dealerships were found not to be at a level where they saw the benefits for themselves to measure their operations and therefore the information was not available and could not be shared with the OEM.

### **6.3.6 OEMs receiving incorrect sales information**

It was found that dealers under- and over-reporting their sales volume to the OEMs in connection to their set targets. The margins that the dealer will receive are connected to how they meet their pre-set target for each month. This business implication is connected to the incentives model used by the OEM, incentives is not regarded in neither the conceptual framework nor the thesis. On the other hand it is an example of how the chosen business model and strategy affects the way information is being shared.

The sharing of incorrect sales information is potentially dangerous as it might result in decreased customer satisfaction. When a dealer is over-reporting, i.e. reporting a car as sold when it is not, and a problem with the car arises, no support from the OEM will be available for the dealer since it is not registered as sold in their system. When sales are under-reported, it will affect the warranty period of the specific car that is reported as sold. When the car is actually sold it will have a shorter warranty period than advertised.

The framework could not directly explain this business implication as it primarily originates from a problem related to incentives. Because of the impact it has on information sharing it was not excluded from the analysis.

#### **6.4 The importance of *will to share* compared to *ability to share***

The challenges and the business implications that were found during the analysis were to a large extent associated with *will to share* information. Although findings indicated that there definitely were challenges related to *ability to share*, DMS not being tailored to the needs of the dealers is one example, these challenges should not be considered as demanding as the ones connected to *will to share*. Four out of six key business implications originate from *will to share*, whereas one of the remaining two could not be connected to neither *will* nor *ability*. Nevertheless, OEMs and dealers showed a tendency to focus their improvement efforts towards *ability to share* information, instead of *will to share* information, as discussed in 4.5. During the interviews a majority of the OEM and dealer respondents spoke about upcoming projects related to DMS, additional shared systems and web portals connecting the two parties. One interviewee stated that “everything would be much better if he could just have a new platform which allowed for video conferences” (interviewee 11), indicating a strong belief in technology as a solution to the experienced problems. These findings are in line with previous results from Fawcett et al. (2007) as they conclude that companies often rely on investments in technology as a way to improve information sharing. When the investments do not pay off, often as a result of too little focus on *will to share*, companies are left with a feeling that the systems did not perform as advertised. If more investments were to be made in *will to share* information, OEMs and dealers could potentially reap the benefits of the systems already in place to a larger extent compared to today.

## 7 Conclusions

---

*In this chapter the research questions and the purpose of the thesis, defined during the introduction, are discussed and answered. Furthermore, the contributions of the thesis and the recommendations to OEMs are elaborated upon. Above all, OEMs need to realise the importance of will to share in order to create beneficial information sharing with the dealers.*

---

### 7.1 Information sharing in the Chinese automotive industry

The results from this study show that information sharing is an activity that frequently and actively is being conducted by both OEMs and dealers in the Chinese automotive industry. The information shared includes both operational information, for example sales data from the dealers to the OEMs, and strategic information, for example suggestions of future business improvements on the dealerships from the OEM. More details on what information that is being shared can be found in table 2 in section 4.2. Information is transferred through several different shared systems, portals, and through direct contact like telephone, e-mail and meetings. The DMS is the most common system used to share information and was found to be used in all of the studied relationships.

Although much information was found to be shared, this study highlights the fact that the two parties share far from everything with each other. Among information not being shared were for example the complete financial situation of the dealers and the long-term strategic plans of the OEMs. The question concerning what information that was not being shared was often connected to when to share information, and the accuracy and the authenticity of the information, where dealers sharing incorrect information intentionally were an example of authenticity.

The reasons for OEMs and dealers to share information were found to be far from the same. Whereas OEMs often valued the information that they received, dealers did not always see the potential in sharing. The relative power of the OEMs allowed them to use their authority to extract information from the dealers, leaving the dealers with feelings of being forced to share information with the OEM.

The purpose of this study was to explore the challenges that the downstream part of the Chinese automotive supply chain is facing when sharing information, and to show how these challenges imposes limitations to the way business is conducted. As discussed in the different parts of section 6.1, and then summarized in 6.2, several challenges have been found in the different parts of the conceptual framework including *will to share*, *ability to share*, and *business context*. In the empirical data, six business implications were identified, imposing limitations to the business of both OEMs and dealers as a result of the challenges. The majority of the challenges and the business implications originate from *will to share*.

