JONKOPING INTERNATIONAL BUSINESS SCHOOL
JÖNKÖPING UNIVERSITY

Web-based information logistics within the supply chain

A case study at Husqvarna AB Accessories

Master Thesis in Logistic & Supply Chain Management

Authors: Jonatan Partin
Fredrik Söderbring

Tutor: Helgi-Valur Fridriksson

Jönköping February 2009

Master Thesis in Logistic & Supply Chain Management

Authors:	**Jonatan Partin**
	Fredrik Söderbring
Tutor:	**Helgi-Valur Fridrikson**

Date:	**2009-02-02**
Subject terms:	**Information Logistic, Information Sharing, Web-Based Information sharing.**

Abstract

Problem discussion:
Information Logistics has with the rising of the new technologies developed into a key issue for companies seeking competitive advantage. The birth and expansion of Internet has brought down the boundaries that kept business partners from sharing extensive information between each other (McClelland, 2003). The increase of information has yielded a better understanding of your business partners and one could perhaps think that it is only positive outcomes derived from the increased information sharing. However, research show upon an extensive need for structuring the information flows which relates to an organization. Gartner group (2003) presented an investigation present ting that managers spend over 49 minutes every day in their mailbox for reading and sending e-mails and Delphi Group (2002) presented figures saying that executives spend over two hours a day searching for the right information (cited in Sandkuhl, 2005). Expected outcomes for improving the information logistics are however not only related to time savings activities, business partners could also expect enhanced improvement regarding business processes and operational efficiency. The need for structuring the information flow is therefore an interesting subject to investigate and will also be the focus of this thesis. For specifying and narrowing the theoretical framework the authors have chosen to focus upon information sharing based on a web-based system.

Purpose:
The purpose of this thesis is to analyze how a company can utilize a web-based system to share information with their first tier suppliers.

Methodology:
In order to fulfil the purpose a case study approach has been chosen whereas semi-structured telephone interviews have been complimented with face-to-face interviews for gathering material. The rationale for the chosen approach was because the information needed to fulfil the purpose was of the character to be found in a qualitative study by going in-depth into the field.

Conclusion:
The importance in utilizing a web-based system is for the buyer to facilitate user handiness and provide trustworthy information to suppliers. The shared information has to be correct, easy accessible, and customized for suppliers. Information requested by the suppliers are, updated inventory levels, lead-time from Husqvarna to end customer, back orders, order fulfillment, on-time deliveries, complete orders, forecasts, and sell-through information.

Acknowledgment

The authors would like to express gratitude for the support, guidance and efforts of many people. Our supervisor PhD Helgi-Valur Fridriksson, his inspiration, knowledge and constructive feedback contributed greatly to this thesis. The authors would also like to thank our friends at Jönköping International Business School who have given us helpful comments along the making of this study. Two fellow students which are native English speakers are also devoted attention as they have contributed to correcting the whole thesis.

Gratitude is also directed to Husqvarna AB Accessories, this study would not have been possible without their contribution. Moreover, thanks to Lisa Blomdahl who has been our contact person at Husqvarna AB Accessories for her time and involvement. Finally the authors would like to thank all the respondents of the interviews for their participation and contribution with fruitful material.

Jonatan Partin & Fredrik Söderbring

Jönköping, February 2009

Table of Contents

1 Introduction

The first chapter will introduce the research subject in a background section which then is followed by a more elaborating problem discussion which eventually will lead the reader to the purpose of this thesis.

1.1 Background

Information Logistics has, with the rising of new technologies, developed into a key issue for companies seeking a competitive advantage. The increase of information has yielded a better understanding of your business partners and one could think that only positive outcomes are derived from the increased information. However, statistics show difficulties in fully utilizing previous technologies. A total of 95 percent of Fortune 1000 companies have implemented Electronic Data Interchange (EDI) systems (Densmore, 1998). Despite this only 20 percent of all implemented systems have succeeded when it comes to applying the concept among suppliers (Chwelos, Benbasat, & Dexter, 2001). History has proven that the number one reason why companies fail to implement EDI systems among suppliers are because of high implementation costs. However, the birth and expansion of internet has substantially reduced the implementation costs as the information sharing now takes place utilizing already existing internet pages. The rising of internet has consequently brought down the boundaries that kept business partners from sharing extensive information between each other (McClelland, 2003). The result of technological evolution and consequently the facilitation of sharing information between organizations have exposed a new dilemma for organizations.

*"As the main intention of information logistics is to reduce information overflow, providing all relevant information should not cause any additional overflow."(*Sandkuhl, 2008 p46)

Researchers have shown an extensive need for structuring the information flows which relates to organizations. Gartner group (2003) presented an investigation showing that managers spend over 49 minutes every day relating to mailbox activities and Delphi Group (2002) presented figures saying that executives spend over two hours a day searching for information (cited in Sandkuhl, 2005). The need for structuring the information flow is therefore a very interesting subject to investigate. Researcher Hofman (2006) elaborates even further on the subject saying that information logistics is concerned with the structuring of information flows so that organizations can easily get access to information for reducing time consuming activities and finding operational process efficiency.

Information logistics is affected by numerous factors which researcher McClelland (2003) elaborates upon when arguing that information sharing relates to different important relationship factors. An interesting connection is here discovered as relationship factors are relevant when investigating information logistics. Hence, research shows upon a deeply grounded phenomenon which includes a dynamic process regarding relationship factors and information sharing. Companies might possess the possibility to share information but because of the high accessibility to information companies, and primary managers, are under the constant threat of information overload.

1.2 Problem discussion

There is a need to further define on how information sharing can be handled. Information can be defined differently depending on the context and tends to be restricted to one part and it never covers the whole environment (Madden, 2000). In this thesis information is defined as: Business information transmittable with a web-based system: The information should be valuable for the business process and involve interpretation of the environment. The reason for defining information sharing is to narrow down the scope of related research field into not including information sharing related to face-to-face interaction and other communication forms.

Three major themes is of more relevance when investigating information logistics. The first theme is the relationship factors including trust, dependency, and collaboration between organizations, the second theme is the actual information sharing part which brings up elements related to the concerned information sharing process. Finally one can find the underlying rationale for sharing information which is the improvements in performance outcome. The thesis will focus on the information sharing theme however the dynamic reality requires a thorough discussion concerning the other two themes as well: relationship factors and performance outcome.

Researchers have, as previously stated, discussed the problematic scenery that information logistics provide. Many aspects come into play when firms decide to enter a business partnership and consequently share information between each organization. McClelland (2003) elaborates on the dynamics of sharing information and bring up relationship factors as a key ingredient for success.

"*The general theme is that collaboration is built on trust. Mutual trust is hard to build on assumptions, hence efficient and real time information sharing is crucial." (*McClelland, 2003)

Consequently, McClelland (2003) has shown collaboration and trust as two relationship factors that influence the information sharing process. Collaboration treated as a key factor, dependent on the trust relationship between concerned organizations. One could though wonder if there are no other relationship factors that influence the process. According to Corsten & Felde (2005) the information sharing process includes an even further complex environment also consisting of the dependency between the two organizations. Corsten & Felde (2005) continues exploring the underlying factors for a closer and more successful relationship with information sharing and found that trust and dependence together has an impact on performance, and when the relation is not well balanced the collaboration does not function well.

Kraljic (1983) constructed a theory relating to relationship factors and what levels of information that should be shared with each supplier. This theory is frequently used for gaining a comprehensive understanding on how to efficiency share information with suppliers. However, the Kraljic model focus on the amount of information sharing each supplier should receive, but it does not specify the type of information needed to improve the relationship and performance. Another aspect that Yang (2003) describes, concerning information logistics, is that firms have a tendency not to share sensitive information that could change the dependency in the relation.

The research field connected to information sharing and how relationship factors sculpt the information sharing process account for different dimensions The relationship factors are already mentioned as one dimension, however research describes complications in the actual information sharing as well. Information sharing is a fundamental concept when it

comes to communication among companies. Roger (1995) proves that the positive outcomes of using web-based systems to share information is uncertain, and Sandkuhl(2008) claims that even with well defined work flows, people spend a lot of time searching for information. Casson & Wadeson (1998) further elaborates treating information sharing across a company's boundaries as an economic problem. Choosing how much to invest in information sharing is troublesome and companies today suffer from a constant battle when it comes to optimizing their information sharing. When treating information sharing as an economic problem, organizations should be forced to have the incentives to improve the process. Casson & Wadeson (1998) continues with addressing some basic problems in information sharing processes and brings up issues like, inefficient information handling, inadequate information, or even false information as common set-backs. The neglecting of conveying correct information could hurt organizations both internally and externally, and finally, damage the relationship. Consequently, one can clearly see the interrelation between relationship factors and the information sharing process. If the information need is established without the use of a web-based system utilizing the possibility of sharing real time information, decision will be made from old data and assumptions. McClelland (2003) continues elaborating that the whole decisions process could be made from biased data. Only accurate, real time and true data will suffice and that there are no alternatives for real time data. The consequences of conveying biased information is further described by Blundel (1998) who defines communication as "a success in conveying information and evoking understanding", and if the information is incorrect or misleading it does not increase collaboration, trust or performance outcome.

In the extensive process of reading through the literature, the authors could not find any articles or books with information regarding how information logistics should be improved through a web-based system. Which type of information should be included and what types of applications should the web-based system provide? The conducted research will indulge in the theoretical field called Information Logistics. Information Logistics is a quite new theoretical field and therefore the authors will also investigate what factors are determining the level of information which should be shared. Even though, previous research has provided answers the authors want to further investigate, the relationship that the three mentioned themes imply: relationship factors, information sharing, and performance outcomes. When placing information logistic problems in a case study new findings can show and consequently the researcher will contribute to their chosen theoretical field.

Focus will lay upon information sharing combined with a web-based information system in a dyadic relationship. This dyadic relationship is a two-way communication between buyer and supplier where information is shared using a web-based system for efficient information logistics. Research has shown that different information is valuable depending on the supplier (Småros, Lehtonen, Appelqvist, & Holmström, 2003) hence; the authors will also investigate if it is possible to construct a template including information needed for all suppliers in the chosen case study.

1.3 Purpose

The purpose of this thesis is to analyze how a company can utilize a web-based system to share information with their first tier suppliers.

1.4 Research Questions

The previously stated purpose will be answered through focusing on the following four research questions:

- What factors are determining the level of information which should be shared?
- What type of information is needed to be shared through the web-based system?
- Is a web-based system suitable for information sharing?
- Can the information sharing with first tier suppliers be conducted using a universal template including the same type of information?

2 Methodology

The following discussion will explain the chosen research and scientific approach for answering the purpose of this thesis. The Research Approach will briefly describe all elements which have been included in the conducted research. The Research Approach section will be followed by more in-depth headings which elaborates more thoroughly what implications that follows when conducting a research in a social environment.

2.1 Research approach

The research that has been conducted in alliance with Husqvarna AB Accessories (Husqvarna), have put the researchers in the area of carrying out a social science. How researchers interpret their surroundings can differ substantially between researchers. Consequently, when conducting research it is important that the researcher explains in what scientific way they interpret the world with. The researcher experience and how this experience is utilized when reality is interpreted will yield the chosen scientific approach. According to Morgan & Smircich (1980) the research within social science disciplines would benefit if researchers would focus more on trying to explain and more explicitly show on what type of believes they bring to their study

The authors strongly believe that discussing the nature of knowledge and in what way the researcher handles epistemology and ontological will find knowledge is important because it adds trustworthiness to the research. The reasoning is shared with researchers which elaborate upon the sharing of information and gather empirical information. They discuss that the distribution of knowledge often is simplified and the issues concerning this should be stated (Morgan & Smircich, 1980, Ezzy, 2002).

According to Burrell & Morgan (1979) every researcher is in some way, carrying different interrelated assumptions, concerning ontological and epistemological issues. Along the continuum of different methodological viewpoints, there are different solutions to how a researcher believes he could find knowledge. On one end of the continuum there is an objective foundation and an ontological understanding that the reality is a structure which is very rigid and very concrete and the researcher is a responder who gain knowledge through responding to findings and material. Reality is something that can be observed and processed from the "outside". The mentioned scenario could be seen to the right side of figure one. On the other end of the continuum, one could find a subjective foundation where researchers believe that reality is something that is highly subjective, the only truth is the one that is present in your own mind.

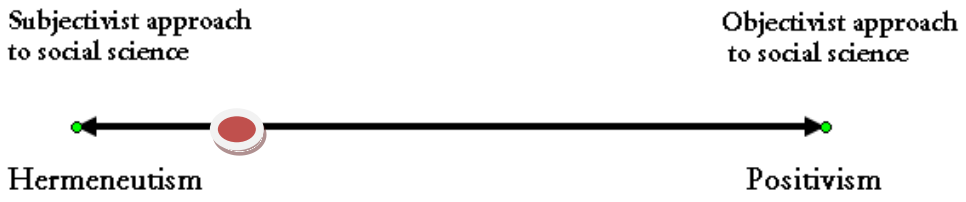

Figure 1: Continuum of Sciences (Morgan & Smircich, 1980, p 492)

This scale is a useful base for thinking and clarifying different assumptions concerning research in social science. Every researcher is in some way, interpreting information for gaining knowledge. If you are on the objective end, you believe that this interpretation could be made without using your personal experience and if you are on the subjective end you believe that the interpretation is made inside yourself and consequently subjective. The authors would like to emphasize that during the conducted research they have leaned towards the subjective end of the continuum which is illustrated by the red circle in figure 1. This imply using the strength of previous knowledge and interpreting material for answering the purpose. However, the authors want to emphasize that they use the word leaning towards and as both hermeneutics and positivistic are two radical oppositions, which could be as appealing as the most radical political viewpoints.

In the chosen research approach the authors will strive to analyze and compare existing theories with empirical findings. The theories that the authors have brought forward in this thesis have been carefully chosen after an extensive literature research which included the reading of several scientific articles and books relating to our chosen research. For enabling efficiency in the search for information Key words were developed. The use of Key words has not only facilitated the information search process, it has also increased the focus of our theoretical scope. These keywords were initially developed from reading scientific articles relating to web-based communication. From the web-based communication articles, theories have been derived and then to further broaden the theoretical scope Key words such as; web-based communication, Inventory Management, Supplier-Buyer Relations, Information sharing and Collaboration were used. After the whole process of searching through the literature and gathering information, the authors arrived at a point, where they felt that they have covered the different aspects related to Web-based communication.

To understand the meaning of the literature research and how it connects to the conducted empirical study, hermeneutics uses a spiral which states that interpretations and theories are constantly developed and redeveloped to make sense of our world. (Ezzy, 2002) Hence, when the authors have jumped back and forth between existing theories and empirical findings they have worked to align them with the hermeneutic spiral. It could be compared to a dance from which interpretations between the observer and the observed are made until a refined understanding is drawn.

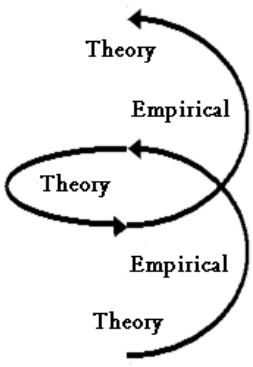

Figure 2: The Hermeneutic Spiral

2.2 Research Strategy

The theoretical framework has been structured for making it easy for a reader to understand the complexity of communicating through a web-based system. Therefore, the first section explains and elaborates on the fundamental relationship factors relating to web-based information such as collaboration, trust, and dependency. This section has consequently the heading relationship factors and it strives to provide an understanding for the reader on the importance that different researchers have stated in their research, of relational factors connected to web-based information sharing. In order to bring up different information sharing means and define what a web-based system is, the following section includes theories connected to information sharing. The last theoretical section brings up more specific information which researchers believe is important when communicating through a web-based system. For this reason the last section contains more detailed information regarding web-based information sharing. This section has also been the focus in our empirical research.

For testing our chosen theories and enabling an investigation that could fill the gap in the present literature a case study has been carried out at Husqvarna. The reason why the case study was conducted at Husqvarna was because the company acted in an environment where they used an already existing web-based application for their communication with some of their suppliers. Hence, a social environment from which the authors could conduct the research was found and they were given access to this environment. Initially, meetings were used so the authors could get familiar on how Husqvarna carried out their web-based communication with their suppliers. Findings from these meetings indicated a unanimous interest in improving the web-based information sharing with suppliers, because their existing system had only, partly been integrated among suppliers.

Telephone interviews have been conducted with a total of 7 suppliers. Before contacting suppliers, a questionnaire was derived from our theoretical framework and worked in symbiosis with Husqvarna. Before the different interviews started, the concerned suppliers were contacted and given access to our questionnaire to help them prepare the answers After the conducted interviews, the gathered information was processed and brought forward in an empirical finding section. Analysis and conclusions have been drawn from comparing empirical findings with existing theories. Consequently, new descriptions have been constructed and managerial and theoretical implications have been found.

When deciding your approach to different research you have several methods to choose from. A thorough preparation plan has been made where the authors have reasoned and carefully analyzed what should be conducted, before the actual study begins. Conducting a clear and useful outline will save valuable resources. Perhaps the preparation work is the most important because not choosing an efficient and correct entrance will produce skewed or biased results (Ezzy, 2002). Two common approaches to choose from when collecting research material, are either to conduct a quantitative study, where large material is collected for a generalization purpose, or to conduct a qualitative study, that includes more empirical investigations, where you investigate your settings or assignment from real life experience and search for an understanding (Saunders et al, 2003). In order to fulfill our purpose of this thesis, the authors have chosen to conduct a qualitative study whereas a case study at Husqvarna and their department accessories has been carried out.

2.2.1 Qualitative study

When carrying out a qualitative study you often seek to gain a deeper understanding of a chosen research area. Hence, for answering the research questions, a deeper understanding and a more comprehensive indulgency concerning the research field has been searched for. Therefore, in order to answer our purpose, a qualitative study has been conducted. Researchers using qualitative techniques can provide rich insights into the issues, that interest both management practitioners and researchers (Cassell, 2006). However, there is no correct path to follow in the qualitative research. In the research phase including the formulation of a purpose and in the structuring of theoretical framework, the researcher has thoroughly conducted and redeveloped different approaches. In numerous occasions, minor changes have been conducted concerning the process; after the actual construction of both purpose and theoretical framework.

If you conduct a qualitative study or a quantitative study all information in the end has to be interpreted by the researcher but it just happens in different stages. In a qualitative study you usually interpret an interview throughout the discussion and you process and interpret sentences, body language and other communication forms. Then you handle the collected information and you interpret it during all stages including: reduction, analysis, and conclusion. In the quantitative research, normally you analyze material when you have collected it and then the goal is to draw generalizations about the population from the sample. The importance of addressing this issue, when conducting research, and during the interpretation process, the researchers own beliefs and experiences are put into to play and therefore an objective research is nearly impossible to do. Consequently the idea of finding an absolute truth is impossible. Cassell (2006) defines qualitative studies to be, all studies conducted which do not include numerical data in their observations of the information collection or analysis.

The reasons for why researchers conduct research can differ but in the end every researcher is looking to contribute to their chosen field, via a contribution of sharing new knowledge. Our knowledge will be processed with a subjective mindset and consequently yield subjective results. The subjectivity is not based on previous opinions concerning our research area. The subjectivity is based on the fact that the authors process and interpret information using previous knowledge, when processing and analyzing our collected information.

The strengths in a subjective social science are that it recognizes that qualitative research cannot be made in an objective manner. These combined issues have sculpted our chosen research approach and the subjective social science states that every person interprets the same context in different ways and that ever interpretation is unique (Ödman, 1979). The mentioned scenario will benefit the authors and enable them to build enhanced and more trustworthy theories from their research. The focus of this study lies on investigating how a company can improve the web-based communication with their first tier suppliers and it is important that the authors interpret and seek to gain a deeper understanding of their research. Furthermore, qualitative research could be related to abductive reasoning, as researchers utilize the strengths of the chosen research and often seek different views of the investigated phenomenon.

2.2.2 Abduction

With the emergence of social science, researchers started to be wary of deductive and inductive reasoning which frequently had been used in the natural sciences. In this thesis an abductive approach has been chosen to enable reasoning supported by both empirical and theoretical investigation(Alvesson & Sköldberg, 2000). An abductive research is according to Arbnor & Bjerke (1997) when conclusions are drawn from jumping back and forth between empirical and theoretical material hence in-line with the chosen strategy. The empirical reasoning has been done through gathering a small number of samples, in our case interviews, whereas relevant information concerning our research questions has been collected. The collected information is then analyzed and compared to existing theories and then, after the authors have analyzed the existing theories between empirical findings and theories, hopefully a new understanding can be found. Ezzy (2002) argues that abductive research mirrors the interpretive processes of everyday life and that the theory testing is more a systematic process of interpretation, in line with the chosen research strategy.

2.2.3 Case Study

A case study may be appropriate in more complex and contextualized objects of research (Scholz & Tietje, 2002). The case study approach is more suitable because in the real world it is often necessary to understand one thing in order to understand several others. The authors have chosen the case study approach because it renders possibilities to unravel complexities of a given situation (Denscombe, 2003) and also to get a richer understanding of the process being studied (Saunders et al, 2006).

Yin (2003) discusses four different types of designs in case studies. These are derived from a 2x2 matrix (see figure 3) and are based on single vs. multiple and one unit or multiple units of analysis. The chosen case structure could be seen as the embedded single-case design. The single-case is Husqvarna and the multiple-units of analysis are constituted by the seven interviewed suppliers. Hence, the case studied can be defined as Husqvarna as the focal company and the different suppliers as sub multiple-units of analysis. The relationship is further illustrated in figure 3. The case involves more than one unit, or object, of analysis. It makes it possible to investigate multiple sources of evidence in sub-units (Scholz & Tietje, 2002), which in turn offer several different relevant aspects of the case.

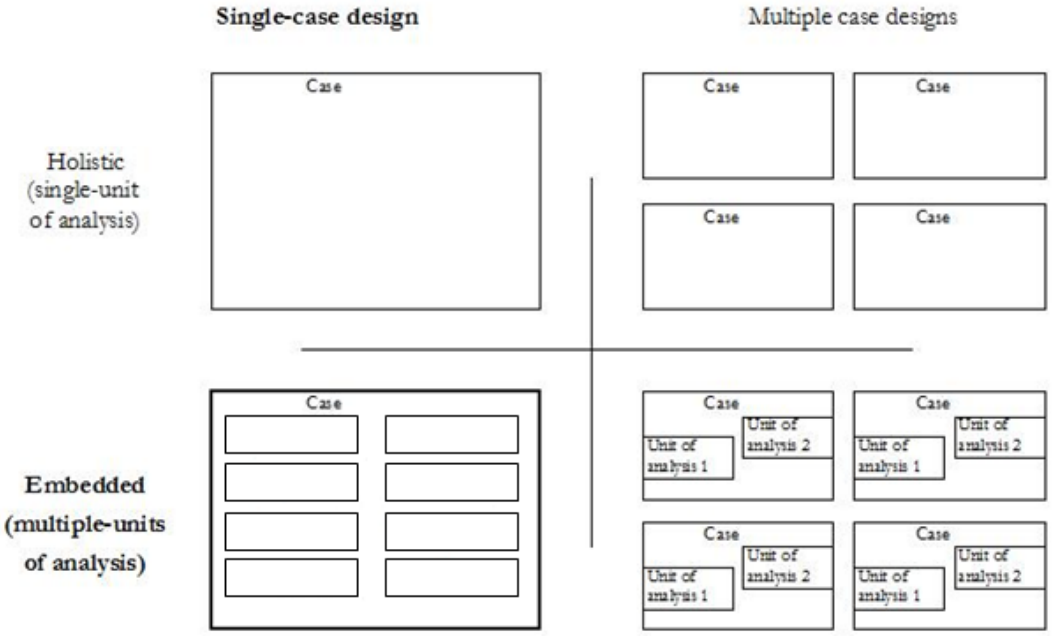

Figure 3: Types of design for case studies (Yin, 2003, p.40)

The related purpose of this thesis is the main criterion for the choice of procedure a case study at Husqvarna, since it fulfills the requirements of a company that been involved in information sharing through using a web-based application. The conducted research has focused upon how the information is shared between Husqvarna and seven suppliers. Our intention, is to be able to share their experience from their present information flow and analyze our theoretical findings. The intention of the case study was to recognize the relationships and processes at the company, in order to get an in-depth understanding of how companies interact through a web-based system.

2.2.4 Material gathering

The purpose of this thesis demands us to contact people with a certain knowledge and understanding on how Husqvarna presently uses their web-based communication. The authors have, with the assistance of, Lisa Blomdahl, a purchasing employee, chosen to contact individuals involved in communication and order handling because their combined knowledge would yield the most suitable material-base for analyzing.

A total of seven telephone interviews with the suppliers has been conducted. The seven interviews with the suppliers gave an understanding, from the supplier perspective, on what information was wanted and what information should be included in a web-based system. The length of the telephone interviews varied from 52 minutes to 25 minutes.

The interviews are structured in a semi-structured approach which involves a list of themes and questions which are to be covered. The questions may be asked in a different order depending on the interview. However, continuous improvements and customizations of the interview guide have been done before each interview. The changes made to the interview guides; included adding questions for some interviews and excluding questions for some interviews. The telephone interview conversations were recorded and the face-to-face interviews were noted and recorded in-order to enable even further development of the questions during the interview (Saunders et al, 2006). The authors have chosen this approach while interviewing the companies because they could observe the researchers emo-

tions and body language. This method will also provide improved communication and could possibly lead to applicable non-verbal data. (Ezzy, 2002). Communication can evolve, when body language and the persons mother tongue are taken into account (Gibson, 2000).

The authors would like to inform the reader that there are some set-backs with conducting a telephone interview. These setbacks include; not being able to establish personal contact for creating mutual understanding and trust and the inability to observe non-verbal actions. Both these issues will inhibit your ability to fully interpret the interviewee. (Saunders et al, 2006). The authors have not noticed any trust issues and the fact that none of the interviewed suppliers requested confidentiality in our study shows solid trust base for the conducted interviews. The telephone interview was chosen for accessibility and because the interviewed suppliers are geographically spread out.

Given Identity	Company	Replenishment	Type of material gathering	Interview Lenght (minutes)	Date
Person A	Supplier A	Yes	Telephone Interview	42	2008-11-27
Person B	Supplier B	Yes	Telephone Interview	39	2008-11-28
Person C	Supplier C	Yes	Telephone Interview	35	2008-11-28
Person D	Supplier D	Yes	Telephone Interview	41	2008-12-04
Person E	Supplier E	No	Telephone Interview	25	2008-11-27
Person F	Supplier F	No	Telephone Interview	37	2008-12-04
Person G	Supplier G	No	Telephone Interview	52	2008-12-05

Table 1: Interview participants

In order to understand the buyer side and their preferences a total of five different interviews were conducted with Husqvarna. The face-to-face interviews length varied between the longest which reached 110 minutes towards the more common 60 minute interviews. The interviews in the case study at Husqvarna and the telephone interviews were carried out in Swedish.

Given Identity	Company	Position	Type of material gathering	Interview Lenght (minutes)	Date
Anders Bengtsson	Husqvarna AB Accessories	Head Purchasing Manager	Face-to-Face Interview	60 60	2008-09-22 2008-10-27
Lisa Blomdahl	Husqvarna AB Accessories	Purchasing	Face-to-Face Interview	60 60	2008-10-07 2008-11-17
Håkan Nyqvist & Håkan Rothen	Husqvarna AB Accessories	Purchasing	Face-to-Face Interview	110	2008-10-14

Table 2: Interview participants

2.2.5 Material analysis

The material analysis was started at the same time as the collection of the material because if the analysis was done after the material collection the authors would not be able analyze the sequence with the development of the conducted research. Researcher, Ezzy (2002) describes the importance of simultaneously starting the material analysis and material gathering processes together. This enables the use of fresh knowledge in the analysis and also helps with restructuring and enhancing the questionnaires to further the authors understanding of the subject.

Material analysis is, according to Miles & Huberman (1994) connected with four activities: material analysis, material reduction, material display and drawing conclusions that can be seen in figure 4. Material reduction is a process where you first transform material into field-notes and transcriptions, then into summaries and finally find themes in the material or code the material (Miles & Huberman, 1994). The researcher started with material reduction by converting recorded interview material into written transcriptions. Transcribing the interview material was done as soon as possible and was done constantly during our material collection process.

The mentioned structure is preferable to leaving all interviews to be transcribed in the end because it is time consuming and gives the researchers time to reflect on the interview (Ezzy, 2002). Material reduction was performed through searching for themes in our material and coding it. The authors categorized the empirical material in accordance with theory and our interview guide. From there, three major themes where established: Relationship factors, Information Sharing, and Performance outcomes. Then sub categories were made to further structure the empirical findings. Codes were used in order to further sort through the material that was previously stated by key words such as: Web-based communication; Inventory Management; Supplier-Buyer Relations; Information sharing and Collaboration. Our empirical finding section is structured with these themes and codes.

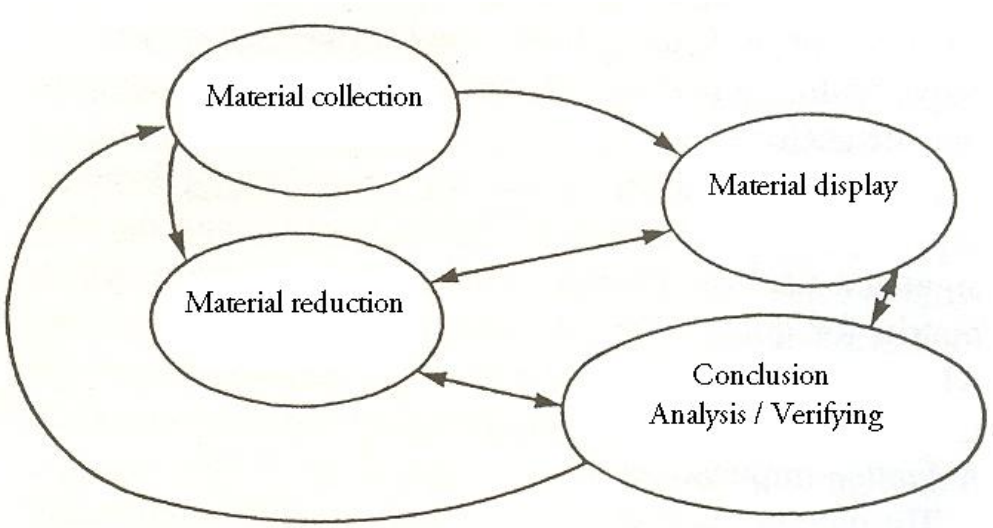

Figure 4: Components of material analysis: interactive model (Huberman & Miles, 1994, p.12)

Material display is done to better allow for enhanced analysis and conclusion drawing (Huberman & Miles, 1994). The collected material was re-organized after the themes and codes and presented in the empirical section. This provided easier connections with the theory and facilitated the analysis, to help simplify the thesis for future readers (Huberman & Miles, 1994; Saunders, 2003). With the use of material display, the authors have tried to find patterns and relationships in the material. These activities have been a part of an ongoing process of organizing the material in order to try to answer our research questions and draw conclusions from the material (Huberman & Miles, 1994; Saunders, 2003). In the end the analysis and conclusions were drawn from the organized empirical material. The authors started to notice patterns and discover explanations to these patterns during the material collection process.

2.3 Validity

When collecting material in qualitative research, numerous approaches can be used and there is no correct path to choose. Silverman (2004) writes that there are no qualitative approach that has a single and consistent method for analyzing texts, conversations and interactions. Our empirical findings have been collected through notes and audio and computer recordings, in order to avoid mistakes and strengthen validity of the thesis.

The authors of this thesis have used procedures that they perceive are easy to follow. As mentioned earlier the authors performed semi-structured interviews and follow-up questions were posed during the interviews. To avoid mistakes the authors prepared themselves with possible follow-up questions before each interview.

The author is supposed to find out if the research fits the reality and if the investigated phenomenon really is what is wanted, and should it be measured (Yin, 2003). Merriam (1988) discusses both internal and external validity as important factors when conducting research. Internal validity correspond to the nature of the phenomenon in reality. Merriam (1988) continues presenting six important strategies to consider when establishing internal validity. For fulfilling the first strategy, called triangulation, the researcher should use complementary methods that have used multiple sources of material such as, books, journals,

articles, and the Internet. The second strategy Merriam mentions is, participatory control, which implies letting the participants give feed-back before the final presentation to assure that the participants are satisfied with how their opinions are viewed. The third strategy has been harder to achieve as it calls for a postponed replication of the study or to observe the investigated phenomenon under a longer time-span. A replication of the study has not been conducted and the time-span used for the study is five months, hence the third strategy has not been fully fulfilled. The forth strategy calls for, horizontal examination and critique, which means that other researchers, or in our case, master students, examine and scrutinize the study before it is published. Through four different seminars constructive feedback has been given from fellow master students and in addition a final scrutinizing of the research has been done for establishing horizontal examination and critique. The fifth strategy includes involving the participants in the whole research process, which has been strived for as the participants have been contacted for adding any additional information during the research. This contact has explicitly been conducted through mail and any new important material has been added in the thesis. Finally, the sixth strategy the researchers should describe is the conception of the world from a theoretical standpoint with underlying assumptions. These assumptions are explicitly brought into the research and the authors have strived to achieve them through writing a comprehensive methodological section including the mentioned concepts. To conclude, the authors have achieved some internal validity, but some aspects could have been done differently if limitations like time and resources not have been so high.

As stated earlier, external validity could be really hard to achieve when conducting qualitative research as the results should enable a generalization of the population. However, a case study can contribute to a theoretical generalization which the authors will strive for (Yin, 1984).

Everything written about Husqvarna and their suppliers is based on the interviews and secondary material, therefore the authors assume the material presented to us to be valid. However, there is a risk that Husqvarna and the interviewed suppliers have been selective in what information they have chosen to publish or present to us. One could argue that it would have been good to interview people at different positions in the organization, to get a further understanding of the situation. However the head purchasing manager stated:

"*We want to share all information possible to all suppliers, the only information which could be seen as confidential for us would be acquisition information, personal information, or information concerning product development*" (A. Bengtsson, Husqvarna AB Accessories, personal communication, 2008-10-27).

The head purchasing manager stated a very liberal viewpoint on information sharing and the authors believe this strengthens the validity in our gathered material. When reading and interpreting a text the phrase: "reading between the lines" is often applied. The same goes for any social interaction and when any social research is conducted where a person interprets and processes the settings they need to "read between the lines" to fully interpret the answer. The art of making these interpretations make sense requires the researcher to analyze them with previous knowledge and finally end up with a trustworthy conclusion (Egidus, 1986).

2.4 Methodological reflections

The underlying concept of this chapter is to reflect upon our chosen scientific research approach. Emphasizing on how the authors reason, concerning the complexity in conducting social science and how the chosen path will be utilized during our chosen approach. When reviewing our Methodological and Method approach one can find both strengths and weaknesses in the chosen path. Starting with analyzing our Methodological approach, which has been conducted throughout the research, the authors have found strengths in issues concerning ontological and epistemological viewpoints.

Two master students working with this thesis, different experiences and backgrounds have sculpted the way of reasoning during the analyzing and interpreting stages. The research will yield a broader and better founded analysis and conclusion in comparison to if the authors would not have acknowledged our methodological standpoint. One reason for including a method section in a thesis is so another researcher can imitate the chosen approach and find similar results. The authors argue that this will not be possible, because when a new researcher conducts exactly the same method he will use his own personal experience and knowledge when analyzing and drawing conclusion from material. His findings will differ from ours, which does not necessarily need to be seen as something negative because when conducting research differentiation in solving different research areas will only enhance the research area. When conducting social research the researchers are using previous knowledge throughout the whole research process. The possibility to use such knowledge is one of the strengths in qualitative research. The outcomes in qualitative research will also be subjective. However, producing subjective research is not bad as the authors seek to explain and describe the chosen research area and not to predict the future. Researcher Egidus (1986) recognizes that every researcher has his own set of skills and experience and this will cause variance in each researcher's interpretation of a data set or problem. Hence, the authors have found that reasoning and in the end taking a standpoint concerning these issues will add credibility to our research and finally yield a more grounded and well founded conclusion. In our chosen method approach, one notice the chance for miscommunication when the interviews are translated from Swedish into English. Miscommunication derived from translation issues are always present and especially when the communication has been conducted through telephone interviews as the researcher cannot read other communication forms such as facial expressions and body language. However, the aim has been to diminish these risks as much as possible through recording the interviews and then afterwards analyzing the collected material. The translation issues have been dealt with as one of the researchers has lived in England and used competency in English to reduce miscommunication. Despite efforts concerning communication and translation misinterpretations the authors cannot guarantee that mistakes have not been made. Another weakness in the thesis is that a case study at a company has been conducted and consequently generalization issues occur. Though, the authors do not strive for enabling generalizations as one could not even not how the population would look like.

3 Theoretical framework

This chapter presents our frame of reference which is the theoretical foundation from which our research is conducted.

3.1 Introduction

To better understand the complexity of information logistics in a dyadic relationship, the introduction includes the research question and its relation to the chosen topics of the theoretical framework. The theoretical framework will be divided into three sub categories; Relationship factors, Information sharing, and Performance outcome. The main topic of the theoretical framework is the information sharing with a web-based system. In figure 5 the relation between the sub categories in the theoretical framework is visualized. The theoretical framework will start by explaining the underlying relationship factors that influence the information sharing process;

- What factors determine the level of information that should be shared?

Then the means of transferring information will be discussed before an argumentation concerning information logistics with a web-based system in depth will follow. The information logistics will include different metrics that can be involved in a web based information sharing relation:

- What type of information is needed to be shared through the web-based system?

Information logistics is a complex topic and can the information logistics be facilitated through a web-based system;

- Is a web-based system suitable for sharing information?

Finally the information sharing will be connected with the anticipated positive performance outcome. These performances are the outcomes that are measurable based on everyday operation. It is problematic to have a lot of information when making decisions, and including too much information may lead to the feeling of drowning in details.

- Can the information sharing with first tier suppliers be conducted using a template including the same information?

In figure 5 the theoretical framework is visualized and the relationship between the Relationship factors, Information sharing and Performance outcome is displayed. The rationale for including figure 5 is to clearly provide the reader with a figure to illustrate the chosen structure of the theoretical framework.

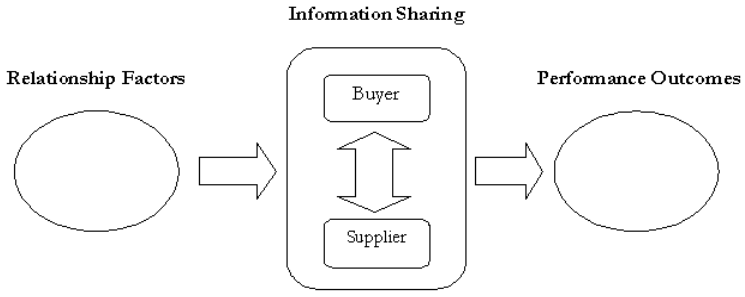

Figure 5: Theoretical structure

3.2 Relationship factors

The foundation for buyer-supplier collaboration is based on several factors. Hoyt & Hug (2000) claim that the buyer-supplier relation has developed from a traditional transaction based on arms-length relation, into a closer collaborative relation. Corsten & Felde (2005) explored the underlying factors for a closer, successful relationship and found that trust and dependence, together with information sharing, has a large impact on performance. The model for relationship factors is seen in fig 6.

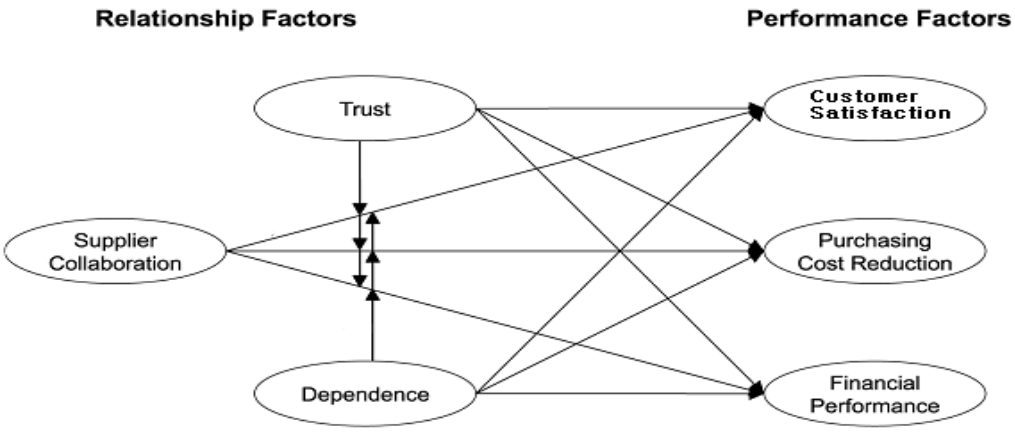

Figure 6: Collaboration model (Corsten & Felde, 2005 p447).