## **7.2 Academic contribution**

Previous studies on information sharing within the field of SCM have had a tendency to focus on what information supply chain partners should share, or on the barriers against information sharing. These studies are often performed as theoretical reviews, focusing on the upstream part of the supply chain, i.e. between a supplier and manufacturer. This study presents the challenges that the downstream supply chain faces as OEMs and dealers share information, and the implications that these challenges have on the way the parties are conducting business together. Several challenges imposing business limitations were discovered, hence, information sharing in the downstream part of the supply chain should be considered important. The results and conclusions from this thesis should be seen as a step towards increased research in the downstream supply chain.

Reading the literature review, one interpretation is that firms should, and can decide on a specific amount of information to share. The findings from this study rather suggest that the level of information that is being shared between two companies is to a large extent *happening*. Several factors that are hard to control for a single firm, for example elements in the business context together with the situation at other supply chain partners, are affecting the information sharing to a large extent.

The study also identifies the dynamism and the constant changes in the business context as major contributors towards making information sharing difficult in this environment. Contrary to common perception, supply chain dynamism in this context does not lead to increased levels of information sharing. Instead it forces the members of the supply chain to focus on operational issues rather than planning and structuring the act of sharing information.

Furthermore, contrary to recommendations from authors such as Yu et al. (2010), this study argues that sharing all available information with supply chain partners is hardly desirable. The interviewees mentioned several different negative experiences from sharing too much information with supply chain partners, where the main examples were connected to opportunistic behaviour. So how should then the recommendations to the industry be phrased, when it seems that sharing everything is not suitable?

This thesis also contributes to the literature of SCM and information sharing through the development of a conceptual framework for identifying and analysing challenges related to how strategic and operational information is being shared. The conceptual framework has been developed with the current literature as a basis and has been further calibrated against the empirical data gathered from the Chinese automotive industry. Therefore, questions regarding the applicability in other industries could be raised. The big difference of the conceptual framework compared to the theory is the omitted financial area. Financial issues are often connected to when the

structure and systems to be used for information sharing are developed and implemented. Therefore the conceptual framework should be possible to use in relationships that already have the structure and systems established for sharing information. In addition, the business context might have a lower impact on information sharing when studying information sharing in a mature market.

### **7.3 Industry contribution**

According to this study, the majority of challenges regarding information sharing between OEMs and dealers relate to *will to share* information with supply chain partners. At the same time, the collected empirical data indicates that most efforts to improve information sharing were directed towards *ability to share*, i.e. more or better systems. This finding suggests that in order to improve information sharing in this business environment the supply chain members need to realise the importance of *will to share*. Without proper investments in *will to share*, the full potential of the investments in *ability to share* will not materialise.

Looking back it is apparent that the Chinese automotive industry has not required the market participants to be effective in terms of sharing information. The focus has been on getting cars to a market with an almost endless demand relative to the available supply. Even though operations have not been perfect, cars have been sold. But as the Chinese car market matures, and the growth in demand stagnates, Chinese customers will require OEMs and dealers to operate their businesses more effectively. OEMs and dealers that realise this, that aim for pole position, and that initiate improvement efforts accordingly, will have a competitive advantage.

Imbalance regarding the perceived value of sharing information was found to be one of the biggest challenges for OEMs and dealers to overcome. Whereas OEMs seemed to gain the most from sharing information, dealers did often not see any benefit from it. The imbalance is affecting *will to share* information and should therefore be considered when trying to improve the quality of the information. Since OEMs are heavily dependent on dealers as a result of the Chinese market size they must use the dealers to gather information about market trends and changing customer behavior, as it is impossible for OEMs to gather this information on their own. This situation increases the importance of information sharing between the parties and OEMs should hence initiate actions to increase the dealers' *will to share* information through focusing on the perceived value for the dealers. Due to the power of the OEMs in the relationship, and the supply chain structure with hundreds of dealers, OEMs are the ones who must initiate the change.