3.2.1 Collaboration

Collaboration has been defined as "creating value together" and "a high level of purposeful cooperation" (Corsten & Felde, 2005). Collaboration is positive when there is an expectation of continuing the relationship, increased verification effort by the customer and both parties make a specific investment in the relationship (Hoyt & Hug, 2000). Buyers tend to seek collaboration with suppliers that will add long term value, such as financial performance and cost reduction. Sheu, Yen & Chae (2006) also stress the advantages of changing the suppliers from an arms-length to collaborative relation. Collaboration is also a behavioral system based on dependence, power, conflict and satisfaction (Skinner, Gassenheiner, Kelley, 1992)

Collaboration might be the new paradigm for how business will be conducted. Huge global companies like Cisco Systems and Dell Computer has, through efficient collaboration throughout their supply chain, found successes and endless opportunities. The work of linking and integrating partners within the supply chain create future benefits which otherwise would not have been realized. Collaboration could have a broad meaning and the continuum is reaching from linking internal, interdepartmental business processes to more complex tasks like synchronizing a seven-tier supply chain (McClelland, 2003). Further, collaboration can be shown on different levels, a deeper collaboration which requires more resources where both partners are mutually responsible for the relationship. Collaboration, where partners are held at an arm's length, reduces both invested resources and dependen-

cy between partners. (Yang et al, 2007) Vereecke & Muylle, (2006) argue that organizations, simultaneously or one by one, can enter two different forms of collaboration. Collaboration can be focused on a more structural way of collaborating, such as initiating web-based systems, implementing kanban systems or even co-locating plants. The other form would be focused on the exchange of information between companies, such as sharing demand forecasts, sales, planning, inventory, and delivery.

Fawcett, Magnan & McCarter (2008) argues that true synergistic collaboration is rare within different supply chain networks. Often due to different scarce resources, managers go for short cuts or technological solutions instead of the more challenging cultural changes that are perhaps necessary for finding true synergies. Supply chain collaboration is not a guarantee for success and it has to be managed carefully and efficiently to obtain the required results. Vereecke & Muylle, (2006) states the importance of the collaboration concept and even says that collaboration can be a valuable approach for finding world class operational performance. However, the research concludes that, many companies use little monetary resources to investment in the collaboration process with customers and suppliers and therefore they can only expect minor improvements on performance measurement. A broader and more coherent strategy is needed, that focuses on both structural collaboration issues and information exchange issues. Companies will then find major improvements in numerous different performance measurements at the same time (McClelland 2003).

3.2.2 E-collaboration

Collaboration throughout the supply chain, with the assistance from different technological solutions, is called E-collaboration. With the help from different technological solutions and tools companies can facilitate the information logistics in areas such as, forecasting, planning and replenishment. E-collaboration relates to the facilitation of sharing and distributing real time information. (Cassivi, 2006). Cassivi (2006) continues the argument, that E-collaboration has risen to be a fundamental concept for finding a competitive advantage and for supporting efficient business process. Moreover, increasing the visibility throughout the whole supply chain, by sharing adequate, accurate and up-to-date information is a key factor for supporting an efficient business process.

McClelland (2003) declares that regardless of whether the medium is the fax machine, the internet or integrated computer technology, the capability to transfer data between concerned parties removes any reason to not be informed. Cassivi, (2006) reasons that the level of collaboration between actors in the supply chain profoundly reflects upon the type and amount of information which ought to be shared. Emphasizing, the importance of planning the collaboration, for enabling a sustained and effective E-collaboration. This planning is crucial for launching electronic collaboration tools and executing complex supply chain activities and the implementation can transform the way that business is carried out between actors in the supply chain.

3.2.3 Trust

Trust, is the fundamental concept for keeping a long-term relationship between buyers and suppliers and this relationship will make your company more competitive for the changeable market. Often the most pragmatic solutions are to simplify cooperation, transactions, cost negotiation and information sharing; this simplification is done through relying on the trust relationship. Fynes & Voss, (2002) argue that building a strong fundamental base of trust is the groundwork for making business transactions more efficient. Shin, Collier &

Wilson (2002) elaborate that when building the trust relationship one will find synergies in both operational effectiveness and product quality.

Trust is acknowledged as a basic as well as the most vital linkage between a buyer–supplier relationship, which in turn as a particularly significant aspect to create and maintain a strong and stable long-term relationship. Maloni and Benton (2000) elaborate, that when entering a long-term relationship with an organization value is created and costs are reduced and an increased responsiveness from both parties will be created. Landry (1998) argues that when entering long-term relationships, organizations have to build a solid reputation which says that they are a stable trading partner and from a social exchange perspective, trust is a core ingredient in presenting oneself as an attractive partner. Landry continues, when developing these trust relationships, it will encourage involved partners to feel more comfortable in collaborating and coordinating activities with one another.

Dyer and Chu (2003) elaborate that trust is believed to lower transaction costs, facilitate informal cooperation and lead to superior information sharing between the concerned actors. As a supplier, you should consider the following concepts

- Always keeps commitments made to your buyer company.
- Always be frank and truthful with your buyer company.
- The info provided is believable by your buyer company.
- Sincerely care about the welfare and business success of your buyer company.

Companies that build strong long-term relationships can take higher risks than they are aware of; relying too heavily on a supplier could be risky because that supplier could go out of business. The trust relationship has to be balanced in a diversified supplier portfolio.

3.2.4 Dependence

Pfeffer & Salancik (1978) claim that when a supplier has an investment or skill constrains, it forces them to specialize in smaller sectors with a limited customer base. With a smaller number of customers the dependence of these suppliers increases and the suppliers risk increases. A supplier can decrease the risk by establishing closer relationships with their primary customers. A higher degree of dependence results in better information behaviors (Provan, & Skinner, 1998), and a more valuable relationship with lower levels of conflict (Skinner et al, 1992).

Kraljic introduced, in the eighties, a comprehensive portfolio approach for a buying company. This was created for the classification of suppliers so they could evaluate dependence and bargaining power in purchase and supply management (van Weele & Gelderman, 2002). Kraljic claims that a company should be able to better avoid supply bottle necks, evaluate risks and find a supplier that is suitable for a closer relationship. This, in the long run, will ensure better product quality, lower costs and more secure deliveries. This could be done with a focus on product cost, value and delivery. Understanding the difference between the Supplier Can make the collaboration of information between buyer and supplier much easier (Kraljic, 1983).

The Kraljic approach was created to fully make use of the potential buying power when creating a buyer-supplier relation. The classification of the supplier products includes four sub categories; Strategic-, bottleneck-, leverage and non critical items, which is seen in fig-

ure 7. The results include four different main categories in which different products belong to:

- **Non-critical products:** The non-critical decisions are the ones with the lowest degree of preparation, based on simple market analysis and inventory models. The products have both have low profit impact and low supply risk. The buyer is not depending on the suppliers of these products and they could easily be replaced, which gives the buyer a high buying power (Kraljic, 1998).

- **Leverage products:** Leverage decisions should be based on vendor and value analysis. These products generate high profit combined with low supply risk. The buyer is not dependent on the suppliers of these products and the buyer has high buying power (Kraljic, 1998).

- **Strategic products:** Strategic products demand a high degree of microeconomic forecasting, risk analysis and closer supplier relations. This also means that the decisions are taken on by a higher executives. The strategic product generates high profit but it comes with high risks. The buyer is depending on a supplier that cannot easily can be replaced. This gives the buyer medium buying power (Kraljic, 1998).

- **Bottleneck products:** Bottleneck decisions should be based on specific market analysis. These products are important but generate low profit and create high risk. The buyer is depending on a supplier that not easily can be replaced, thus the buyer has low buying power (Kraljic, 1998).

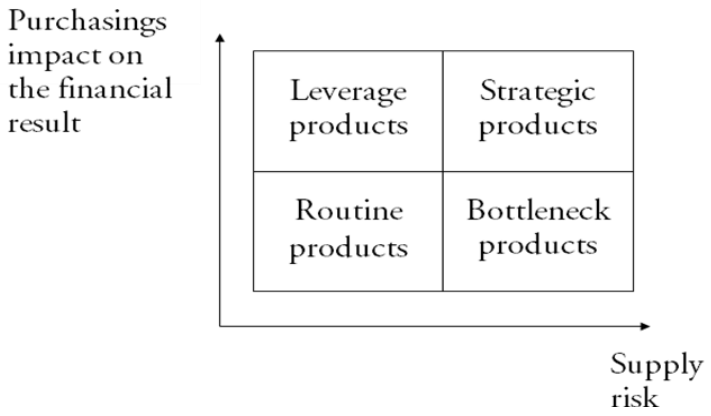

Figure 7: Dependency model (Kraljic, 1983).

When the products are defined, the buyer compares its bargaining powers with the supplier. The uniqueness of the product, the supplier's capacity utilization and cost and volume define the dependence and power condition of the product. Next, the valuation is used to upgrade the strategy and find areas where the supply risk is low and the buyer can push the supplier for financial gain, increased supply security and flexibility.

In the role of no power advantage, the buyer should take a reserved part and not risk the relationship, while when the supplier bargains from a position of strength, the buyer may have to offer long term contracts or pay higher prices in order to secure adequate supply. The action plan that follows is to secure the supply at lower cost. As an inferior part of the bargaining, it is up to the buyer to find alternatives, to single source suppliers in order to secure better conditions and security. By finding supplier substitutes the buyer can play the suppliers against each other. Any purchasing portfolio demands a regular update due to shifts in the supply or demand patterns (Kraljic, 1998).

3.3 Communication means

Electronic data interchange (EDI) is used as an overall term for all web-based communication and is a mean for transferring information. EDI is defined by Swatman and Swatman (1992) as cooperative inter-organizational systems that enable transition of electronically structured business information between separate computer applications. EDI has been around since the 1970's and is therefore one of the earliest types of B2B e-commerce technology. The world market for EDI is still growing, and the EDI networks has grown to be without a doubt the largest electronic channel for sales, forecasting, procurement and orders. Expected benefits for implementing an EDI system are to reduce costs, reduce paperwork, faster turnaround, improved control of inventory and suppliers, improved customer relations and improved customer service. Hence it could be a crucial element for gaining a competitive advantage.

Despite the numerous mentioned possible advantages companies still do not always succeed when it comes to implementing an EDI system among their suppliers. Chwelos, Benbasat, & Dexter (2001) argue that the average successful implementation rate for larger companies to implement EDI among suppliers is no higher than 20%. Such low rates imply that obstacles hinder the implementation process such as, high implementation costs, high data transmission costs, complexity in keeping up with standards, trouble in establishing an audit trail, inflexible message formats and the need for a technologically skilled staff are a few of the reasons.

Even though it has been given negative outlooks and forecasts, EDI has been one of the most expanded systems for utilizing web-based technologies. The high implementation costs have implied that generally larger firms are the only ones to seek to implement an EDI system whereas a total of 95% of fortune 1000 firms have implemented EDI (Densmore, 1998) Now companies that strive for EDI implementation have the benefits of analyzing previous failures among other companies and as Asher (2007) argues, there is huge benefit for companies who now seek to implement business-to business e-commerce as they now have the benefit of hindsight and can learn from previous mistakes.

3.4 Information logistics with web-based system

Information can be defined differently depending on the context and tends to be restricted to one part, never covering the whole environment (Madden, 2000). In this thesis, information is defined as: business information transmittable with a web-based system: The information should be valuable for the business processes and involve interpretation of the environment. According to Simatupang & Sridharan (2005) information sharing refers to the collecting and circulating of timely and relevant information to plan and control supply chain operation.

The traditional information sharing between buyer and supplier is based on an ordering system seen in fig.1, where the only information shared is the order. However, within buyer and supplier relation, several processes are related and depended on each other, like deliveries and inventory. These processes have increased the need for shared information and shared knowledge beyond the single order (Daugherty, Myers & Autry, 1999).

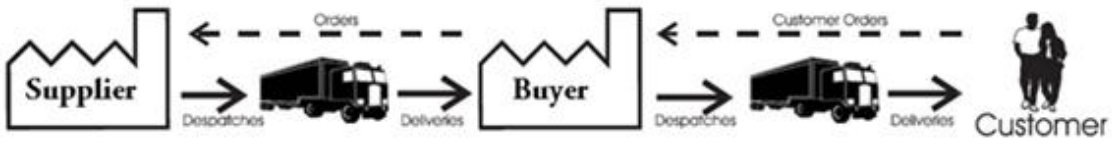

Figure 8: Information Sharing.

It is important to understand how to succeed in information sharing with both partner suppliers and transactional suppliers. (Jonsson & Zineldin, 2003). When changing the way of communicating, the more dependent the supplier is to the buyer, the more likely they are to cooperate with the buyer and adapt to their needs (Carr, Kaymak & Ross, 2008). One major impact on information sharing is the need for information to be available (Sandkuhl, 2008).

Several information systems are developed to help with the information sharing, to address the problems with cost efficiency and customer service. One of the main factors that the information systems focus on, is the inventory (Daugherty et al, 1999). Bassin (1990) claims that effective inventory management is very important in every company.

There exist different systems that focus on information sharing, for example Continues Replenishment Planning (CRP), Vendor Management Inventory (VMI) and Efficient Costumer Response (ECR) (Daugherty et al, 1999; Angulo, Nachtmann & Waller, 2004). In fig 9 the extra communication, that a web-based system offers, is visualized.

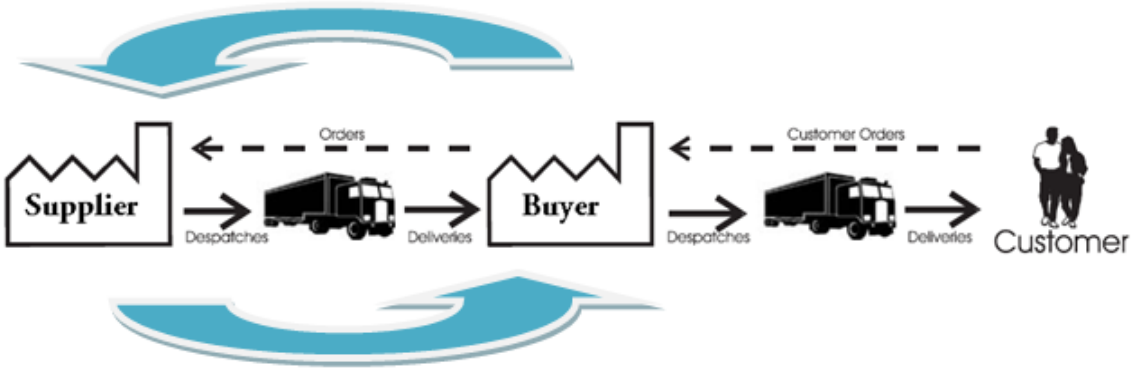

Figure 9: Information sharing.

When changing the way of communicating, it may lead to dissatisfaction due to switching costs whereas the company needs to invest in new communication systems. If the partners expect a positive outcome they can still be satisfied with the new collaboration (Jonsson & Zineldin, 2003). When a buyer-supplier relation does not function well, it is usually the result of a difference in expected benefits (Thakkar, Kanda, Deshmukh, 2008).

The web-based systems are only a mean for companies to address the strategic issue of product availability without unnecessary high inventory and putting customer satisfaction

in jeopardy (Daugherty et al, 1999). In a web-based system, orders can be excluded fully, giving the supplier the responsibility to keep the buyers inventory at a secure level and refill it based on forecast or direct demand. The characteristics of a web-based system are to shorten lead times, give more frequent and accurate deliveries that maximize production and transport planning (De Toni & Amole, 2005). To achieve this you substitute inventory with information (Daugherty et al, 1999).

A web-based system with automatic updating of information, grants the buyer two main benefits; reduced manual costs and less manual errors. By reducing the manual hours that are included when manually sending information with fax, e-mail or telephone, the web-based system offers cost savings, especially within countries with high labor costs. Using a web based system affects safety margins, safety stock inventory turnover rates and reduced product obsolescence (Vigtil, 2007).

Vigtil (2007) argues that transparency, demand visibility and the buyer's willingness to give demand data are the cornerstones for a successful collaboration. Özer & Wei (2006) agrees to this theory but claims that information sharing in practice is often held private by one company in order to improve their own profit even at the expense of a member in the chain. Angulo et al (2004) claims that information accuracy is the main challenge in information sharing with a web-based system. However, Sandkuhl argues that being able to use the information is the main challenge and the actor receiving the information should be able to understand and translate the information into action. Without knowing how the information is constructed the supplier risks making a false basis (Sandkuhl, 2008).

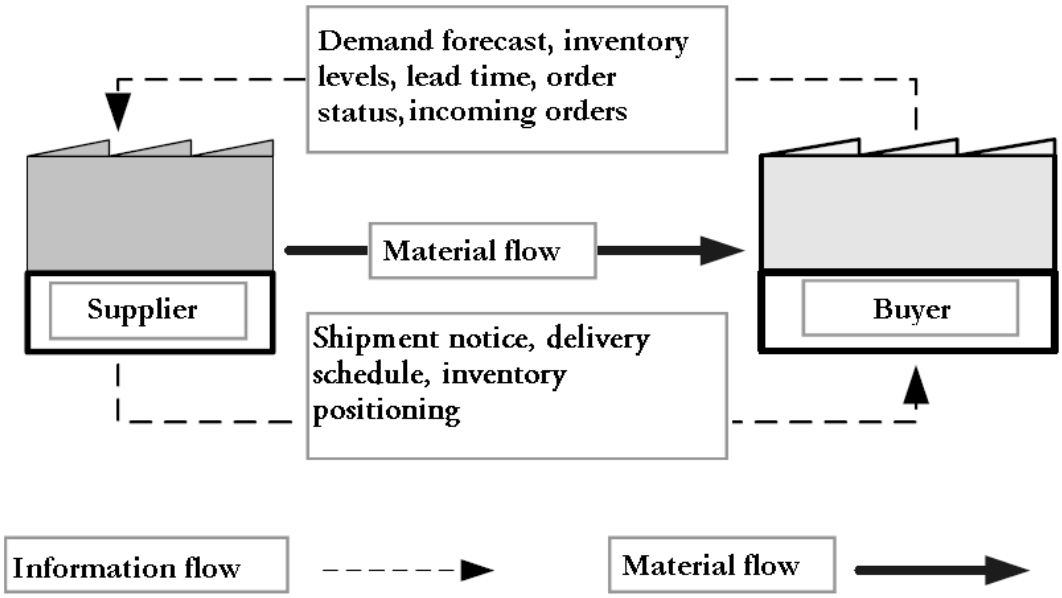

Figure 10: Information sharing between buyers vs. suppliers in detail (Vigtil, 2007).

To further illustrate the complexity of information logistics, one can refer to figure 10 for more in-depth explanation of the information flow between a supplier and a buyer. The buyer can share incoming orders, forecasts and inventory levels. On the other side the supplier can share delivery schedules, inventory positioning and give shipment notice. Making this two-way communication more efficient and avoiding different obstacles has proven to be a tough challenge for involved actors. The information is based on both a underlying knowledge and everyday information. Coyle, Bardy & Langley, (2003) claims that know-

ledge is as important as the supporting information. The agreement between the two companies in the relationship involves the standard requirement of the actors. And the knowledge is the approved exceptions to standard, for example how much can the buyers demand shift and they can still expect timely deliveries. The content of what information to be shared is a highly argued topic and it can involve: the sharing of demand forecasts, inventory levels, incoming orders (De Toni & Zamolo, 2005), inventory position, sales data, order status, delivery schedules and capacity. This information is equally important to increase profit as well as customer service. (Angulo et al, 2004). Lee & Whang (2000) did a survey and found that Capacity, Demand Forecasts, Production Plans and Promotional plans are the top four types of information shared. Hofman (2006) argued that one of the most common mistakes is having to many metrics and that it is hard to figure out how to respond to the information without drowning in details. The following headlines clarify these important concepts.

3.4.1 Frequency of information, information delay

To be able to make use of information you have to know have to interpret it (Sandkuhl, 2008). Frequency of information, is one such thing, updates should be adjusted for the individual need of the supplier. These needs become visible when the current order demand differs from the forecast demand and the supplier needs to adapt to the new circumstances (Mattson, 2002). McClellan (2003), So & Zheng (2002), and Simchi-Levi, however, claims that information sharing should be online and in real time with live updates (cited in Vigtil, 2007).

One challenge with information sharing is the information delay from the buyer and it refers to that the information needs to be available for the supplier in time to make decisions. Once the supplier has access to the information, a natural delay occurs because supplier needs to analyze the information before taking a decision (Angulo et al, 2004). The planning cycles are important variables when the supplier is to re-plan the production and the shipment schedule and it relies on that the information is the most recent (Vigtil, 2007).

It is not enough for the buyer to send frequent information, and to check that there is no delivery delay on the order, it is also important to know if there is a information delay in the suppliers end. If an order scheduled for delivery on Friday is based on the Friday demand information, there is no information delay. However, if the delivery is based on the information from Monday, there is a five day information delay. If the buyer audit the suppliers fulfillment process and lead times, it improves the understanding of the suppliers and may result in an overall collaboration improvement (Angulo et al, 2004). Frequency of information and information delay is knowledge about information, and it helps the involved companies to understand the complexity and the many aspects behind the information sharing.

3.4.2 Inventory management

One of the most commonly shared metrics in a supply chain is inventory levels (Lee & Whang, 2000). Inventory is at first glance an easy metric but includes factors that influence the product levels. The backorders and return of goods from customer is one thing that influences inventory levels. Gaverneni, Kapuscinsky & Tayur (1999) describes two cases of information sharing, first is where the buyer shares the demand and the order policy adopted by the buyer. In the second case the supplier gets additional information about the period to period inventory level (Lee, So & Tang, 2000). Keeping track on the inventory

level is one of the most important activities and the supplier should continuously check the buyers inventory (Vigtil, 2007). There are several factors that effects the inventory levels, besides the previously presented theories on forecast liabilities and demand uncertainties, these factors are back orders and returns, and stock withdrawals. Backorders and return have a direct impact on the inventory levels when the end customer still demands its order and that additional goods needs to be sent from the existing inventory.

The incoming of order and the withdrawal of goods, refers to difference in inventory handling. Inventory withdrawal information is when the inventory updates in the system by actual withdrawal instead of expected withdrawal that follows from an incoming order. The time delay that follows an incoming order before the withdrawal affects the suppliers data and production planning. On the other hand, the time delay are shorter if the company only handles finished goods and has short lead time to the customer. And a benefit of sharing the incoming order instead of withdrawal information is that the incoming order gives a direct picture of the actual demand (Vigtil, 2007).

3.4.3 Lead time, Production Schedule and Capacity

The benefits of information relies in the Supplier Capacity to react to the buyers demand (Lee et al, 2000). Lapide (2001) claims that information sharing must be linked with the suppliers operation planning to gain the benefits of the visibility. The information must have the opportunity to be transformed into action. Suppliers with scarce capacity should have higher priority to maintain consistent delivery times (So & Zheng, 2002).

The suppliers production schedule or the lead times indicates the delivery time and the buyer can foresee potential problems if short time changes occurs on customer demand (Angulo et al, 2004). There are also benefits to find in visualizing the buyers lead time to end customer. If the supplier has access to the buyers delivery lead time and the expected delivery date to the end customer, the supplier can more efficiently adapt to the needs of the buyer (Vigtil, 2007). The delivery lead time effects the inventory levels and the order quantities, a longer lead time creates larger inventories and higher uncertainty in times of high levels of fluctuations in customer demand (So & Zheng, 2002).

If the supplier has long lead time and low capacity the buyer might provide misleading information to induce the supplier to build up capacity (Özer & Wei 2006). However, the frequent update of truthful information helps the supplier to maximize the usage of the capacity to meet the demand (So & Zheng, 2002). To increase the understanding the companies can share supporting information involving a capacity spectrum which a supplier guaranty to deliver within (Coyle et al, 2003). In this way the buyer has understanding for the actual capacity of the supplier and can adapt accordingly.

3.4.4 Order fulfillment

Bolstorff (2003) argued the importance of measuring the performance of the supply chain. The delivery performance is strongly correlated the overall performance, and by measuring one time deliveries, and the number of full deliveries the buyer can see if the supplier fulfills the agreement. It is also good for the supplier to check how well they perform towards the buyer. Bolstorff mentions backorder is a metric which explains that an order is incomplete. the company can derive the reason for the backorder to either wrong volume or products not passing quality control. This information informs of problem in the supply chain and the performance.

3.4.5 Forecast information, Demand forecast

Demand or sales forecasts are the predicted sales of each specific goods. When the buyer share forecasts with a supplier the supplier grants a larger time window to adapt the production to supply the orders. It also means that the supplier can plan their capacity after that planned future demand.

For the supplier, they can then plan their production better and optimize their business. However, if the relationship also is based on final orders, the supplier might have started producing in advance and therefore are a bit vulnerable if the final order differs from the forecast. This in turn can be addressed as a problem, if the buyer overestimates forecast the supplier build up more capacity and more inventory. If the forecast, on the other hand, are smaller than final demand the supplier might not have capacity to deliver on time (Cachon & Lariviere, 2001). The web-based system could decrease inventory level and help replenish the buyers inventory based on forecast and/or sell-through information.

The closer the company is to the end costumer the more accurate is the demand information (Cachon & Lariviere, 2001). It has been observed that upstream firms are more vulnerable to demand fluctuations. Uncertainty of customer demand and order fluctuation leads to that companies are forced to keep extra inventory or invest in extra capacity to be able to deliver in time (So & Zheng, 2002).The problem can be referred to problem in forecasting practices and a solution is to make the data available to upstream suppliers(Lee, So & Tang 2000; Angulo et al, 2004).

It is often that sales increase or decrease over the cause of a year, changes that is anticipated by the buyer. These foreseen changes is important information that the supplier needs. Sharing long time forecasts for seasonality of products and promotional events are important (Småros et al, 2003). Promotional events are hard to predict for the supplier and they should be informed of such changes. Vigtil (2007) continues and claims that updating these forecasts regularly is important for suppliers to plan their operation.

3.4.6 Sell- through information & Point of sale

Småros et al (2003) argues the importance of sell-through information. Sell-through information is when the buyer transfers the sales information from there costumers direct to the supplier without the buyer placing a order on its own. (Småros et al 2003; Disney & Towill, 2003). Sell-through information can also be used instead of delivery information. The demand will be direct, in real time and truthful which increase the transparency between the companies (Disney & Towill, 2003). The information however, shows only present demand and does not include forecasts or future sales. When the supplier delivers final goods to the buyers inventory the sharing of sell-through information is considered very important. (Vigtil, 2007)

Point of sales is where the product is purchased by the customer. The sales information does not only include the sales quantity but also where in the world the actual sale is made. The point of sale can help the collaboration if the buyer has several warehouses, and similar to the sell-through, the demand accuracy can be improved. (Lee et al, 2000)

3.4.7 Shipment notice and Delivery information

An advanced shipment notice is a message from the supplier to the buyer that the order is shipped. This information help the buyer with its planning decision, preparing for receiving and allocating the goods. The shipment notice also benefits the buyer because it guarantee the arrival of goods and therefore secure the delivery of orders to costumers. The shipment notice can include product description, quantity, delivery date and destination. A shipment notice is mostly useful when the buyers warehouse has limited capacity and resources, which makes them unable to control large volumes of incoming goods (Vigtil, 2007).

To share real-time information or tracking information on deliveries with its trading partner is a base for better planning and for inventory reduction (Chow, Choy & Lee, 2007). Kerr (1989) claims that sharing real time delivery information and delivery schedules is valuable for the supplier as it enables them to fully brief the buyer and demonstrate control even in critical situations. The buyer experience saving time with simplified delivery confirmation and product allocation.

Goods in transit are the goods on the way to suppliers warehouse and, depending on the system, may not be included in the inventory status. Inventory positioning refers to if the product allocation and if the inventory is the aggregated inventory based on goods in transit and inventory spread on several warehouses. If the inventory positioning is included in the system it is easier to adapt to the customer needs (Angulo et al, 2004).

3.5 Performance outcomes

Performance outcomes can be perceived as the outcome that follows an increase in collaboration and buyer-supplier information sharing. Those have Emmett & Crocker (2006) exemplified as lead time reduction, shorter order-cycle, the minimizing of inventory, batch sizes and tied up capital to increase overall performance. There is not a guaranty that the increase of collaboration with information logistics has a positive outcome. Information that do not aid the business processes might lead to negative performance outcomes. This section focuses on the performance outcomes that are measurable in everyday activities between a buyer and a supplier. Simatupang & Sridharan (2005) argued for a number of measuring points companies can use to evaluate the collaboration. These key factors to buyer-supplier information sharing, indicate within what areas the researchers believe the relation should focus on to succeed. And Coyle et al (2003) argue that for the different factors, the inconsistency is important. For example, if the company only achieve the stated on time delivery 50% of the time, the other company will be disappointed half of the time. The authors have divided the performance outcomes into three categories, customer service, Quality, Cost and Productivity.

3.5.1 Customer service

According to Seth, Deshmukh & Wrat, (2006) customer service has a large impact on suppliers, customers and employees, but also influence the overall growth of the company. Poor quality of service will lead to worsen market reputation, delays in response to customer needs and increased response time to market. The service impact can be seen in increased inventory when the lack of efficient information sharing forces the companies to secure deliveries with more products in stock. When the service is poor the actors in the supply chain are not encouraged to provide timely nor correct information, and it becomes harder to foresee customer needs which decreased capability to respond to demand. Higher

inventory and more problem to plan the operations leads to loss in business performance and decreased profit (Seth et al, 2006). There exist several costumer service measures that help understanding how it has impact on the buyer, and the relation with suppliers. Morash (2001) present fill rate and stock outs, which is a inventory measurement for how well the relation function. If stock out exists, the fill rate is inadequate and needs to occur more often.

The order measurement complete orders, on-time deliveries and backorders refers to how well the company fulfills the customer need and is important factors when it comes to customer satisfaction and the trustworthiness of the company. The customer complaints gives the performance from the customer needs and the company can include how well the company respond to the complaints. These measurements are important to have to control the performance outcome in the company (Morash, 2001).

3.5.2 Quality

Quality refers to the quality of the products and deliveries and how it effects performance. To measure the quality of the products and deliveries the company can derive how efficient the supply chain function and within which areas improvement can be made. Many of the Quality measurement have a strong connection with order fulfillment like On-time delivery, Complete order, and accurate forecast demand (Coyle, Bardi & Langley 2003). There are several ways how information can help measuring the quality, number of claims for example shows damage frequency and how often a product needs to be reclaimed and replaced when product quality is insufficient. Picking/delivery accuracy, delivery errors and returns due to wrongfully shipped orders gives how a company can improve deliveries (Morash, 2001). Other factors that helps the understanding of the operation are the forecast accuracy, planning accuracy and schedule loyalty, these factors are derived from how the well the administration communicate and share information with the producer. Quality is strongly correlated to the overall end customer satisfaction (Coyle et al, 2003).

3.5.3 Cost

The Cost is the measurement of efficiency, and often gets high attention due to its relation to the competitiveness on the market. The cost is strongly correlated to quality and customer service but also have some distinguished metrics. The most observable cost is the transportation costs, inventory carrying costs and the costs of products. However, behind these costs there exists inventory turnover, which is a harder cost to specify as it explains the time finished goods are held in inventory before they reach end costumer (Coyle et al, 2003). Morash (2001) explains that administrative costs are harder to derive as is not bound to a specific product and therefore hard to stick to a specific unit. Further one can derive that information of service failure and backorders can improve the understanding between a buyer and a supplier and increase profit.

3.6 Theoretical summary and reflections

When summarizing the theoretical framework one can better understand the complexity behind the information sharing with a web-based system. To visualize the view of the theoretical framework the authors constructed a figure that explains how the different sections are correlated with each other. See figure 11.

The figure shows how the "Relationship factors" block influence the "Information sharing" block, and where the Collaboration, Trust and Dependency affects the possibility for successful information sharing. The Information sharing involves a circulation of information between the buyer and supplier, which in turn affect the performance outcome. Each specific information metric within information sharing has an impact on the three performance outcomes in the "Performance outcomes" block: Customer service, Quality and Cost. The operational efficiency refers to the overall performance in the dyadic relationship which is present.

The Information Sharing block is the nave of the whole picture and consequently the placed in the middle section. Theory has shown that information sharing is affected by Relationship Factors and Information sharing is in itself affecting performance outcomes. (Blundel 1998); (McClelland, 2003) (Corsten & Felde, 2005). Hence intuitively the following structure of figure 11: Relationship Factors, Information Sharing, and Performance Outcomes

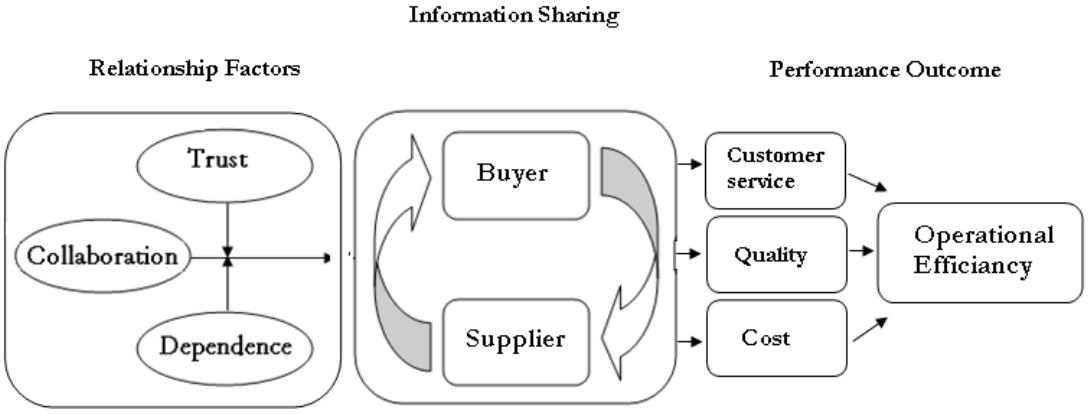

Figure 11: Enhanced information sharing derived from theories

The First block is the "Relationship Factors". The foundation for the relationship between the buyer and the supplier, and what the authors named "Relationship factors". The relationship factors collaboration, trust and dependence are complex in themselves in theory, and even more when putting them together. It is hard to find true synergistic collaboration (Fawcett et al, 2008). Collaboration demands shared responsibility (Yang et al, 2007) and it is not often both companies are equally dependent or trust each other enough, so the responsibility comes naturally. And when it comes to building closer relations it often fails because managers often go for short cuts or technological solutions instead of the more challenging cultural relationship factors (Fawcett et al, 2008). Kraljic (1983), among others, claim that a buyer should collaborate differently depending the supplier, and that when a supplier is small and is depending much on the buyers, the buyer should act on the bargaining power opportunity to reduce costs. This section facilitated the understanding of the differentiation of suppliers and the complexity on bringing all suppliers into a web-based system. It can be seen in theory that the relationships factors have a large impact on the information logistics and Dyer and Chu (2003) claimed that you always should keep your

commitments, be truthful and provide believable information to your partner. Therefore, the Relationship factors block is presented first in the model as the relationship is the foundation on which the information sharing is based on.

The second block "Information Sharing" is a circulating activity where both partners are sending and receiving information. The theoretical framework presents a large variety of information that can circulate in a dyadic relationship. The buyer can send orders, forecasts and inventory levels which the suppliers receive. The supplier can for example send delivery schedules and shipment notices (Vigtil, 2007). The topic information can be divided into two sections, background knowledge and visualized information. Background knowledge is the information that is important to know to fully understand the visualized information, the texture behind the information that is circulating. The visualized information is the information that is presented as data and figures in a web-based system.

The categories that are interpreted as background knowledge is the information update frequency and time delay which is crucial when evaluating the trustworthiness and value of the forecasts and inventory levels. Also, capacity and lead time is background knowledge, these metrics can in it selves be displayed, but also can be problematic when larger changes in buyer demand occurs, for example during a promotional event. Coyle et al (2003) claims the importance of the background knowledge is the information explained as "approved exceptions to standard". When short time changes in demand occur the knowledge of the suppliers adaptability for change is crucial for the expectation to fulfill the demand. Furthermore, if the expectation is agreed and approved beforehand, the buyer can only expect a specific increase in demand to be manageable for the supplier.

When focused was laid at the technological means, the authors did find that the sharing of information with a web based system is not a technical problem, one could easily share large amounts of information without any effort. The problem is that the technology can share more information than humans can process, and therefore Hofman (2006) have a point when arguing that too much information makes it harder take decisions. Sandkuhl (2008) argued that the information must be usable to be of any value.

The third block is the "Performance Outcome" where one can see that there is a lot of metrics of information that determine the operation efficiency. The measurement of collaboration relationship helped to understand how the sharing of information influence customer service, quality and costs and, how these factors affect the will to share information. The Cost metric is related to inventory handling, transportation and production cost and has impact on the individual performance. Quality can be derived from on-time deliveries and backorders which is the performance that is related to the activities towards the buyer. Customer service could be seen as the overall performance as the suppliers ability to fulfill the customer need are important factors when it comes to customer satisfaction and the trustworthiness of the company. The different performance factors can be tracked and followed up with information sharing.

4 Empirical findings

This chapter presents our empirical findings which is the collected material on which our research is conducted from.

In this section Husqvarna and the suppliers opinions of the information sharing will be explained. Today several suppliers have access to the web-based system, this means that they, for some or all of their products, have access to different information concerning their products. The web-based system is referred to as Replenishment in the previous Methodology heading. Hence, these suppliers have more concrete views on how the system can be improved. The other part of suppliers do not have access to the web-based system and therefore provide their formal belief on how such a system could influence their operation and their relation with Husqvarna. Today the communication with suppliers is based on mail, fax and telephone. The reason why these issues are brought up is to make it easier for the reader to understand the background of the supplier's view of information sharing, their fundamental knowledge concerning both strengths and weaknesses with the existing information sharing procedure. For further facilitating the reading company names will be used instead of the person's name when referred to, although the person's name will be used when citing direct quotations.

4.1 Relationship factors

When it came to different views on how information sharing influenced the relationship, the interviewed suppliers varied in their answers. However they all emphasized the importance of sharing correct and accurate information to ensure reliance on the information. The shared information will influence the supplier's decisions and increase the comprehension among those involved. One Supplier elaborates:

"Information sharing is really important for develop an understanding of business partners. A deeper and more grounded understanding will yield efficiency and a dynamic relationship. In a really good and efficient relationship, where the involved partners understand each other's need, comparison could in many ways be drawn to how a family works" (Person A, Supplier A, personal communication, 2008-11-27).

In numerous occasions uncertainties regarding information resulted in suppliers questioning the information and consequently the integrity of the information is jeopardized. In addition, the lack of information caused uncertainty which strained the relationship between Husqvarna and their suppliers. Suppliers strived for a deeper insight into Husqvarnas organization and on how they did business. Husqvarnas settled the uncertainties by increasing the shared information. However not all types of information was wanted for improving the relationship as suppliers had their own preferences and necessities. The general understanding of the suppliers was that they were satisfied with the present relationship with Husqvarna.

Supplier C has been a supplier and partner with Husqvarna for almost 25 years; consequently they have a very close relationship. Both partners have extensive experience in conducting business and have a high understanding of each others organizations.

Supplier A argues that information sharing is of great importance when it comes to getting an understanding of your business partners. Supplier A continuously says that information increases the understanding and it facilitates the customization they can offer Husqvarna. Supplier A builds their production from this mind set; hence they argue that if the credibility and accuracy in the shared information increases, they would find significant synergies in their organization and consequently improve their relationship. Supplier A has a good rela-

tion to Husqvarna as they feel that the information shared has increased and that Husqvarna is very obliging.

Supplier B discusses how the responsibility changes in a relationship when implementing a Web-based system, he explains that the responsibility shifts from the buyer to the supplier. Hence it is important to integrate such a decision among suppliers before the actual integration start. Supplier B emphasizes the importance of simplicity in technological support. A web-based system could be a great tool for facilitating in meeting the new responsibility challenge. Supplier B feels that their relationship with Husqvarna is good. However improvements in the information sharing process could improve their relationship.

Supplier F explain the complexity in gaining a good insight in others business. Supplier F discusses that a closer relationship in times of uncertainty could be beneficial and connects the reasoning to the context the present financial crisis offer.

4.1.1 Collaboration

When describing the empirical findings from the interviews with suppliers on how information sharing effects collaboration and vice versa supplier describes a very dynamic process. Some suppliers argued that the closeness of collaboration relied on the shared information. Other argued that the shared information relied on the collaboration between the organizations. The suppliers that were interviewed all had different relations to Husqvarna; some have a close relationship while others are held at arm's-length. However suppliers agree that an increase in the information flow could yield a better understanding and consequently also improve the collaboration. Correct and accurate information is regarded fundamental and the consensus is that collaboration would increase if Supplier Could rely on the shared information. The level of collaboration with suppliers differed because every relationship had their specific needs.

Supplier D collaborates very well with Husqvarna, they interact with each other a couple of times a week and complement the interaction with mail communication. However Supplier D argues that the collaboration could be made more efficient through gathering all information in the same place.

Supplier F does not see any reason to implement a web-based system nor any reason to improve collaborations. Supplier F does not see any expected profits or financial gains in implementing a web-based system with Husqvarna, the reason being they already have an extensive information exchange with another offspring of Husqvarna and Supplier F does not exchange that much information today. They also think the present relationship is efficient. Though, the reasoning is slightly contradictive as Supplier F states that in times of uncertainty, such as the present financial crisis, there is a need to further improve the collaboration.

Supplier A emphasizes the importance of understanding your business partners and that synergies could be found through closer collaboration. They strive for a closer collaboration with Husqvarna, Supplier A seeks to adapt their organization for meeting Husqvarnas needs. The adaption process could according to Supplier A be facilitated through improving the information sharing.

If the information sharing was to be improved Supplier G would have a closer collaboration with Husqvarna and consequently make improvements in their organization in terms of scheduling and planning deliveries. Husqvarna possesses a comprehensive understand-

ing on how Supplier Gs operation works and the partners collaborate closely. Husqvarna are good at forward planning and respect Supplier G capacity. Husqvarna even visited Supplier G a number of times over the years to gain a deeper understanding on how the organization works.

4.1.2 Trust

Trust is for the suppliers regarded to be an important concept and the overall understanding of the suppliers is that Husqvarna is a trustworthy business partner.

"We have a good relation and we trust Husqvarna AB Accessories and we hope that Husqvarna AB Accessories trust us" (Person F, Supplier F, personal communication, 2008-12-04).