### **7.4 Recommendations – OEMs in the driving seat**

As have been pointed out throughout this thesis there are a number of challenges to overcome regarding information sharing in the downstream part of the Chinese

## Pursuing pole position – Information sharing in the Chinese automotive supply chain

automotive supply chain. In order for OEMs to create a beneficial exchange of information with their dealers the following actions are recommended:

### **Create win-more-win-less situations**

As previously highlighted, there is an imbalance in the perceived value of sharing information where dealers experience much lower value, resulting in low activity and reluctance to share information with the OEM. Although not being able to create actual win-win situations, OEMs must strive towards creating situations where dealers can feel that they gain value from sharing information. Succeeding in this will also increase the quality of the information.

### **Adapt shared systems to dealer requirements**

The systems implemented at the dealers by OEMs are currently not adapted to the needs and requirements of the dealers. As a result, dealers do not see the benefits of using the systems as they are not designed to support their businesses, instead they are only seen as a tools for OEMs to extract information. If the systems were to be adapted to the dealers requirements the usage would increase together with a possible increase in authenticity of the data. This would then also increase the value for the dealer in using the DMS. Today, dealers are often using both the DMS provided by the OEM and similar local systems. By adapting the DMS, redundancy in terms of double system usage could be reduced.

### **Treat the dealers as information wells, but make sure to refill them**

The dealers should be looked upon as information wells, containing market and customer information, impossible for OEMs to collect by themselves. OEMs should relate to this through making sure to redistribute consolidated information about the market to the dealer in order to increase the dealers' awareness of the current market situation. Doing this will not only increase the dealers knowledge of their local market but also in turn enrich the information that the dealer re-provide the OEM with at a later stage.

### **Review incentive models**

During the study, elements of incentive misalignments were found, which proved to have a large impact on information sharing in terms of authenticity of the information. Incentives was a research area not included in the thesis but was found to have such an impact on the studied topic that a review should be considered when discussing information sharing.

## References

### Articles

- Atsamon, Y. & Dixit, V., 2009. Understanding China's wealthy. *McKinsey Quarterly*, July.
- Bartezzaghi, E., 2007. Quantitative versus qualitative: Putting the question in the right perspective. *Journal of Purchasing & Supply Management*, Vol. 13, pp. 193-195.
- Business Monitor International, 2012. *China Retail Report Q1 2012*, Business Monitor International.
- Caicedo, C. F., Mitchke, M. D. & Ark, J. V., 2007. How to build top-performing auto dealerships. *The McKinsey Quarterly*, 05.pp. 1-3.
- Cai, S., Jun, M. & Yan, Z., 2009. Implementing supply chain information integration in China - The role of institutional forces and trust. *Journal of Operations Management*, Vol. 28, pp. 257-268.
- Childerhouse, P., Hermiz, R., Mason-Jones, R., Popp, A. & Towill, D., 2003. Information flow in automotive supply chains - identifying and learning to overcome barriers to change. *Industrial Data & Management Systems*, Vol. 103, No. 7, pp. 491-502.
- Cox, A., 2001. Managing with power: Strategies for Improving Value Appropriation from Supply Relationships. *The Journal of Supply Chain Management*, pp. 42-47.
- Fawcett, S. E., Osterhaus, P., Magnan, G. M., Brau, J. C. & McCarter, M. W., 2007. Information sharing and supply chain performance: the role of connectivity and willingness. *Supply Chain Management: An International Journal*, Vol. 12, No. 2, pp. 328-368.
- Fawcett, S. E., Wallin, C. & Allred, C., 2009. Supply chain information-sharing: benchmarking a proven path. *Benchmarking: An International Journal*, Vol. 16, No. 2, pp. 222-246.
- Holweg, M., Lou, J. & Oliver, N., 2009. The past, present and future of China's automotive industry: a value chain perspective. *International Journal of Technology Learning, Innovation and Development*, 2(1/2), pp. 76-118.

Pursuing pole position – Information sharing in the Chinese automotive supply chain

Hsu, C.-C., Kannan, V. R., Tan, K.-C. & Leong, G. K., 2008. Information sharing, buyer-supplier relationships, and firm performance - A multi-region analysis. *International Journal of Physical Distribution & Logistics Management*, Vol. 38, No, 4, pp. 296-310.