The concept of trust is mentioned in many occasions; often in the same sentence as the reliability of the information that suppliers receive. The information that Husqvarna share with their suppliers differs in reliability. For example the forecasts have mentioned that they are hard to rely on. However, suppliers make a distinctive difference in trusting the information that Husqvarna share and the trust that they have for Husqvarna as a business partner.

For Supplier D the forecast system works well and most of the information received from Husqvarna is trustworthy. However Supplier D has encountered problems with the forecasts relating to the demand in Russian market.

Supplier E describes satisfaction in their present relation with Husqvarna however Supplier E cannot promise that they will look into the updates in the web-based system every day. Supplier E is open for new technologies and would use the web-based system as long as the information is trustworthy.

Supplier C discusses the importance of forecasts and believes that if the forecasts were more accurate and trustworthy they would have used them more often. Supplier C states that a forecast is very good to have when it comes to the planning of production and if the forecasts are wrong it could yield problems with deliveries.

Supplier A stated that it is important that a web-based system is easy to use, but the most important thing is that the information shared is correct; otherwise Supplier A cannot depend or believe the information. Hence that information is useless. In the future, they hopes that the present web-based system will be developed and become more trustworthy and that all information will be gathered in the same system.

Supplier B describes the importance of getting access to trustworthy information as their lead time from India, from which their production take place is over 5 weeks including delivery time, hence, scheduling and receiving clear and correct delivery dates are important. Supplier B however continues saying that such a long lead time yields uncertainties and these uncertainties can normally be solved with Husqvarna.

4.1.3 Dependency

When browsing through the findings connected to dependency one could find a wide variety of answers concerning how important Husqvarna is to their respective supplier. However the general opinion by the supplier's state, that Husqvarna is an important customer to their organization. In terms of the turnover numbers that Husqvarna provided for each

supplier, they stretched from a modest 3-5 % to a significantly higher 80%. Though, suppliers do not measure dependency solely in terms of turnover. For example Supplier G saw Husqvarna as a strategically important customer even though the turnover rate derived from their products is only 3-4%.

"Husqvarna products are prioritized at Supplier B and this could at times be risky, especially if we have scheduled our production after forecasts and are depending on that Husqvarna actually buys the products. So if there exists other suppliers supplying the same product, information sharing should be increased, so that we do not have to have high dependency derived from uncertainty" (Person B, Supplier B, personal communication, 2008-11-28).

Other treated Husqvarna as an important customer because they purchase specific products which are of importance for the supplier.

Supplier D perceives Husqvarna as an important customer and a very stable and trustworthy business partner. Supplier D believe that if the information shared could be improved and made more fruitful they could reduce time consuming activities, like mail handling and telephone calls, and improve their operation efficiency

Supplier C emphasizes the importance of Husqvarna as a crucial customer as Husqvarna stands for over 80% of their turnover.

Supplier A claims that Husqvarna has their highest priority and covers 30% of the organizations turnover. The turnover is expected to increase as the products that Supplier A offer has a promising future in the market.

Supplier E mainly delivers one product to Husqvarna. This product is very important from a strategic stand point as Husqvarna is the only customer purchasing the specific product; consequently Supplier E prioritizes this product.

Supplier G defines Husqvarna as an old and loyal customer. Supplier G has a wide product range which is delivered from different departments. Based on the entire Aerosol, Husqvarna covers about 3-4% of the turnover. In the technical department they have about 150 customers and Husqvarna are in the top 15.

Supplier F state that Husqvarna is an important customer and they are rated as one of their top five. Most importantly Supplier F claims that they have a very important product that they deliver to Husqvarna accessories. However, Husqvarna was considered to be a more important customer in the past as their turnover has reduced. Today 5-10% of Supplier F turnover is connected with sales to Husqvarna.

4.2 Communication mean

The general view of suppliers is that their staff should not have any problem with navigating or using a web-based system. Being in an internet based environment and having skills and experience working with computers, the staff is suitable to use such a system. Even though problems may occur in using a web-based system, the trouble will most likely not be due to the employees' lack of computer skills. Being able to easily find the information in the system is mentioned by all suppliers as an important aspect. There can be trouble using the system if the information is not easy to find. When introduced with the idea of having a web-based system that handles the information sharing, the general consensus was that the system must be easy to handle and the information you seek should be collected in

one place. If the information is spread around in different places in the system, there can be a suppliers will be reluctant to use the system.

"It is hard to fully replace the use of mail and similar communication, however the vision should definitely be to minimize those activities" (Person A, Supplier A, personal communication, 2008-11-27).

The web-based system is a web address which means that the suppliers do not need to spend time and money to implement the system. The initial investment is the learning process and how to involve the system in daily business. The time spent nurturing the corresponding production was influenced suppliers' willingness to use the system.
The general opinion derived from the interviews was that when the supplier felt they used a lot of information to plan the production, they spent a lot of time finding the information. There must be a reason to visit the web-based system and it is important for the application that all the information needed be easily accessible. If the information is not useful or hard to convert into practice, the system will not be embraced. The same goes for the integrity of the information, the system will not be used if the information does not correlate to business's performance. The general understanding of the suppliers was that when the important information is structured, collected and presented in an easy, accessible way the web-based system is more likely to be used.

The supplier G, Supplier E and Supplier B feel that Husqvarna accessories cannot expect them to check the web-based system every day. The application is an extra system and the suppliers feel that it is problematic using another system besides their own because then they are forced to check information in two different places. Supplier D has a large product selection and when the idea of sharing their product information with Husqvarna was suggested, they were skeptical. As Supplier D's product information is in another system it would be time consuming to update it in the web-based system. This would not be possible unless the web-based system was integrated into their system.

"As a planning tool, it sounds great" (Person G, Supplier G, personal communication, 2008-12-05).

Supplier G has several order handlers on Husqvarna accessories orders, and forcing all of them to check in the web-based system can get problematic. Supplier G think that the web-based system can be used as a side system that they can use when they have extra time, but it is uncertain whether there will be a positive outcome when using it as a planning and a delivery notice system. Supplier G believes that every customer has a specific set of preferences and consequently different needs, and for suppliers trying to make every buyer satisfied, there is a risk that the work will be inefficient.

4.3 Information logistics

The information that Husqvarna accessories share with the suppliers today is not identical, different suppliers have different opinions on what information is most important for their business. If the information the suppliers receive could be received in a more convenient way the consensus is that they would be interested. When introduced to the concept of receiving additional information the general understanding was that it must serve a purpose and potentially improve the operation. The general understanding of the suppliers is that the will of Husqvarna is valued highly and if possible, the suppliers are willing to oblige Husqvarna. But also, when facing the suppliers individual settings, the positive outcome of

the information sharing should be apparent for the supplier in order to take part in the collaboration.

Information sharing is regarded as being connected to the necessity for supporting knowledge in production and delivery planning. When the suppliers were in the setting of relying on information from Husqvarna, the willingness to receive and share information was regarded highly. When there was no need for supporting information there was a reluctance to spend time in improving the information logistics. The parties involved want to take exactly the amount of information that is important for their specific set of circumstances; but the consensus is that meaningful information is always good to have. When the product does not need to be stored in different inventories the product will float through the supply chain without any unnecessary holding or handling costs.

"*If we could improve the information sharing we would probably enable synergies with the product flow towards Husqvarna*" (Person D, Supplier D, personal communication, 2008-12-04).

The sharing of information is perceived to be a reassuring act, the information improves the understanding of the other actor. By sharing information and knowledge, both parties reassure that they understand the other's situation. The general understanding of the suppliers is that the information should flow in both directions and all agree that an active response on Husqvarna's demand is important. When discussing the potential positive outcomes of the information logistics, the general comprehension was that shared visibility is a path towards a more effective performance.

The trustworthiness of the information is regarded by all to influence the need for information. Supplier C, Supplier A, Supplier D and Supplier B opinions are that if the relevant information received is correct, the information is appreciated and used. Supplier F delivers small volumes and share information through telephone and mail, hence they do not see any weaknesses in the current system where there is no supporting information besides the order. Supplier A respond to Husqvarna when they receive an order, they also send information when the order is finished and shipped and if their circumstances for deliveries change they see as an obligation to inform Husqvarna.

4.3.1 Frequency of information, information delay:

The frequency and the update of information were regarded by all suppliers to be central for the use of information, and the outcome of the information sharing. When the information does not reflect the present time it is of no use as supporting knowledge. If the information is not congruent with expectations and present circumstances, the consensus of the suppliers is that it might be misleading and have a negative effect on the performance. The usage of the most recent observation should be the most trustworthy ones and should be the ones that decision are based on. The consensus of the suppliers is that information should arrive at the addressed destination in time to be used.

Supplier G, Supplier E, and Supplier F believe that the information should be on time and reflect Husqvarna need. If the information is not updated they have no use for the information and consequently in the future stop using it. Supplier A found that sometimes they receive information that contradicts previous information which causes confusion. When the information is not clear or applicable the trust in the information decreases and loses its value. Supplier C gave an example concerning the reliability on the updates, today in the web-based system the inventory can go from being fully stocked to being almost empty

very quickly. The time delay on pick out on products at Husqvarnas inventory makes it harder for them the fully use the information.

4.3.2 Inventory

When the suppliers discussed the concept of inventory the consensus was that inventory, lead-time and delivery time are related to each other. When the lead-time is longer than the need for delivery date for inventory emerges. Inventory has a cost relationship with the goal to deliver fast and secure deliveries.

The general understanding of the optimal production situation would, according to the suppliers, be to enable production and delivery without any inventory costs. But, until that is possible, the goal is to reduce the inventory to a minimum and still keep the delivery obligations.

The concept of full VMI, where the suppliers are responsible for the buyer's inventory is not implemented at Husqvarna. The inventories levels are something that Husqvarna are open to share with the suppliers for the purpose of giving the suppliers the opportunity to better plan their production. When visualizing the inventory at Husqvarna the supplier can follow Husqvarnas capacity to deliver, and when the inventory levels diminish the probability that they will place an order increases. The upcoming order could be predicted and the supplier can therefore start their preparation of the order earlier. It all leads to a better forward planning and the possibility to make better operation decisions. The general idea of the inventory information is that it should be trustworthy and that the information that the suppliers receive should reflect the present time.

From the buyers point of view insight into the supplier's inventory situation can be useful. To some extent this information is shared today. If increased demands arise it could, within a short time, increase the need to receive more products. By having insight into the suppliers inventory Husqvarna can check the suppliers possibility to deliver earlier, and therefore speed up the process and place an extra order. The consensus of the suppliers is that they do not see any problems sharing their inventory levels as their goal is to please Husqvarna. The modification of an order is not unusual in the present collaboration. The inventory levels are not considered to be a secret, not for Husqvarna nor for the suppliers and if it is easy to update, they are open to the idea of sharing inventory information.

Supplier A and Supplier C plan their operation based on Husqvarna accessories inventory status and the inventory information has a strong impact on their performance. They find the inventory information to be supporting when planning their production and they can better predict the future sales. For Supplier E, inventory information cannot ensure a financial gain as they produce specialized products which they produce on demand.

Supplier D would like to know inventory levels on a regular basis, today Husqvarna accessories do sometimes mail Supplier D when their inventory levels are low. Supplier D believes it could deliver earlier if they could see that Husqvarna inventory is running low. Supplier D feels they could help Husqvarna accessories to secure delivery while making their performance more efficient.

Supplier A experiences some problems with their insight in Husqvarnas inventory levels. For example they once saw that Husqvarna had no stock on a certain product, but this specific product was included in a special kit. Hence if Supplier A would have produced and delivered this product Husqvarna accessories would received products they did not

demand and were in no need for. Supplier G is skeptical about updating their inventory themselves in a web-based system because it would include additional work for them.

4.3.3 Order fulfillment

The consensus of the suppliers is that knowing order fulfillment errors is important, it gives information on how well they perform towards Husqvarna. Backorders is a performance measure for the suppliers, and it is praised to be very important. When something is not satisfactory with the product quality, or delivery volumes the suppliers want to know so they can correct the mistake and improve their operation. The information is regarded as crucial as it is a measurement that shows how pleased Husqvarna is with their performance. The general understanding of the suppliers is that they all receive, or hope they receive, a notice on inaccurate deliveries or faulty products. The information is regarded so important that it should be shared through personal communication via telephone.

Only Supplier G claims that knowing the back orders errors might be a bit problematic as it might be hard to track whether it was Supplier G or Husqvarna that made the mistake.

4.3.4 Lead time, Production Schedule and Capacity:

The general opinion of the suppliers is that the lead-time and capacity is regarded as an important factor in their organization. It is important for Husqvarna to know and respect the lead time of the supplier. A products lead time is often fixed and hard to change to fit new circumstances. The concept of extra capacity is not good for business so the lead time does strongly influence the importance of forward planning. The suppliers share the understanding that when the lead time is respected they can plan their production in a more effective way; which helps in reducing inventory and securing deliveries. However, when the order is placed with a too short delivery date, the suppliers might be forced to deliver late. When the capacity is limited the need for demand forecasts is extremely important. Due to the importance of lead time the suppliers are unanimous that when changes occur in their possibility to deliver, they always inform Husqvarna. The perception of the suppliers is that if Husqvarna wants an order delivered faster, then they will do everything in their power to do so, even if it means slowing down other operations. None of the suppliers show their production schedule to Husqvarna on a daily basis. However, sometimes Husqvarna visits the suppliers and gets some insight into the production process. When the suppliers discussed Husqvarna's lead time to the end customer, the consensus was that it could increase the understanding of Husqvarna's process, but do not necessarily improve business.

Supplier B have long lead-times and this fact makes the scheduling and receiving of clear delivery dates important. When the lead-time is long the possibility to adapt to rapid changes is small because of the long time span. When an order form Husqvarna is received and the production initiated, difficulties to change the preferences occur. However, it would be good to have the possibility to easily change the order to fit the lead-time, today they communicate this type of information via telephone.

Towards Supplier G, Husqvarna show good forward planning and this has a positive impact on their operation. It enables them to make the most of their lead-time. They can sustain desired inventory level and plan the most efficient production schedule.

Supplier D can be flexible to increased order demand, but this involves problem for Supplier D as they need to start working shift. Supplier D does not know anything of Husqvarna accessories lead time to end customer.

Supplier F think that if they could get the information regarding Husqvarna's lead time to the customer, it could influence their purchasing costs as they could then plan their operation better.

Supplier D cannot see any benefit from knowing Husqvarna's lead-time. They think that it is Husqvarna's responsibility to have control of their lead time and provide information to Supplier D.

4.3.5 Forecasts

The general perspective concerning forecasts is that it has a positive impact on financial performance and deliveries. The consensus of the suppliers is that when the forecast is reliable it enables the supplier to maximize the inventory handling, the production planning and the deliveries. However, relying on biased projected forecasts obstructs business planning and leads to poor inventory handling, insecure deliveries and inefficient production. When the suppliers discussed the concept of forecasts, the general understanding is that the forecast shows a prediction of the future that the supplier uses to plan their sales, their production, and their profit. Too high of an expectation might lead to more planned imported goods, stocking up on too many finished goods or investment in extra capacity; while low expectation leads to the risk of not being able to deliver in correct quantity and time. Reliable forecasts is regarded important and affects every aspect of the dyadic performance.

When the suppliers discussed the understanding of background calculation of the forecasts, they all agreed that the credibility of the information impacted the forecast. Discussing the near future, the suppliers vary in their concern with the uncertainty in the world and the ongoing financial crises. However, they all find Husqvarna accessories view of the future to be useful.

"A forecast is very good to have when planning the production, however, if the forecasts are incorrect it could yield problems with deliveries" (Person C, Person C, personal communication, 2008-11-28).

Besides the yearly forecast the suppliers discussed the concept of the unexpected increases of sales due to seasonal changes or promotional events. Including these forecasts in the web-based system would be good and such insight would improve business preparations.

Supplier C have experienced problems with the reliability of the forecasts and now uses it as one of many metrics to plan upcoming deliveries. If the forecast was more reliable, they would rely on them more.

Supplier A had a problem this year with the forecast where the actual sales were nearly double compared those that were predicted.

The forecasts are based on the sales of the previous year and Supplier B knows how the calculation behind the forecast. They do not use them because new products will soon be offered, and for new products forecasts are hard to construct.

Supplier G however believes that their products are pretty resistant to market changes, but still wants to know if Husqvarna expect any demand changes in the future.

Smaller variances from the yearly demand forecasts is at smaller interest for Supplier F, but they experienced an unexpected boom in deliveries this summer and knowing that in advance would have been useful.

Husqvarna has lately increased the communication towards Supplier C concerning promotional events, and they find the information useful.

4.3.6 Sell- through information & Point of sale, Sales information

The sales information is regarded to be Husqvarnas responsibility even if the additional insight may improve the understanding.

"What happens after Husqvarna AB Accessories I do not know, and see no benefits of knowing either" (Person B, Supplier B, personal communication, 2008-11-28).

The sell-through information should be limited. According to Supplier B, their access to information regarding Husqvarna accessories customer side is not important. While Supplier C see a potential benefit in sell-through information. For Supplier C knowing how many products being sold, can help them in predicting an upcoming order and consequently schedule their production better.

4.3.7 Shipment notice and Delivery information

When discussing the shipment notice the supplies either confirm the delivery one or two times. First the supplier guarantee the delivery when accepting the order. By accepting the order proposition from Husqvarna the suppliers agree to deliver the goods according to the orders delivery date and delivery quantity. In this way Husqvarna only get one delivery confirmation. The supplier can also send a second confirmation when the order is shipped to further ensure the delivery. In both cases the supplier find it to be a obligation to return with information if the order cannot be delivered on time or with the expected quantity. None of the suppliers see any problems with the current system of delivery information.

Supplier G respond to the order placed by Husqvarna and if Supplier G cannot meet the requested demand in quantity or in delivery date, they clarify this in the order confirmation; at which point Husqvarna then come back with a new order that fits the new circumstances.

Supplier C notify the buyer when they have shipped the order while Supplier F only confirm the delivery date when receiving the order, both of these suppliers find that their system works fine. The way of approving the order or sending shipment notice varies between fax, mail and web-based. None of the suppliers see any problems with their current system.

5 Analysis

This chapter presents our Analysis where the authors reflect on the empirical findings and interviews. This section will lead to finding the answer to the purpose.

5.1 Introduction

Discussing and elaborating how information effects dyadic relations, one would find that it is a dynamic process. The interviewed suppliers all had different relations to Husqvarna, some have a very close relationship while others are at arm's-length. The features in the web based system also vary as suppliers all have a different set of circumstances. The suppliers have varying preferences and different expected performance outcomes. In fig 12 the authors show the different sections discussed in the theoretical framework.

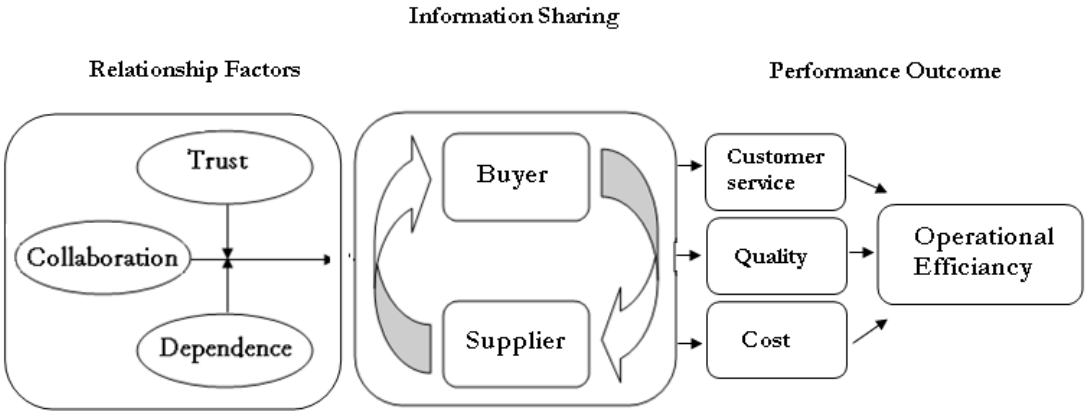

Figure 12: Enhanced information sharing derived from theories

5.2 Relationship factors

5.2.1 Collaboration

When discussing and elaborating on how information sharing effect relations one finds that it is a dynamic process. The interviewed suppliers all have different relations to Husqvarna, some have a very close collaboration while others are at arm's-length. However, findings show a movement towards a closer collaboration in symbiosis with Hoyt & Hug (2000) reasoning. This is the notion that supplier collaboration depends on many different factors and that history has shown a movement from arm's-length relationships into closer collaboration. The collaboration, in the setting being investigated, is according to Vereecke, A, & Muylle, S (2006) a combination of both a structural approach and an increase in exchange of information approach. The structural approach is represented by the implementation of the web-based system as it seeks to change and improve the current information flow. The information exchange approach is obviously represented as the underlying rationale for implementing the web-based system as it seeks to improve efficiency in the shared information. Hence, one factor that affects the collaboration the most is the factor of information sharing between the two business partners. In the conducted case study one can identify the broader strategy, from which McClelland (2003) elaborates upon. Husqvarna has already implemented the structural foundation needed, through the implementation of the web-based system; they now focus on utilizing the structural foundation in terms of improving the information flow with suppliers. Expected organizational benefits are ac-

cording to Supplier G improvements in their organization in terms of organizational scheduling, order handling and planning deliveries. Other expected improvements in performance measurements are, according to McClelland (2003), cost reduction through more efficient and more transparent information flow and higher customer satisfaction. Vereecke & Muylle (2006) even further emphasize the importance of collaboration. They argue that collaboration is a valuable approach for finding world class performance. However Vereecke & Muylle (2006) also mention that many companies only lay modest investments on the collaboration with suppliers and therefore only minor improvements can be expected on different performance measurement.

The supplier Supplier F is not interested in a closer collaboration, as they already collaborate very closely with another Husqvarna department. The mentioned mindset that Supplier F offer could, according Vereecke, A, & Muylle, S (2006), be a classic approach from which suppliers often have. Both Supplier B and Supplier F offer a skeptical mindset concerning the usability towards a web-based system. These skeptical mindsets could be further explained through using the theory presented by researchers Fawcett et al (2008); who say that true synergistic collaboration is rare within different supply chain networks. Often due to different scarce resources managers go for short cuts or technological solutions instead of the more challenging cultural changes which is necessary for finding true synergies. The web-based system is a technological solution for facilitating efficient information sharing and hence, in its essence only a mean for assisting an eventual necessary organizational change. McClelland (2003) declare that regardless of whether the tool is the fax, the internet, or an integrated computer technology, the capability to transfer data between interested parties removes any reason to not be informed. The Supplier A emphasizes the importance of staying informed for better dealing with future organizational challenges. The researcher Cassivi, (2006) results show on a congruent picture of what Supplier A previously stated and reasons that the level of collaboration between actors in the supply chain is reflected in the type and amount of information which ought to be shared. Cassivi (2006) even said that launching electronic collaboration tools is crucial for information sharing and executing complex supply chain activities; results derived from the implementation can transform the way that business is carried out between actors in the supply chain. Such a statement can be seen as rather bold. Although it is again in-line with Supplier A as users of the web-based system, they have adapted their organization after Husqvarna needs.

With the help from different technological solutions and tools companies can facilitate the information sharing process in areas such as forecasting, planning, and refilling. E-collaboration relates to the facilitation of sharing and distributing real time information. (Cassivi, 2006). Cassivi (2006) also states that E-collaboration has risen to be a fundamental concept for finding a competitive advantage and for supporting efficient business process. Moreover, increasing the visibility throughout the whole supply chain through sharing adequate, accurate, and up-to-date information.

The importance of information sharing when it comes to collaboration is stated from all interviewed suppliers and Supplier A share a fruitful explanation when saying that an closer collaboration rely on an effective information sharing and comprehensive understanding of your business partner. A comprehensive understanding of business partners is according to Supplier G gained through improving the information flow between business partners. Hence, here a circular reasoning is shown, explained by a supplier which moves back and forward between information sharing and gaining an understanding for eventually increasing the collaboration. When collaboration has been increased new information is shared

and the sequence continues. The concept of information sharing can however not be simplified in only saying that it is enough to share information.

"Information is really good if it is correct, concise and easy to grasp, only then we could bring down uncertainty barriers and increase efficiency" (Person B, Supplier B, personal communication, 2008-11-28).

Here, similarities could be found with the existing theories, such as researcher Cassivi, (2006). In-line with Supplier B and other suppliers, Cassivi (2006) discusses the importance of sharing adequate, accurate, and up-to-date information for supporting and improving the business process. Supplier A have a clear standpoint and state that information that you cannot rely on is completely useless and only slows down the decision making process. Corsten & Felde (2005) claimed that collaboration is defined as creating value together and performing a high level of purposeful cooperation; furthermore they emphasized the importance of sharing correct information. Time consuming and non purposeful processes should, according to Supplier D, be minimized and if mail handling and telephone calls could be reduced Supplier D could improve their operational efficiency.

5.2.2 Trust

A supplier who decides to compete and develop in the extremely competitive context which surrounds business will have to market themselves as a reliable partner. Researcher Blau, (1964) elaborates upon possible future benefits for entering long-term relationships. Organizations have to build a solid reputation and from a social exchange perspective trust is a core ingredient in presenting oneself as an attractive partner. The interviewed suppliers all strive for keeping Husqvarna as a long-term-business partner. Yang et al., (2007) discusses trust as a fundamental concept for keeping a long-term relationship between buyers and suppliers, in order to be more competitive for the changeable market. As all suppliers see Husqvarna as a reliable and trustworthy business partner a solid base to build a successful relationship is to build trust. However the suppliers are not always certain on Husqvarna's trust in their own organization.

"We have a good relation and, we trust Husqvarna AB Accessories and we hope that Husqvarna AB Accessories trust us" (Person F, Supplier F, personal communication, 2008-12-04).

Fynes & Voss, (2002) argue that building a strong fundamental base of trust is the groundwork for making business transactions more efficient. However can this be done if the concerned partners do not know the other partners standpoint? The citation derived from Supplier F AB shows a need for improvement concerning information sharing as they possess an uncertainty of Husqvarna opinion. Though Husqvarna has a very liberal view concerning trust and has no problem in sharing information with suppliers.

Husqvarna want to share every information possible to all suppliers, the only information which could be seen as confidential for us would be information regarding acquisitions, personal information, or information concerning product development" (A. Bengtsson, Husqvarna AB Accessories, personal communication, 2008-10-27).

Such information should perhaps be shared with suppliers to facilitate future information flow. Shin, Collier & Wilson (2002) argue that when building the trust relationship one will find synergies in both operational effectiveness and product quality. Synergies, more specifically, in operational effectiveness as facilitated: cooperation, transactions, cost negotiation and information sharing between business partners. Then the incentives for Husqvarna to

further build on the trust relationship are great and they should obviously share their liberal mindset concerning information sharing with suppliers.

Suppliers often relate the trust concept into the accuracy in the information that suppliers receive from Husqvarna. The information that Husqvarna share with their supplier has differed in reliability. However, suppliers make a distinctive difference in trusting the information that Husqvarna chooses to share and the trust that they have for Husqvarna as a business partner. Supplier B describes the importance of getting access to trustworthy information as their lead time from India is over 5 weeks. Hence, scheduling and receiving clear and correct delivery dates are important. If the shared information cannot be trusted it will yield even more uncertainties then the situation already implies due to the long lead-time. The situation then could be improved by further improving the information flow and Maloni and Benton (2000) discuss this concept; they say that when entering a long-term relationship with organizations, value is created and costs are reduced, even a subsequent increase in responsiveness will be created. The mentioned increase in responsiveness between the organizations would diminish uncertainties and the web-based system that Husqvarna offers would be a tool for enabling the positive outcomes. Supplier B is currently working with the web-based system however the system is presently not efficient as it should be because Supplier B has not put enough effort into learning the system.

Supplier B continues saying that these uncertainties can normally be solved with Husqvarna through using other communication forms such as telephone and mailing. Dyer and Chu (2003) say that "Trust is believed to lower transaction, and negotiation costs, facilitate informal cooperation, and lead to superior information sharing between the involved actors. To lower transaction costs managers do have to know where to search for the corresponding information and if Supplier Could reduce the searching and avoid unnecessary telephone calls, transaction cost could be reduced. The researchers Dyer and Chu (2003) also suggest different guidelines for business partners to market themselves:

- Always keep commitments made to your business partner.
- Always be frank and truthful with your business partner.
- The info provided is believable by your business partner.
- Sincerely care about the welfare and business success of your business partner.

The four concepts stated could be seen as common business manor and a global company like Husqvarna should be in the front line in all concepts. However, the conducted case study discovers areas which could be improved. These areas are often linked to the current information flow that Husqvarna has with suppliers and more specific information regarding forecasts. Supplier A, Supplier D, Supplier C etc. all describes that they have encountered problems with the forecasts accuracy. Forecasts are in its nature an academic guess of the future, depending how well the forecast is developed the more accurate the forecast will be. Though, one cannot escape the fact that a forecast is an educated guess. Hence, problems are bound to occur concerning accuracy and Husqvarna cannot promise that they will deliver completely accurate forecast in the future. Instead Husqvarna could make their forecast system more dynamic through improving the follow up activities, if significant deviations from the original forecasts are found. Also Husqvarna should notify suppliers if they have large campaigns coming up so the Supplier Can prepare production. The underlying rationale is, in the end, to enable better customer service and to cut unnecessary transaction cost.

5.2.3 Dependency

Researchers Pfeffer & Salancik (1978) claims that suppliers operating under investment or skill constrains have to specialize in smaller sectors and consequently reach a limited customer base. Operating with fewer customers will yield higher dependency for the supplier towards their chosen customers and therefore the supplier's incentives to improve every relationship are stronger. Provan et al (1998) elaborates on the issue saying that a higher degree of dependence results in better information behaviors. As Supplier C has over 80% of their turnover derived from Husqvarna the dependency is very high and then, in-line with Provan et al (1998) reasoning, also the incentives to improve the information flow is significant.

However, the findings did not only show a high dependency in terms of turnover but the suppliers argued, aligned with Kraljic (1983), the importance that their products have for the respective partner. In many occasions Husqvarna was a customer for leverage products or even strategically important products. Supplier E mainly deliver one product to Husqvarna, consequently the delivered product is strategically very important as Husqvarna is the only customer purchasing the specific product. Supplier F state that they have one very important product that they deliver to Husqvarna which relates to almost their entire turnover connected to Husqvarna. Supplier A claims that Husqvarna has their highest priority in their production and delivered Husqvarna products covers nearly 30% of the organizations turnover. Supplier A continues elaborating on that the dependency between the organizations is expected to increase as they offer products with a very promising future in the market. The comprehensive supplier portfolio approach which Kraljic (1983) offer for the buying company was according to researchers Van Weele & Gelderman (2002) created for classifications of suppliers for the purpose of evaluate dependence and bargaining power in purchase and supply management. The findings shows a high level of bargaining power from Husqvarnas side partly because of the previously mentioned statements done by suppliers and also because all Supplier Consider Husqvarna an important customer. Husqvarna mother company is Husqvarna AB, and is the global leader in outdoor power products for forestry, park maintenance and lawn and garden care, hence it is considered a reliable and stable business partner.

"Husqvarna products are prioritized at Supplier B and this could at times be risky, especially if we have scheduled our production after forecasts and are depending on that Husqvarna actually buys the products" (Person B, Supplier B, personal communication, 2008-11-28).

Supplier B continues saying that to decrease the dependency derived from uncertainty between the organizations the information flow between the organizations should be improved. Hence the findings shows on another type of dependency derived from uncertainty; uncertainties between organization feeds the dependency level and bring up obstacles for operational efficiency. Researchers Pfeffer & Salancik (1978) elaborate on the issue when saying that if the supplier has a smaller numbers of customers the dependence of these suppliers increase and the suppliers risks increase. A supplier can decrease the risk by establishing closer relationships with the customers. The Web-based system offered by Husqvarna is striving for improving the information flow and consequently bringing the organizations closer.

5.3 Communication mean

One can see clearly see that the computerization of the companies influence their openness to a web-based system. None of the Supplier Can see any problem with the usability of a

web-based system. The supplies could not see any implementation costs or the need for highly skilled staff to succeed in using the system. However, some of the suppliers using the system today feel that such a system has an inflexible format because the information for a specific product can be found on different locations in the system. All suppliers think that the information should be easy to grasp and that it should be under one roof. (Chwelos et al 2001). Supplier B would like to personalize the system to suit their needs and choose what information is included in a web-based system. In this way the trouble with suppliers wanting different information would be fixed.

All suppliers mention a potential problem of using an additional system, which they have to check for information in both their own system and the extra web-based system. The all agree that the functionality of the system is strongly related to the information that is included and if they can use it. This is what Sandkuhl (2008) argues to be the importance in the collaboration, the information availability in the supply chain, and that the main challenge for the supplier is to understand and make good use of the information. Vigtil (2007) argues the benefits with a web-based system to be reduced manual cost and manual time. The suppliers all agree that the reduction of manual cost is important to justify the use of a web based system. The supplies that already spend a lot of time handling the specific products are more positive to use a web-based to share information. While the suppliers that do not spend much time felt that checking themselves everyday for new information in a web-based system is time consuming and therefore it does not help improve their business, the consensus is that the information sharing should be on their terms and increase their performance. This is in line with Jonsson & Zineldin (2003) that claim that an expected positive outcome can motivate the use of a web based system for information logistics.

5.4 Information logistics

Daugherty et al (1999) defined the traditional information sharing to circulate around the order, and this is also the foundation for the supplier's information from Husqvarna AB accessories. All suppliers receive an order that they deliver to Husqvarna. And the supporting information is something that the Supplier E experience that Husqvarna is willing to share. The information the suppliers receive could be received in a more convenient way along with additional supporting information. The additional information that could be obtained must serve a purpose and it must be possible to use the information to improve the operation. All the suppliers agree with De Toni & Zamolo (2005) that supporting information might improve the production planning which will shorten lead times, improve delivery accuracy and decrease inventory levels.

The information trustworthiness and accuracy is the foundation for information sharing and if the partners do not supply correct information the information sharing will be destructive. The suppliers that keep inventories agree with Daugherty et al (1999) that inventory can, to a certain point, be replaced with information. Vigtil (2007) argues the importance of demand visibility, the suppliers unified in this belief that knowing demand has an impact on their operation. None of the suppliers feel that everyday information is secretive, and that holding information private can improve their private performance. They therefore do not agree with Özer & Wei (2006) that claim that information often is kept hidden for personal gain. The information should, according to the suppliers, be two way communications. When comparing the supplier's views with Simatupang & Sridharan (2005) one can see that information sharing should be the circulation of relevant information in order to plan and control supply chain operation. The suppliers are aware that their response to the information they receive is important, they want to help Husqvarna to offer good cus-

tomer service. The suppliers all think that labor cost can be reduced in theory with the usage of web-based system; however their concern is that it might be more expensive. The web-based system is not integrated with their system, and the suppliers think that it would involve more work for them to check information several systems. Vigtil (2007) opinion that a web-based system decrease labor costs is not shared with the suppliers.

5.4.1 Frequency of information

The frequency of information was one of the topics discussed the most and was found to be very important. It was correlated to inventory, lead-time and forecast and it affects all performance factors. McClellan (2003), So & Zheng (2002) both discuss this, saying that problems occur when the decisions are based on information that differs from realty. The suppliers explained that unreliable forecasts may lead to problems with inventory, delivery quality, customer service and an increase in costs. If the information was not up to date and accessible when needed, the wish to use the information was diminished. There is a correlation between the supplier's opinion and McClellan (2003) that the information should be shared in real time and with live update. There might exist a natural time delay compared to the order system, because the mailbox is more natural to check, Angulo et al (2004) states that the knowledge of how often the Supplier Check the web-based system may result in closer collaboration. Relying solely on a web-based system for information sharing presents a risk; for a supplier who only delivers a few orders a month, the daily checking in Husqvarna separate system will not be done and perhaps the system will be totally forgotten. The response system that Husqvarna uses today informs Husqvarna when their order is received at the suppliers and the time delay is easy to measure. This makes it easier for Husqvarna to audit the suppliers response time. According to Angulo et al (2004) such understanding may lead to an overall collaboration improvement. The frequency of information sharing and information update was regarded very important in every aspect of information logistics.

5.4.2 Inventory

Even if the full VMI, where the suppliers have full responsibility for the buyer's inventory is not in use, the inventory is still an important factor for financial performance. The purpose for inventory is to guaranty deliveries and customer satisfaction. The authors can see a comparison between the empirical findings and the view of Seth et al (2006) that if the supplier cannot deliver on demand, the buyer and end customer will be dissatisfied which will lead to losing customers and impair the reputation. It is difficult to maintain high customer service and reduce the inventory costs. The suppliers' view of the costs related to inventory is the handling cost and the tied up capital in products the suppliers which also is the view of Coyle et al (2003). The suppliers focus is to upkeep the delivery security while trying to cut costs. The additional understanding of the future demand can aid that dilemma. If given an insight into Husqvarna's inventory, the Supplier C and Supplier D for example, can adjust their inventory and production to fit Husqvarna's needs. The Supplier A feels that they can better project the future demand if they know Husqvarna's inventory levels. And in these cases the supplier can plan an effective fill rate and keep make sure Husqvarna will not experience stock outs, which according to Morash (2001) is an important performance factor. The information sharing of inventory can increase the cooperation and the joint effort to increase the delivery quality and customer satisfaction. However, it must be motivated to check the inventory levels, Supplier E does not see the benefits as there is no cost related to their inventory, which is what Thakkar et al (2008) claims to be

the main cause for information sharing not to work. The inventory was regarded as an important factor in information logistics and this was also the finding of Vigtil (2007)

5.4.3 Lead time

It is clear that the longer the lead-times the supplier have, the more vulnerable they are, this is a general view from the suppliers as well from So & Zheng (2002). The knowledge of the supplier's lead-time helps the order planning of Husqvarna and they can better understand what can be expected from the supplier. Lee et al (2000) elaborates that the benefits of information relies in the Supplier Capacity to react to the buyers demand. If Husqvarna wants to change the order volumes the suppliers needs to react to the new circumstances, need to enhance the production speed and create more capacity. Long lead-times and limited capacity raises the need for supporting information and it is coherent with So & Zheng (2002) that claims that the suppliers with limited capacity should be prioritized when sharing information. It is also coherent with the suppliers view that it is important to respect the lead time, as it might be problematic for the suppliers to quickly adapt to new circumstances without preparation. Supplier G, for example, are satisfied with Husqvarna, they show good forward planning which allows Supplier G to sustain desired inventory and plan their production in a good way. The forecast information is considered the most efficient information to aid the lead-time and to support the production planning. When both companies have an understanding of the Supplier Capacity they can together predict problems and find a solution, which is in line with the view of Angulo et al (2004) on production related to information sharing. Supplier B for example have a long and fixed lead-time, Husqvarna knows this and together they adapt to requested volumes and delivery dates.

The flexibility in capacity and lead-time must be compared with the economical advantages with mass production and larger batches. The extra cost connected with investing in flexible production will finally influence the cost of the product so it is also in the buyer's interest to respect the lead time. Coyle et al (2003) argue that the productions cost influences quality and customer service. For Supplier D an increase in demand induces extra labor cost, a cost that needs to be upheld by additional revenue, a reliable production and when given enough time to deliver, it affects the performance. When there is a smooth flow of orders in and out of the company the stress factor is low and the risk for errors diminishes. Morash's (2001) view is that delivery accuracy is an important factor for quality performance and with reliable planning and enough time for deliveries; it will maintain or improve performance. Supplier F did experience a great increase in sales this summer they did not expect. This time they managed to deliver but next time they may not. Lead-time does strongly influence the possibility to deliver, and when the circumstances to deliver in time changes, it affects the entire supply chain. The lead-time is correlated with the customer satisfaction and is regarded important information for both the supplier and the buyer, which is in line with Lapide's (2001) claim that information sharing must be linked with the suppliers operation planning to gain the benefits of transparency.

5.4.4 Order fulfillment

A strong metric was considered to be the delivery performance, where product quality and delivery security is in focus. This is considered the most important metric for performance as it is the factor that is visible for the customer. The authors can see this is also the view of Bolstorff (2003) that raises the on time deliveries and order fulfillment as the most important factors for supplier performance. When a customer receives a low quality product it

influences the reputation on the product and of the company. Dyer and Chu (2003) claimed that keeping the commitments is important to uphold the trust. Also when deliveries include error the trustworthiness of the suppliers gets affected. The suppliers want to know how well they perform against Husqvarna and want to obtain information on their performance. This is argued by Bolstorff (2003) who mentions backorder as a metric which explains that an order is incomplete. The company can derive the reason for the backorder to either wrong volume or products not passing quality control. As long as the measurement reflect the suppliers performance it is valuable, Supplier G for example have no interest of knowing performance factors that do not clearly reflect their specific performance. The suppliers get, or hope that they get, information about their performance in form of backorders, because otherwise they cannot improve. The fact that the suppliers wants to receive the backorder information also with personal communication demonstrates that it has a high priority.

5.4.5 Forecast information

The view on forecasts is strongly related to the earlier research on forecasts; improved production planning and better utilization of resources are the expected benefits of reliable forecasts. There is a strong opinion that forecasts should be updated regularly, a belief that is shared with Vigtil (2007). This is also in consensus with Cachon & Lariviere (2001) that relying on non credible information leads to building up unnecessary inventory and capacity. The suppliers prepare themselves to meet the expected demand and adjust the operation to fit the performance. Then, if there is a mismatch in expectation and preparation the suppliers either have too much capacity, inventory and expenses or fail to deliver. This view is shared with Cachon & Lariviere (2001) that claim that neither of the options is desirable. The decision to invest in future sales is difficult and when facing uncertainty the suppliers need to compare the risk to spending too much money with the probability to cover customer demand and deliveries.