Kembro, J. & Näslund, D., 2011. *Information Sharing in the Supply Chain: An Exploratory Study*. Harstad, Norway, Harstad University College, pp. 749-765.

Kirveenummi, M., Hirvo, H. & Eriksson, I., 1998. Framework for barriers to IS-related change: Development and evaluation of a theoretical model. *Proceedings of Joint IFIP 8.2/8.6 Working Conference*.

KPMG, 2010. *Gear change ahead: The future of China's auto dealership market*, Hong Kong: KPMG.

Lyons, A., Coleman, J., Kehoe, D. & Coronado, A., 2004. Performance observation and analysis of an information re-engineered supply chain: a case study of an automotive firm. *Industrial Management & Data Systems*, Vol. 104, No. 8, pp. 658-666.

Mehrtens, J., Cragg, P. B. & Mills, A. M., 2001. A model of internet adoption by SMEs, *Information and Management*, Vol. 39, No. 3, pp. 165-76.

Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D. & Zacharia, Z. G., 2001. Defining Supply Chain Management. *Journal of Business Logistics*, Vol. 22, No. 2, pp. 1-25.

Meredith, J., 1998. Building operations management theory through case and field research. *Journal of Operations Management*, Vol. 16, pp. 441-454.

Munson, C. L., Rosenblatt, M. J. & Rosenblatt, Z., 1999. The Use and Abuse of Power in Supply Chains. *Business Horizons*, January-February, pp. 55-65.

Porter, M. E. & Millar, V. E., 1985. How information gives you competitive advantage. *Harvard Business Review*, Vol. 63, No. 4, pp. 149-160.

Roh, J. J., Hong, P. & Park, Y., 2008. Organizational culture and supply chain strategy: a framework effective information flows. *Journal of Enterprise Information Management*, Vol. 23, No. 4, pp. 361-376.

Samaddar, S., Nargundkar, S. & Daley, M., 2006. Inter-organizational information sharing: The role of supply network configuration and partner goal congruence. *European Journal of Operational Research*, Vol. 174, pp. 744-765.



## Pursuing pole position – Information sharing in the Chinese automotive supply chain

Seidmann, A. & Sundararajan, A., 1998. Sharing logistics information across organizations: Technology, competition and contracting. *Information Technology and Industrial Competitiveness: How IT shapes competition*, Kluwer Academic Press

Seuring, S. A., 2008. Assessing the rigor of case study research in SCM. *Supply Chain Management: An International Journal*, Vol. 13, No. 2, pp. 128-137.

Simatupang, T. M. & Sridharan, R., 2005. Supply Chain Discontent. *Business Process Management Journal*, Vol. 11, No. 4, pp. 349-369.

The Economist, 2008. Theme and variations. *The Economist*, 15 11, 389(8606), pp. 4-9.

The Economist, 2011. Hitting the brakes. *The Economist*, 01 01, 398(8714), pp. 34-34.

The Economist, 2012. China and the paradox of prosperity. *The Economist*, 28 1, 401(8769), p. 9.

Vanpoucke, E., Boyer, K. K. & Vereecke, A., 2009. Supply chain information flow strategies: an empirical taxonomy. *International Journal of Operations & Production Management*, Vol. 29, No. 12, pp. 1213-1241.

Yu, M. M., Ting, S. C. & Chen, M. C., 2010. Evaluating the cross-efficiency of information sharing in supply chains. *Expert Systems with Applications*, Vol. 37, pp. 2891-2897.

Yu, Z., Yan, H. & Cheng, T. E., 2001. Benefits of information sharing with supply chain partnerships. *Industrial Management & Data Systems*, Vol. 101, No. 3, pp. 114-119.

### **Books**

Alvesson, M. & Sköldböck, K., 1994. *Tolkning och reflektion: vetenskapsfilosofi och kvalitativ metod*. Lund: Studentlitteratur.

Bowersox, D. J., Closs, D. J. & Stank, T. P., 1999. *21st Century Logistics: Making Supply Chain Integration a Reality*, Council of Logistics Management, Oak Brook, IL.

Bryman, A. & Bell, E., 2011. *Business Research Methods*. New York: Oxford University Press.