However, when the information is reliable it is a useful tool for securing deliveries and maximizing operation which is also the view of Cachon & Lariviere (2001). The supplier that felt they had a long lead time experienced they had a strong need to receive regular forecasts, while the supplier that delivers just in time were more interested in an overall estimation of the coming demand.

Supplier A had experienced problems with the forecast where the actual sales were nearly double compared the prediction. They agree with Vigtil (2007) that updating these forecasts regularly is important for suppliers to plan their operation. The need for forecast is related to the uncertainty of their business. When there was low uncertainty the customer service and delivery quality was regarded to be practically guaranteed and the need for forecast was low. Supplier F had a general interest in knowing the forecasts while Supplier D are really dependant on the forecasts. The difference in the interest of forecast can be derived from the business operations where Supplier F had really low inventory costs and hardly any tied up capital while Supplier D today work at full capacity. The suppliers agreed with Småros et al (2003) that long time forecasts for seasonality of products and promotional events are important. Supplier F for example experienced a large unexpected change this year which is in line with Småros et al (2003) claim that promotional events are hard to predict for the supplier and they should be informed of such changes.

5.4.6 Sell-through information

The findings did not show any similarities between the words of Disney & Towill (2003) and the suppliers that sell-through could replace ordinary delivery information. Nor do they all believe that the sharing of sell-through information could increase transparency with Husqvarna. Supplier B claimed that the information from Husqvarna customer side is their responsibility and that knowing that is of no interest to them. However, Supplier C could see a potential benefit as then they could better predict future order. The main argument for using sell-through was to better predict the future to be more cost efficient, improve deliveries and customer satisfaction. This was not argued by Disney & Towill (2003) who claimed that sell-through information only shows present demand and does not include forecasts or future sales. The way the suppliers and Husqvarna utilize ordering and delivery is appreciated by the suppliers and none of them have any problems with the system. The point of sales would not influence them in any way, as it would not change anything in the suppliers operation and if Husqvarna wants them to send the deliveries to another location, they only need to change the address sticker. Husqvarna has two warehouses but the view of Lee et al (2000) is that the point of sale that can help the collaboration, is not shared by the suppliers.

5.4.7 Shipment notice & delivery information

The shipment notice is information that the suppliers share so Husqvarna will know that the order is shipped. Their thought on shipment notice and delivery information is in line with Vigtil (2007), who argues its importance as it guarantees the arrival of goods. They agree on the fact that quantity, date and destination are something that should be included, which is also discussed by Vigtil (2007). The order confirmation and delivery information is to reassure Husqvarna that they will receive the order. The fact that the supplier respond to the order, with confirmation or with suggested changes due to their ability to deliver reiterates the importance of two way communication between the supplier-buyer and that the supplier values Husqvarna operation. Vigtil (2007) argues that information sharing between a buyer and a supplier should be a two way communication. The suppliers want to aid Husqvarna to keep end customer satisfied with qualitative deliveries which is in line with Sheu, Yen & Chae (2006) that stresses the advantages of closer collaboration. Supplier D would like to be able to change and maximize the order quantity in the web-based system. Today when Supplier D wants to change the deliveries, to adjust the volume to optimize transport, they inform Husqvarna which respond by sending a new order. For example, Husqvarna accessories order 30 boxes, then Supplier D send 40 boxes because that is one full pallets. Sheu, Yen & Chae (2006) claim that such collaboration influences the costs reduction and the financial performance. Also sometimes the Husqvarna order information have errors, for incorrect example product numbers and order numbers. It would be easier to include an "update" possibility concerning deliveries in a web-based system. Supplier F does confirm the order twice to reassure Husqvarna, first when the order is received and then when it is shipped. They do this so Husqvarna can plan the deliveries on their end, towards the end customer. This is in line with Vereecke, A, & Muylle, S (2006) that state the importance of the collaboration and even say that collaboration can lead to potential world class operational performance.

Husqvarna does not have a tracking system on usual deliveries so the order confirmation and shipment is the best information they can get and is valuable for Husqvarna. There is no seen correlation between the view of the suppliers and Angulo et al (2004) that a tracking system could easily adapt to customer needs. However, Husqvarna receives containers

from abroad which include a tracking system where the information is regarded to be important.

5.5 Performance outcome

All the information sharing metrics are created to measure and follow up the performance of the supplier-buyer relation. Through the entire empirical section there is a strong connection between the need of information and the expected outcome. The different suppliers have different opinions on which information is needed. Emmett & Crocker (2006) exemplified successful outcomes as lead time reduction, shorter order-cycle, the minimizing of inventory, batch sizes and tied up capital. Thakkar (2008) argues that the lack of expected benefits is the main reason for the failure of information sharing; the suppliers do in all areas come back to the expected increase of performance derived with information sharing. The suppliers argued that information needs to serve a purpose and the purpose is the performance outcomes. The customer service towards Husqvarna and end customer is considered to be very important; this is echoed by Seth et al (2006) who states that customer service has to have a large impact on suppliers, customers and employees but also influence the overall growth of the company.

5.5.1 Customer service

With a focus on the performance outcomes, that is the aspects that are measurable in the everyday activity between a buyer and a supplier. Simatupang & Sridharan (2005) listed a number of measuring points companies can use to evaluate the collaboration and dyadic performance. Seth et al (2006) argued the importance of customer service and several of the information sharing metrics were argued by the suppliers to be important. When discussing customer service one must consider Husqvarna's inventory, the forecasts and the knowledge of capacity; these are the things that influence Husqvarna's possibility to deliver. The supplier's view of customer service is in line with Morash (2001) who argue that it is measured in stock out in inventory. However Morash (2001) claims that one can derive that cost of service failure to improve the understanding between a buyer and a supplier was not stated.

The supplier wants to have a high delivery quality towards Husqvarna and some of them want to be integrated more into Husqvarna to aid delivery to end customer. Morash (2001) argued that order measurements like complete orders, on-time deliveries and backorders refers to how well the supplier fulfills the buyers need. This view is shared by the suppliers who find backorders to be very important, in fact, so important that several argue that it should be communicated with telephone. The suppliers agrees with Morash (2001) that it is an important measurement to control the performance outcome in the company.

5.5.2 Quality

In addition, on-time delivery, complete order, and accurate forecast demand is regarded by Coyle, Bardi & Langley (2003) to be a quality measurement. And the suppliers agree with Seth et al (2006) who argues that when a supplier has problems planning the operations, it leads to a decrease in business performance. Supplier D and Person C for example argue that the individual performance benefits of receiving information on performance. Morash (2001) elaborates further to say that measures, for example number of claims, could be used tracked to product quality and delivery errors in order to help the supplier improve quality. If problems did occur, it is important for performance measurement that they

would want to know. The suppliers view on quality is correlated with Coyle et al (2003) that is, it is influenced by the end customer

5.5.3 Cost

The suppliers will walk the extra mile to fulfill Husqvarna demand even if it results in an extra cost for the suppliers. It is a correlation with Seth et al (2006) that the service may increase inventory when there is a lack of efficient information sharing. Several suppliers keep inventory to uphold delivery security. Also, Supplier A save capacity and Supplier D stand ready to implement an extra working hours, to meet a demand increase. The cost factor was discussed in all mentioned metrics, Coyle et al (2003) elaborates that cost is the measurement of efficiency. With high handling and administrative cost related to the expected outcome of information sharing with a web-based system, the suppliers were more negative. Supplier E for example do not have an inventory and estimated that they did not save money in production optimization or inventory reduction and could therefore not expect any benefits. Also the inventory, forecasts, lead-time and the frequency of information was derived to the personal cost benefits the Supplier Could be expected with information. Where the cost benefits were considered to be high the supplier was more positive to the usage of a web-based system.

5.6 Analysis reflection

When summarizing the analysis it was seen that the correlation between the "Relationship Factors", "Information Sharing" and the "Performance Outcome" was more vibrant and lively then in the theoretical frame work summary. The authors visualize the finding in the study in figure 13 which shows upon a more active relation where the different sections influence each other in a more dynamic way.

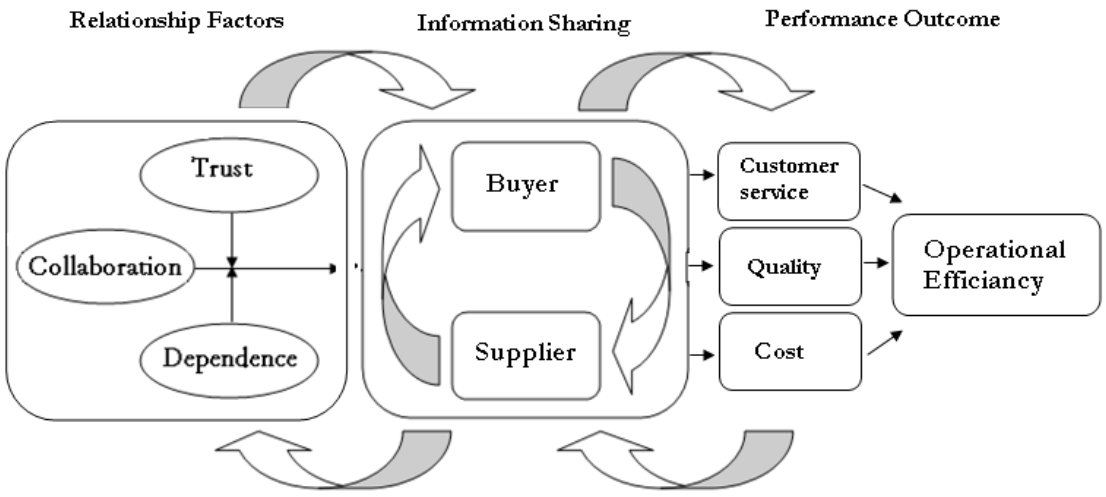

Figure 13 Final information sharing developed from analysis

Corsten & Felde (2005), for example, stresses the correlation between information sharing and relationship factors. It is visualized in fig 13 that the relationships factors have an impact on the information sharing. Simatupang & Sridharan (2005) argue that information sharing refers to the collecting and circulating of timely and relevant information to plan and control performance outcome, which is further visualized in the figure. However, to more clearly state the dynamics of information sharing with a web based system, arrows

have been added from "Performance Outcome" to "Information Sharing" and from "Information Sharing" to "Relationship Factors". Even if, for example, Vigtil (2007 discussed the impact information sharing has on the relationship, the empirical finding strongly showed the correlation between the two sections. Also that the "Performance Outcome" influence "Information Sharing" is discussed. Thakkar et al (2008) for example claimed that the expected outcome affects information sharing and Simatupang & Sridharan (2005) claimed that performance measurement influence the relationship factors. So, it is seen that the study insisted on specifying these influences to understand the more active relation between the sections .

The first section is the "Relationship factors". In a situation with several suppliers with different set of circumstances and different relations with Husqvarna AB, it could be seen that the view on how information sharing affects the relationship differs between the suppliers. It is seen that some suppliers are not interested in a closer collaboration with a web-based system, which can be explained with a theory presented by Fawcett et al (2008) which states that true synergistic collaboration is rare within different supply chain networks. The comprehensive supplier portfolio approach which Kraljic (1983) offer for the buying company was according to researchers Van Weele & Gelderman (2002) created for classifications of suppliers for the purpose of evaluate dependence. It could be seen that Husqvarna not always stood for a significant part of the suppliers turn over, but still the product was of a strategic value, which according to Kraljic (19998), demands close relations.

The suppliers all valued Husqvarna as an important customer and Shin, Collier & Wilson (2002) argued that improving the relationship one will find synergies in both operational effectiveness and product quality. The difference in the suppliers views on dependence is discussed by Pfeffer & Salancik (1978) who argues that if the supplier has a smaller number of customers the dependence of these suppliers increases and the suppliers risks increases. A supplier can decrease the risk by establishing closer relationships with the buyer. The web-based system offered by Husqvarna is striving for improving the information flow and consequently bringing the organizations closer, which is elaborated by Bartels (2003) who also claim that it reduces costs and improves customer service. The relationship factors are complex and influence the will to share information; but according to the suppliers and several researchers it also influences the performance outcomes. Dyer and Chu (2003) claimed that, to trust each other the companies always should keep their commitments, be truthful and provide believable information to your partners. It could be seen in the study that trustworthy information with a web-based system does influence the trust in the relationship. The view on information sharing is in line with Cassava (2006) that claims that adequate, accurate and up-to-date information is important for the collaboration. Therefore an arrow is added that goes from the "Information Sharing" section back to the "Relationship Factors".

The Second section is the "Information Sharing". Sandkuhl (2008) argues that the information availability in the supply chain is important for the collaboration. Some of the suppliers using the system today felt that such a system is inflexible as a specific product can be found on different locations in the system. All suppliers think that the information should be easy to grasp and serve a purpose. De Toni & Zamolo (2005) discuss this further, stating that supporting information will ease the production planning which will shorten lead times, improve delivery accuracy and decrease inventory levels. McClellan (2003) continues that it could lead to cost reduction and higher customer satisfaction. There was no consensus on which information needed to be shared with a web-based system. However, all find it to be very important that Husqvarna is satisfied and agree with Bolstorff (2003) that on

time deliveries and order fulfillment is important information for a supplier to know how they perform. In fig.13 the arrow from "Performance Outcome" back to "Information Sharing" refers to the suppliers wish to take part of the performance metrics like back orders and fulfilled order information from Husqvarna, even if its regarded to be so important that it should be received also with personal communication if something is not satisfactory. Husqvarnas opinion is considered to be important for the relationship, the arrow from the "Information Sharing" back to "Relationship Factors" gives the impact performance information has on the relationship. One can see a comparison between the empirical findings and the view of Seth et al (2006) that if the supplier cannot deliver the demand, the buyer and end customer will be dissatisfied which will lead to losing customers and impairing the company's reputation. The suppliers believe that reliable forecasts tended to improve production planning and reduced uncertainty which improved performance. So & Zheng (2002) elaborates that uncertainty of customer demand and order fluctuation leads to companies being forced to keep extra inventory or invest in extra capacity to be able to deliver in time. The suppliers regard Husqvarnas insight in the future to be important and agree with Småros et al (2003) that forecasts for seasonality and promotional events are important. The suppliers view is aligned with Vigtil (2007) that forecasts should be updated regularly.

Some suppliers feel that they can better project the future demand when given information in Husqvarna inventory levels; and in these cases the supplier can plan an effective fill rate and keep an watch out for Husqvarna to make sure it will not experience stock outs, which according to Morash (2001) is important performance outcome and according to Seth et al (2006) is a significant Relationship Factor. It is important to share shipment notice and delivery information, which is in line with Vigtil (2007), who argue the fact that quantity, date and destination are something that should be included as it guarantees the arrival of goods

The third section is the "Performance Outcome". The featured factors in "Information Sharing" could be used to measure and follow up the performance of the supplier-buyer relationship. Through the entire empirical section there is a strong connection between the need of information and the expected outcome, both concerning financial gains and customer service . This is in line with Thakkar (2008) who argues that the lack of expected benefits is the main reason for the failure of information sharing. The forecasts and the knowledge of capacity in the final step were regarded to influence Husqvarnas possibility to deliver to end customer. The suppliers wanted to secure a high delivery quality towards Husqvarna, while some of them want to be integrated more into Husqvarna to further assist in securing the delivery to the end customer. This is in line with Corsten and Felde (2005) view that collaboration is creating value together. The cost factor was also involved in all metrics. When the supplier saw a high handling and administrative cost related to the expected outcome it was not equally attractive. The view of Vigtil (2007), that information sharing with a web-based system reduces manual cost was shared by suppliers. Cassivi (2006) argued, that E-collaboration has risen to be a fundamental concept for finding a competitive advantage and for supporting efficient business process. When discussing the outcomes of information sharing with a web-based system, the Supplier Could see potential cost reduction in line with McClellans (2003) view on a more transparent information flow.

6 Conclusion

The conducted research shows a widespread need for structuring the information flow between the investigated business partners. Husqvarna has proven to be a very interesting case to investigate as they have acknowledged the existing need and therefore implemented a tool which strives for structuring the information flow with their suppliers. The findings from the conducted research show forth a very dynamic reality which includes numerous factors that affect the information logistic. Hence, when drawing conclusions from the analysis it became clear that correlation between the Relationship factors, Information sharing and Performance outcome was strong; even stronger then the theoretical frame work lead us to believe. The Collaboration, Trust and Dependence was expected to influence Information sharing, and as a consequence of that link, the Performance outcome.

- What factors is determining the level of information which should be shared?

As the findings shows upon an interrelated reality both relationship factors and performance outcomes affect the information sharing process. More specified the performance outcome Customer service, Quality and Cost do strongly influence the suppliers will to share information. The most important incentive for suppliers to share information is to uphold customer satisfaction. The Customer Service affects the decisions in the organization and to maintain high satisfaction the suppliers are willing to adapt to new circumstances. Performance Outcome refers to On-time delivery, complete order, and accurate forecast demand and is important for Customer Service and therefore important for the information sharing. The cost factor is the lead time reduction, shorter order-cycle, the minimizing of inventory and batch sizes or reduction of tied up capital are factors that influence the information sharing. If these outcomes could be predicted the level of information sharing would increase. Another factor influencing the level of shared information is the fact that information is only useful if it is trustworthy, consequently if there exists insecurity in the reliability of the information the level of information wanted to be shared drastically decreases.

- What type of information is going to be shared through the web based system from the buyer and supplier's perspectives?

As Husqvarna provides a very liberal view on their information sharing the buyer perspective is answered through stating that all information could be shared as long as the information is needed. Findings from supplier interviews show on no consensus regarding what information should be shared. Information requested by the suppliers are, updated inventory levels, lead-time from Husqvarna to end customer, back orders, order fulfillment, on-time deliveries, complete orders, forecasts both covering several year, short notice forecasts and sell-through information.

- Is a web-based system suitable for information sharing in a buyer-supplier relation?

There is no technological hinder for a Replenishment system to be suitable for the information sharing. However, the application must be flexible and versatile in order to be useful. It must offer customized pages for each supplier. Also an application notifying when a system update occurs so the suppliers do not have to check the system everyday should be included. How useful implementing a Replenishment system would be differs for each supplier. Some suppliers rely on the information to make operational decisions and for improving their businesses, while some can see it as a supporting tool besides presently used mail system.

"As a planning tool, it sounds great" (Person G, Supplier G, personal communication, 2008-12-05).

As the aim for a web-based system is to structure and gather the information sharing into one system an application notifying the suppliers through an automatic mail sent when updates or orders are given will allow the system to act as a planning tool as well

- Can the information sharing with first tier suppliers be conducted using a universal template including the same type of information?

There is a possibility for Husqvarna to share supporting information with all suppliers. A universal template could be used as long as the suppliers are given instructions upon which information is needed in their specific case. The reason for implementing a universal template is to facilitate the information logistics for Husqvarna. As they only have to customize each specific product and relating quantity and not put any focus upon different types.

6.1 End discussion

The purpose of this thesis was to analyze how a company can utilize a web-based system to share information with their first tier suppliers.

It is clear that Husqvarna seek to change the relationship with their suppliers from an arm's length to a collaborative relation with the support of information logistics; which is mentioned by Sheu, Yen & Chae (2006) to add long time value, like financial performance and cost reduction. However, Fawcett et al (2008) warns that synergistic collaboration often fails because managers ignore the relationship factors and go for a quicker technical solution. Cassivi (2006) said that to plan the collaboration for enabling and sustained and effective E-collaboration is crucial for launching electronic collaboration tools. The study shows that the dynamics of web-based system should not be simplified into just an implementation of a system but should involve a thorough and continuous work with the suppliers involved. Husqvarnas need to uphold the knowledge of the supplier's circumstances to utilize a web-based system. As expected the information requested by the suppliers varies, and to utilize a web-based system Husqvarna needs to involve purposeful information for all suppliers. As some suppliers requested more information and some would only receive information specified to their specific needs, Husqvarna faces an application complication. De Toni & Zamolo (2005) theories on purposeful information rings true and the sharing of all metrics is not optimal for some suppliers. Hofman (2007) also elaborated that sharing too much information leads to confusion. It is seen in the study that a web-based system could be used for information logistics, however, Vigtil (2007) states that a benefit is the reduction of manual hours, this is only mentioned by some of the suppliers while in several cases the web-based system is related to more work. Husqvarna needs to address the problems with availability of the web-based system, so the suppliers who do not check the system often can keep up with new developments. A suggested solution was to implement a way to inform the supplier when the web-based system is updated.

Further managerial implications are that manager need to address the specific nature of the suppliers to be able to utilize a web-based system. The concept of information logistics is far more complex then the transferring of information.

6.2 Further studies

The purpose of this thesis was to analyze how a company can utilize a web-based system to share information with their first tier suppliers. The study has shown the dynamics between the "Relationship Factors" the "Information Sharing" and the "Performance Outcome".

Husqvarna AB Accessories is a department at Husqvarna AB. As the thesis is based on a case study, it would be interesting to test our findings in a different segment. Is the findings applicable on in different department at Husqvarna AB. Would the buyer and the suppliers have other opinions if the context were different? For example if the buyer also had production on their own. Would the findings be the same if Husqvarna had JIT production without inventory as a buffer? How large an impact did the product segment of garden accessories have on the findings, if the circumstances concerning the other factors were the same, would the accessories department at Sony Ericsson yield similar answers? And would the dynamic relationship be equally complex if all the suppliers were located in Husqvarna or in a village in China? Husqvarnas suppliers delivers a wide spread of products, from oils to advanced products. If the product range were less complex would Husqvarna's will to implement a web-based system be equally strong?

It would be interesting to follow up the impact the utility of a web-based system have on Husqvarna AB accessories and its suppliers. How do the information sharing with a web-based system affect the customer service and customer satisfaction, could a cost reduction be seen, and does product and delivery quality improve? From Husqvarnas point of view, does a fully implemented web-based system improve their handling system with reduced paperwork and manual hours as a result?

Researchers argue that implementing a web-based system is costly. It would be interesting to know who much it cost to create a web-based system. Also how much support do the suppliers need for the implementation of the system to run smoothly. Some of Husqvarnas suppliers have access to a web-based system today but do not use it fully; it would be interesting to investigate how Husqvarna, as a buyer, could act to better aid the suppliers to use the web-based system. And in addition, as the suppliers ask for different information how much information could be included in the web-based system before it gets too complicated to use.

However, the study showed that the suppliers have different needs and do not request the same information. Some suppliers felt they did not deliver enough products to justify using a web based system regularly. The authors would find it interesting to conduct a study on how such a web-based system could be created so the application handiness is easier both for the heavy users and the suppliers who check the system rarely. Furthermore, a request from some suppliers was to adapt the system after their wishes, and it would be interesting to know if that is possible and how it would work.

This study is conducted on the dyadic relationship between Husqvarna and its first tier suppliers, it would be interesting to know if a web based system could be implemented on the entire supply chain and what opinions the second a third tier supplier would have.

References

Alvesson, M. & Sköldberg, K. (2000). *Reflexive Methodology. New Vistas for Qualitative Reseacrh.* Sage Publications Inc: London.

Arbnor I. & Bjerke. B. (1997) Methodology for Creating Business Knowledge, 2ed. Sage Publications, Thousand Oaks.

Asher, A. (2007). Developing a B2B E-Commerce Implementation Framework: A Study of EDI Implementation for Procurement. *Information Systems Management,* Vol. 24, Iss 4, p. 373-391.

Angulo, A., Nachtmann, H. & Waller, M. (2004). Supple chain information sharing in vendor management inventory, *Journal of business Logistics*, Vol 25, Iss. 1, p. 101-120.

Bassin, W. (1990). A Technique for Applying EOQ Models to Retail Cycle Stock Inventories, *Journal of Small Business Management*, Vol 28, Iss 1, p. 48-56.

Blundel, R. (1998). *Effective business communication*, Herfordshire: Prentice hall, Simon & Schuster international group.

Bowersox, D. J. (1990). The Strategic Benefits of Logistic Alliances, *Harvard Business Review,* Vol. 68, Iss 4, p. 36-44.

Brewerton, P. M. (2001). *Organizational Research Methods: A Guide for Students and Researchers.* Wiltshire, UK: Cromwell Press Ltd.

Cachon, G. & Lariviere, M. (2001). Contracting to assure supply: How to share demand forecasts in a supply chain, *Management Science,* Iss 47, p. 629.

Carr, A., Kaynak, H. & Ross A. (2008). Supplier dependence: impact on supplier's participation and performance, *International Journal of Operations & Production Management,* Vol. 28, Iss. 9, p. 899-916.

Cassell, C. (2006). *Qualitative Methods in Management Research.* Bradford, UK: Emerald Group Publishing Limited.

Cassivi, L. (2006). *Collaboration planning in a supply chain*. Montreal, Canada: Emeral Group Publishing Limited.

Casson, M. & Wadeson, N. (1998). Communication costs and the boundaries of the firm, *International Journal of the Economics of Business*, Vol. 5, Iss 1, p. 5-28.

Chow, H. Choy, K. & Lee, W. (2007). Knowledge management approach in build to order supply chains, Vol 107, Iss 6, p. 882-919.

Chwelos, P., Benbasat, I. & Dexter, A.S. (2001). Research report: Empirical test of an adoption model, *Information System Research*, Vol. 12, Iss 3, p. 304.

Corsten, D. & Felde, J. (2005). Exploring the performance effects of key-supplier collaboration: An empirical investigation into Swiss buyer-supplier relationships, *International Journal of Physical Distribution & Logistic Management,* Vol. 35, Iss 6, p. 445-461.

Coyle, J., Bardi, E. & Langley, J. (2003). The Management of Business Logistics – A supply chain perspective 7th edition, *South Western, Thomson Learning,* Ohio.

Craven, David W, Piercy, Nigel. F, Shannon H. (1996). New organizational forms for competing in highly dynamic environments: The network paradigm, *British Journal of Management*; Vol 7, Iss 3, p. 203-219.

Daugherty, P., Myers, M. & Autry, C. (1999). Automatic web-based programs: An empirical examination. *Journal of Business Logistics*, Vol 20, Iss 2, p. 63.

Denscombe, M. (2003). *Good Research Guide: For Small-Scale Research Projects* (2nd ed.). Philadelphia: Open University Press.

Densmore, B. (1998). EDI vs. The new kids, in, retrieved the 2008-12-12 from: Computerworld, http://www.computerworld.com/home/Emmerce.nsf/All/980406edi

De Toni, A. & Zamolo, E. (2005). From a traditional web-based system to vendor-managed inventory: A case study from the household electrical appliances sector, *International Journal of Production Economics,* Vol. 96, Iss. 1, p. 63.

Disney, S. & Towillm, D. (2003). The effect of vendor managed inventory (VMI) dynamics on the Bullwhip Effect in supply, *Logistic Systems Dynamics Group*, Vol 85, Iss 2, p. 199-215.

Dyer, J.H. & Chu, W. (2003). The role of trustworthiness in reducing transaction costs and improving performance: Empirical evidence from the United States, Japan, and Korea, *Organization Science*, Vol. 14, Iss. 1; p. 57.

Egidus, H. (1986). *Postivism-fenomenologi-hermeneutik*. Lund: Studentlitteratur.

Emmet, S, & Crocker, B. (2006). The relationship driven supply chain – Creating a culture of collaboration throughout the chain, *Gower publishing limited*, Burlington.

Ezzy, D. (2002). *Qualitative analysis practice and innovation,* London: Routledge.

Fawcett, E., Magnan, G., & McCarter, M. (2008). A three stage implementation model for supply chain collaboration, *A Journal of Business Logistics,* Vol *29*(1), p. 93-112.

Fiala, P. (2005). Information sharing in supply chains, *Omega*, Vol. 3, p. 419.

Forbes, C. (1993). Creating the super supplier, *Industrial Distribution,* p. 30.

Fynes, B. & Voss, C. (2002). The moderating effect of buyer-supplier relationships on quality practices and performance, *International Journal of Operations & Production Management*, Vol. 22, Iss. 5/6, p. 589.

Gaverneni, S., Kapuscinski, R. & Tayur, S. (1999). Value of information in capacitated supply chains, *Management Sci,* Vol. 46, Iss 5, p. 626-643.

Gelderman. C. & van Weele (2002). Strategic direction through purchasing portfolio management: A case stud, *Journal of Supply Chain Management,* Vol 38, Iss 2. p. 30-38.

Gibson, R. (2000). *Intercultural business communication*, Oxford: Connelsen & Oxford university.

Gosh, A. & Fedorowicz (2008). The role of trust in supply chain governance, *Business Process management journal,* Vol 14, Iss 4, p 453.

Harland, C. M. (1996). Supply chain management: relationships, chains and networks, *British journals of management*, Vol 7, p. 63-81.

Harry, K., Chow, K., Choy, W., Lee, B. & Felix, T. (2007). Integration of web-based and RFID technology in visualizing logistic operations – a case study, *Journal: Supply Chain Management: An International Journal,* Vol. 12 Iss. 3 p. 221-234.

Hofman, D (2006). Getting to World-Class Supply Chain Measurement, *Supply Chain Management Review*, Vol. 10, Iss. 7; p. 18.

Horvath, L. (2001). Collaboration: The key to value creation in supply chain management. Vol. 6, Iss 5, p. 205-208.

Hoyt, J. & Hug, F. (2000). From arm's-length to collaborative relationships in the supply chain: an evolutionary process, *International Journal of Physical Distribution & Logistics Management,* Vol 30, Iss 9, p. 750-764.

Huberman, A. M., & Miles, M. B. (1994). *An expanded sourcebook: Qualitative data analysis.* (2nd ed.). California: Sage publications.

Jonsson, P. & Zineldin, M. (2003). Achieving high satisfaction in supplier-dealer working relationships, *Journal: Supply Chain Management: An International Journal,* Vol 8, Iss 3, p. 224-240.

Kerr, A. (1989). Information Technology – Creating Strategic Opportunities for Logistics, *International Journal of Physical Distribution & Logistic Management,* Vol 19, Iss 5, p. 15-17.

Kraljic, P. (1983). Purchasing must become supply management. *Harvard Business Review*, Vol 61, Iss 5, p. 109-118.

Landry, J.T. (1998). Supply chain management: the case for alliances, *Harvard Business Review*, Vol 76 (6) p. 24–25.

Lee, H., So, K. & Tang, C. (2000). The Value of Information Sharing in a Two-Level Supply Chain, *Management Science*, Vol. 46, Iss. 5; p. 626.

Lee, H. & Whang, S. (2000). Information sharing In a supply chain, *International journal of manufacturing, technology and management,* Iss 1, p. 79-9.

Madden, A (2000). A definition of information*, Aslib Proceedings: New Information Perspectives,* Vol. 52, Iss. 9, p. 343-349.

Magableh, G. (2007). A Dynamic Replenishment System for Integrating Supply Chain functions, *Maritime Economics & Logistics,* Vol. 9, Iss 1, p. 52-67.

McClellan, M. (2003). *Collaborative Manufacturing Using Real-time information to support the Supply Chain*, *CRC Press LLC*, London.

Maloni, M., Benton, W.C. (2000). Power influences in the supply chain, *Journal of Business Logistics, 21* (1), p.49-74.

Merriam, S.B.(1994). *Fallstudien som forskningsmetod*, Studentlitteratur: Lund.

Monczka, R. Callahan, T & Nichols, E (1995). Predictors of relationships among buying and supplying, *Nichols International Journal of Physical Distribution & Logistic Management,* Vol 25, Iss 10, p. 45-59.

Morash, E. (2001). Supply Chain Strategies, Capabilities, and Performance, *Transportation Journal*, Vol 41, Iss 1, p. 37-55.

Morgan, J (1998). Just how good a customer are you?, *Purchasing,* Vol 125, Iss 8, p. 53-56.

Morgan, R., & Smircich, L. (1980). The Case for qualitative Research, *The Academy of Management Review*, Vol 5(4), p. 491-500.

Ndubisi, N., Jantan, M., Hing, L & Ayub M (2005). Supplier selection and management strategies and manufacturing flexibility, *Journal of Enterprise Information Management,* Vol. 18, Iss. 3, p. 330-349.

Pfeffer, J. & Salancik, G.R., (1978). The External Control of Organizations: A Resource Dependence Approach, Harper & Row, London, p. 154-5.

Provan, K. G., & Skinner, S. J. (1989). Interorganizational Dependence And Control As Predictors, *Academy of Management Journal*, Vol 32, Iss 1, p. 202- 212.

Sandkuhl, K (2005). *Information Logistics in Networked Organizations: Selected Concepts and Application,* Springer-Verlag Berlin Heidelberg.

Saunders, M., Lewis, P., & Thornhill, A. (2003). *Research methods for business students* (3rd ed.). Essex: Pearson education limited.

Saunders, M., Lewis, P., & Thornhill, A. (2006). *Research methods for business students* (4th ed.). Essex: Pearson education limited.

Scholz, R. W., & Tietje, O. (2002). *Embedded case study methods: Integrating quantitative and qualitative knowledge,* London, UK: Sage Publications Ltd.

Seth, N. Deshmukh, S. & Vrat, P (2006). A framework for measurement of quality of service in supply chains, *Supply Chain Management: An International Journal,* Vol 1, Iss 1, p. 82-94.

Sheu, C. Yen, H & Chae B. (2006). Determinants of supplier-retailer collaboration: evidence from an international study; *International Journal of Operations & Production Management,* Vol. 26, Iss. 1, p. 24-49.

Shin, H. Collier, D.A. Wilson, D:D. (2002). Supply management orientation and supplier/buyer performance, *Journal of Operations Management*, Vol 18, Iss 3, p. 317.

Silverman, D. (2004). *Qualitative Research: Theory, Method and Practice* (2nd ed.). London: Sage Publications Ltd.

Simatupang, T. & Sridharam, R (2005). The collaboration index: a measure for supply chain collaboration, *International Journal of Physical Distribution & Logistics Management,* Vol 35, Iss 1, p. 44-63.

Skinner, S. Gassenheimer, J & Kelley, S (1992). Cooperation in Supplier-Dealer Relations, *Journal of Retailing,* Vol 68, Iss 2, p. 174.

Småros, J, Lehtonen, J Appelqvist, P & Holmström, J (2003). The impact of increasing demand visibility on production and inventory control efficiency. *International Journal of Physical Distribution & Logistic Management,* Vol 33, Iss 4, p. 336-354.

So, K & Zheng, X (2002). Impact of supplier's lead time and forecast demand updating on retailer's order quantity variability in a two-level supply chain, *Graduate School of Management, University of California*, Irvine.

Stokes, N (1999). Data integration a key issue, *Computer dealer news*, Vol 15, Iss 25, p. 31.

Swatman, P & Swatman, P (1992). EDI system: a definition and literature survey, *Information society,* Vol 8, Iss 3, p. 169-206.

Thakkar, J. Kanda, A & Deshmukh, S. (2008). Evaluation of buyer-supplier relationships using an integrated mathematical approach of interpretive structural modeling (ISM) and graph theoretic matrix: The case study of Indian automotive SMEs, *Journal of Manufacturing Technology Management 2008,* Vol 8, Iss 3, p. 224-240.

Thomas, A., & Barton, R. (2006). Integrating local suppliers in a global supply network. *Journal of Manufacturing Technology Management,* Vol 18(5), p. 490-512.

Vereecke, A, & Muylle, S. (2006). Performance improvement through supply chain collaboration in Europe, *International Journal of Operations & Production Management*, Vol 26, Iss 11, p. 1176-1198.

Vigtil, A (2007). Information exchange in vendor managed inventory *International Journal of Physical Distribution & Logistic Management*, Vol 37, Iss 2, p. 131.

Yang, J., Wang, J.J., Wong, C., & Lai, K-H. (2007). Relational Stability and Alliance Performance in Supply Chain, *International Journal of Management Science.*

Yin, R.K (2003). *Case study research: Design and methods* (3rd ed.). London: Sage Publications Ltd.

Yin, R.K. (1984). Case Study Research: Design and Methods: Sage Publications, California.

Ödman, P-J. (1991). Tolkning förståelse vetande. Hermeneutik I teori och praktik. Almqvist & Wiksell Förlag AB: Stockholm.

Appendix

Husqvarna AB Accessories

Husqvarna was founded in 1689 as a weapon factory. Husqvarna AB is today market leaders in their segment and produces outdoor products for forestry and garden, they also newly added a new segment within Construction and diamond tools. Husqvarna Group offers products suitable booth for consumers and professionals and sell products in more than 100 countries. For 2007 Husqvarna AB amounted SEK 33,3 billion and had an average of 16,000 employees. The products flora is wide and they offer for example chainsaws and protection clothing for the forest industry. In the garden and Lawn segment it includes products like lawn mowers and garden tractors. When Husqvarna purchased Gardena State they included the construction products, for example machines and diamond tools under the old brand name.

Husqvarna AB Accessories is a department at Husqvarna AB. They have their headquarter in Huskvarna and are five employees. Accessories has four purchasers and a couple of construction engineers. The purchasers at Accessories has two specific work areas, strategic purchasing which is related to finding good suppliers that offers quality products and service. And the other is the operative purchase which is related to the inventory management of the products. Accessories has two warehouses in Husqvarna and several warehouses around the world in the Husqvarna group's sales companies. The sales companies are representatives of Husqvarna and delivers the products to end customers within their country of origin. Accessories has approximately 150 suppliers from all over the world. The suppliers are in different sizes and deliver everything from screws to advanced accessories. Accessories do not produce any products themselves. However, a construction team at Husqvarna AB develops products that then is leased out for production. The accessories department is not to be confused with the reserve parts that Husqvarna AB guarantee their customers. Accessories is profit driven and their product range is related to customer demand and requests. The Accessories offers products from three different brands, Jonsered, Outdoor accessories and Husqvarna. Their product portfolio most sold items are Swords, Chains, Oil, protective clothing and tools for the private market. The products include both reserve part as well as products related to the activity. Accessories has a yearly turnover of approximately SEK 1,5 billion.

Interviewguide

Interview introduction

- "Replenishment" - Husqvarna AB Accessories internal term for their Web-based system
- Vision - Husqvarna AB Accessories Vision is to share information with all supplier with a web-based system

Suppliers introduction

- Describe your operation?
    - Do you produce goods or distribute?
- Explain the background for your chosen operation , JIT, large or small batches?

Information logistics

- Explain the exchange of information today?
- What is the mean of information sharing and how is it structured?
- Can you explain the strength and weaknesses of the way you share information in the current way?

Production schedule & Capacity

- Can you describe you capacity towards Husqvarna AB Accessories?
- Can you adapt the capacity for a change in demand?
- Is Husqvarna AB Accessories aware of your capacity?
- Do Husqvarna AB Accessories respect you ability to produce?
- Could you describe and exemplify how it effects you when the capacity is not respected?
- Do you estimate that Husqvarna AB Accessories knowing your capacity is important for your operation and your relation?
- Do you share your production schedule to Husqvarna AB Accessories
- Would you be open to share you Production schedule and capacity with Husqvarna AB Accessories?

Lead-time

- Do Husqvarna AB Accessories know you lead-time?
- Do Husqvarna AB Accessories respect the lead-time when they place an order?
- If the lead-time or capacity change, do you inform Husqvarna AB Accessories?
- Do you know Husqvarna AB Accessories lead-time towards the end customer?
    - Could you explain how this information could/do influence you operation?
- Do you regard lead-time information to be important in you operation and your relation?

Forecasts

- Do you have forecasts on Husqvarna AB Accessories products?
    - Is these forecasts received from Husqvarna AB Accessories or do you have your own forecasts?
- Can you explain how the forecasts is used in you operation?
- Can you describe how the forecasts affects you operation?
- Do you know how the forecast from Husqvarna AB Accessories is constructed?
    - Is this of interest of knowing, will that effect you?
- Do you feel that you miss information on forecasts?

Sales information

- Can you explain what kind of sales information you receive from Husqvarna AB Accessories?
    - Order, backorders, point of sales, sell-through information?
- Do you receive sales information regarding seasonal changes or promotional events?
- Can you explain how sales information affects you operation?
- Do you feel that you miss any information regarding sales?

Inventory

- Do you have inventory on Husqvarna AB Accessories products?
    - Can you explain why?
- Are you open to share your inventory status to Husqvarna AB Accessories if they asked you to?
    - Can you explain (potential) benefits or problems with sharing your inventory information
- Do you receive any inventory information on Husqvarna AB Accessories inventory?
    - Can you explain how you use this information?
    - Do you know how the information is constructed? Live update, updating based on incoming order or pick outs?
    - Can you explain the benefits with knowing Husqvarna AB Accessories inventory ?

Delivery notice

- Do you inform Husqvarna AB Accessories on scheduled deliveries, confirmed deliveries and correct deliveries?
    - Do you have suggestions for improvement?
- Do you get access to information on delivery performance?
    - On-time deliveries, order fulfillment, backorders?

- Can you explain how information on delivery performance affect you business and relation?

General

- Can you describe your relationship with Husqvarna AB Accessories
- Is Husqvarna AB Accessories regarded an important customer to you?
    - Exemplify why?
- How large proportion on the yearly turnover is connected to Husqvarna AB Accessories
    - Has this figure changed the last years, do you expect the figure will change the coming years?
- Do you believe that an increase of information sharing could improve your operation?
    - Can you exemplify how?
- Do you believe that an increase of information sharing could improve your relationship with Husqvarna AB Accessories?
    - Can you exemplify how?
- Can you see any problems with the application handiness with a web based system?
    - Connected to you personnel?
    - Connected to the company's business processes, established routines?
    - Can you exemplify?
- Do you have an interest implementing a web based system with Husqvarna AB Accessories to increase information sharing?