Lambert, D. M., 2008. *An Executive Summary of Supply Chain Management: Processes, Partnerships, Performance*.

Yin, R. K., 2003. *Case Study Research - Design and Methods*. Third Edition ed. California: CASE Publications.

### **Web pages**

bbc.co.uk, 2011. *BBC-news*. [Online]  
Available at: <http://www.bbc.co.uk/news/business-15861161>  
[Accessed 28 02 2012].

Bloomberg News, 2010. *bloomberg.com*. [Online]  
Available at: <http://www.bloomberg.com/news/2010-08-16/china-economy-passes-japan-s-in-second-quarter-capping-three-decade-rise.html>  
[Accessed 28 02 2012].

IMF.com, 2012. *imf.org*. [Online]  
Available at:  
<http://www.imf.org/external/pubs/ft/weo/2011/02/weodata/weorept.aspx?pr.x=74&pr.y=13&sy=2008&ey=2012&scsm=1&ssd=1&sort=country&ds=.&br=1&c=924%2C158%2C111&s=NGDPD%2CNGDPPC&grp=0&a>  
[Accessed 20 03 2012].

People's Daily Online, 2009. *China's 10 millionth vehicle this year comes off the production line*. [Online]  
Available at: <http://english.people.com.cn/90001/90778/90860/6789987.html>  
[Accessed 01 04 2012].

Rapoza, K., 2011a. *Ten Years Later, BRIC Markets More Important Than Ever*. [Online]  
Available at: <http://www.forbes.com/sites/kenrapoza/2011/11/25/ten-years-later-bric-markets-more-important-than-ever/>  
[Accessed 20 03 2012].

Rapoza, K., 2011b. *The Post-Western World*. [Online]  
Available at: <http://www.forbes.com/sites/kenrapoza/2011/08/06/the-post-western-world/>  
[Accessed 28 03 2012].

Xing, W., 2012. *The size of China's future market*. [Online]  
Available at: <http://www.chinaautoreview.com/pub/CARArticle.aspx?ID=7346>  
[Accessed 01 04 2012].

Pursuing pole position – Information sharing in the Chinese automotive supply chain

Ying, T., 2010. *China Ends U.S.'s Reign as Largest Auto Market*. [Online]

Available at:

[http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aE.x\\_r\\_l9NZE](http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aE.x_r_l9NZE)

[Accessed 21 03 2012].

Pursuing pole position – Information sharing in the Chinese automotive supply chain

## Appendix A – OEM Questionnaire

1. What kind of information do you share with your dealers?
  - a. Is there information that would be beneficial for you that the dealers do not provide you with?
  - b. What kind of information do you think is difficult to share with the dealers?
  - c. Have you ever experienced negative effects as a consequence of sharing information with your dealers?
2. How is information being shared?
  - a. Do you have any shared systems<sup>8</sup> in place?
    - i. Name of the system?
    - ii. Standard-system or customised?
  - b. Do you extract information from your local systems in order to share?
  - c. What kind of different mediums do you use when communicating with your dealers? (E.g. fax, e-mail, common systems etc.)
  - d. What is difficult in terms of sharing the information from a technical point of view?
  - e. Do you share information on a pre-determined schedule or when asked for?
3. Why do you share the information mentioned in question 1?
  - a. What are the benefits from sharing information (e.g. increased sales, forecasting possibilities, decreased working capital, etc.)?
    - i. For you?
    - ii. For the dealers?
4. What are the main challenges regarding information sharing between you and the dealers?
  - a. Are there any negative effects if you were to share more information with your dealers?
  - b. What could you improve?
  - c. What could the dealers improve?
5. Do you foresee a need, or have you already planned, on changing the way you share information within the next 12 months?
  - a. Without any limitation, how would you change the current way you share information with the dealers?

---

<sup>8</sup> IOS – Inter organizational information system: A system shared by two or more companies to facilitate the creation, storage, transformation and transmission of information.

## Appendix B – Dealer Questionnaire

1. What kind of information do you share with your OEM?
  - a. Is there information that would be beneficial for you that the OEM does not provide you with?
  - b. What kind of information do you think is difficult to share with the OEM?
  - c. Have you ever experienced negative effects as a consequence of sharing information with your OEM?
2. How is information being shared?
  - a. Do you have any shared systems<sup>9</sup> in place?
    - i. Name of the system?
    - ii. Standard-system or customised?
  - b. Do you extract information from your local systems in order to share?
  - c. What kind of different mediums do you use when communicating with your OEM? (e.g. fax, e-mail, common systems etc.)
  - d. What is difficult in terms of sharing the information from a technical point of view?
  - e. Do you share information on a pre-determined schedule or when asked for?
3. Why do you share the information mentioned in question 1?
  - a. What are the benefits from sharing information (e.g. increased sales, forecasting possibilities, decreased working capital, etc.)?
    - i. For you?
    - ii. For the OEM?
4. What are the main challenges regarding information sharing between you and the OEM?
  - a. Are there any negative effects if you were to share more information with your OEM?
  - b. What could you improve?
  - c. What could the OEM improve?
5. Do you foresee a need, or have you already planned, on changing the way you share information within the next 12 months?
  - a. Without any limitation, how would you change the current way you share information with the OEM?

---

<sup>9</sup> IOS – Inter organizational information system: A system shared by two or more companies to facilitate the creation, storage, transformation and transmission of information.

## **Appendix C – Third-party Questionnaire**

1. Could you give us a brief description of your background and your current role related to the Chinese automotive industry?
2. Could you elaborate on the overall characteristics of the relationship between OEMs and their dealers in China?
3. What are the main challenges in this relationship?
4. What kind of information would you say is being shared between OEMs and their dealers?
  - a. What are the drivers behind sharing this information?
  - b. Would you say that it is important to share information with your dealers in order to succeed as an OEM in the Chinese automotive market?
5. Would you say that there is information that is not being shared that could potentially be beneficial for the relationship?
  - a. In case of “yes”, why do you think this information is not being shared?
6. What are the main challenges in terms of sharing information in this relationship?
  - a. What role does information sharing technologies play when OEM and their dealers are to share information today?
  - b. What role does the willingness to share information play when OEM and their dealers are to share information today?
7. How do you think the characteristics of the Chinese automotive market have affected the relationship and the need for information sharing up until today?
8. How do you think the characteristics of the Chinese automotive market will affect the relationship and the need for information sharing in the future?

## Appendix D – Interviewee meta-data

ID	Length of interview	Medium	Position	Automotive experience	Category	Interview Language
1	01:00	F2F	Senior Manager Business Development	Automotive: 20 years, China: 10 years	Dealer	English
2	01:30	F2F	Senior Manager	Automotive: 7 years, China: 4 years	Third party	English
3	00:47	Skype	Director	Automotive: 17 years, China: 10 years	Third Party	English
4	00:30	Skype	Managing Director	Automotive: 16 years, China: 2 years	Third Party	English
5	00:56	F2F	Regional Manager	Automotive: 22 years, China: 22 years	Dealer	English
6	01:03	F2F	General Manager	Automotive: 17 years, China: 17 years	Dealer	Mandarin
7	01:10	Skype	Former Head of OEM	Automotive: 21 years, China: 6 years	OEM	English
8	00:30	Skype	Senior Network Development Manager	Automotive: 16 years, China: 16 years	OEM	English
9	00:26	Skype	Dealer Competency Development	Automotive: 14 years, China: 14 years	OEM	English
10	00:31	F2F	General Manager	Automotive: 10 years, China: 10 years	Dealer	English/ Mandarin
11	00:40	F2F	Senior Manager Sales	Automotive: 12 years China: 12 years	OEM	English



Pursuing pole position – Information sharing in the Chinese automotive supply chain

<b>ID</b>	<b>Length of interview</b>	<b>Medium</b>	<b>Position</b>	<b>Automotive experience</b>	<b>Category</b>	<b>Interview Language</b>
12a	00:53	F2F	Vice President Sales	Automotive: 17 years China: 12 years	OEM	English
12b	00:53	F2F	Director Sales/Marketing	Automotive: 16 years China: 16 years	OEM	English
13	00:32	Skype	Business Developer	Automotive: 9 years, China: 9 years	Dealer	Swedish