Knowledge Sharing in Cross-Functional Teams

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ABSTRACT

This thesis has the purpose to increase the understanding of knowledge sharing between dispersed units of a large organization. By conducting a qualitative study with an abductive approach, consisting of a case study at Volvo Group where we looked into a cross-functional committee, we researched what the knowledge sharing processes look like and what barriers hinder the sharing of knowledge. We used Nonakas (1994) model of Organizational Knowledge Creation and his SECI model to analyze the empirical material we gathered through interviews and observations. We found that cross-functional teams relying on online communication are facing some challenges when it comes to the sharing of knowledge. The barriers motivation and team commitment are intensified for cross-functional virtual teams since it is harder for these teams to find motivation and build team commitment since the team members rarely meet. In this thesis we argue that for a team to be able to share knowledge it has to focus on the sharing of tacit knowledge because when sharing tacit knowledge the members share perspectives and experiences and build trust. The trust and shared perspectives and hence the understanding of each other among the members are prerequisites to make other knowledge sharing mechanisms work.

Keywords: Knowledge Sharing, Knowledge Transfer, Cross-Functional Teams, Barriers to Knowledge Sharing

PREFACE AND THANKS

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We have put our heart into this work and we hope that You will enjoy reading it as much as we enjoyed working with it.

All the best

Matilda Andersson and Sara Bergenheim

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1. INTRODUCTION

Today's economy is a knowledge-based economy where the ability to create, distribute and apply knowledge are key drivers of worker productivity, company competitive advantage, and regional and industry growth.

DeFillippi et al. (2006) p. 1

1.1. KNOWLEDGE TODAY

The introductory remarks from DeFilippi et al. (2006) clearly show what the issue for organizations today is – and the issue is knowledge. Knowledge is everything. Knowledge today constitutes a basis for not only individual stimulation but also success and competitive advantages for organizations. But what is knowledge and how did we get here, to a *knowledge society*? What happened to industrialization?

What do we mean by *knowledge?* Knowledge is one of those things that it is hard to get your head around and explain in words. You may have an idea of what knowledge is but as soon as you try to explain it to someone you will realize how hard it is to put in words. To define knowledge is not easy and many attempts to do so have resulted in vague, all embracing concepts which in the end mean that knowledge means nothing at all (Alvesson and Kärreman, 2001). In this thesis we adopt the definition from Nonaka (1994) which states that knowledge is *justified true beliefs*, but with emphasis on justified and beliefs rather than true. But even though there are almost as many definitions of knowledge as there are researchers, the question of why knowledge has become an important issue has a clearer answer.

The knowledge society arose as the successor to the industrial society and is thus often referred to as *the post-industrial society.* The change from the industrial society was made easier by IT and the communication tools that IT led to (Jonsson, 2012). Another reason for the change to a post-industrial society was the focus which changed from goods to services (Cohen, 2008) and this made the individual and the knowledge held by the individual, crucial. Even though this distinction of society often is made to better understand the dominant move, Thompson and Harley (2012) argue that one has to be careful not to miss anything when labeling like this. Perhaps we should recognize the knowledge society as a discourse? Nevertheless, knowledge has always been part of our society even before the post-industrial society (Jonsson, 2012) and the term *knowledge society* might be misleading in this sense.

During the 1990's the idea of knowledge as a strategic asset and as a source of competitive advantage for the business firm grew further with important contributions from for example Grant (1996) who stated that knowledge is the most important asset in the organization but maybe above all, the emerging of Knowledge Management (Jonsson, 2012). Although knowledge management is not the focus of this thesis it is important to understand why knowledge has become such an important issue in today's organization and we might have knowledge management to thank for that. Knowledge management is, as the name suggests, a management field and the main idea is that knowledge is good and that is should be managed. One may argue that it is rather a new form of expertise than a passing fad (Alvesson and Kärreman, 2001).

The idea of sharing or transferring knowledge could be seen as part of knowledge management but it can also be seen as larger than knowledge management, since knowledge sharing is more than just management. To share knowledge is not an idea which has grown parallel with the knowledge society, all though the focus on knowledge has probably strengthened the interest in it. Knowledge sharing has rather existed since the guild society where apprentices were taught by their masters (Jonsson, 2012). But if knowledge sharing and knowledge transfer have existed since medieval times, why is it still an issue?

The main idea of knowledge sharing is to avoid reinventing the wheel and even though this idea seems very simple and easy to understand it is not always the case in reality. In today's society there is no one who would argue that knowledge sharing is not important but attempts to control the process of knowledge sharing often result in the sharing of information and not knowledge. Knowledge transfer often takes place when people do not realize it and Jonsson (2012) argue that the first thing to do when trying to facilitate knowledge sharing is to define what we really mean by it.

1.2. KNOWLEDGE TRANSFER AND KNOWLEDGE SHARING, SO WHAT?

The term *Knowledge Transfer* is blurry. First, as mentioned above there is no one seems to be able to define what it is since *knowledge* itself is abstract and slippery (even though many professors and researchers have given it a good try). Second, what is the difference between knowledge *transfer* and knowledge *sharing*? And third, what is there to transfer or share if no one knows what knowledge is? Despite this blurriness and confusion, the concept of knowledge transfer has been a hot topic in academic literature during the past years.

"Knowledge transfer is recognized as a fundamental issue for organizations". This is the opening phrase in the article by Albino et al. (2004, p. 584) about organization and technology in

knowledge transfer. These authors are not alone in highlighting the importance of knowledge transfer in organizations. Many academic writers and researchers have wondered about this phenomenon and countless articles have been written within the field of knowledge transfer. Argote and Ingram (2000, p. 150) bring the subject further by arguing that "the creation and transfer of knowledge are a basis for competitive advantage in firms". This is a strong statement and Argote and Ingram are not alone in their belief that knowledge transfer is fundamental for organizational competitive advantage (see for example Bollinger and Smith, 2001; Foss et al., 2009; Jonsson, 2012).

When it comes to the difference between knowledge sharing and knowledge transfer, Jonsson (2012) writes that there are no clear definitions where the difference between the two are showed. However, she states that a separation between the two can be made by emphasizing that transfer is a one-way communication whereas sharing is two-way.

In this thesis we assume, in regards of the current academic literature, that knowledge transfer and knowledge sharing is important for organizations. Even though knowledge sharing has existed for centuries it may be more important than ever, considering the fact that organizations today often are spread out all over the world and the fact that competition often is intense. A lot of meetings are often conducted through online communication and when knowledge sharing, according to the discussion above, is such an important factor for the survival of organizations one may wonder how today's way of communicating will affect the knowledge sharing. In the guild society the apprentice was able to learn and come in contact with knowledge through learning by doing, but is learning by doing even a possibility in today's organizations? What is clear is that organizations are facing other challenges than the guild society when it comes to knowledge sharing. In the following section we will describe how we deepened our understanding of the concept of knowledge sharing by studying a cross-functional committee at Volvo Group.

1.3. PROBLEMATIZATION

This thesis explores knowledge sharing at Volvo Group. The case we looked into was a newly created committee called Exchange Business Committee, EBC, and they worked with the exchange business and remanufacturing. Remanufacturing is when old parts, such as engines and transmissions, are remanufactured and sold again. Exchange is what the customer is experiencing in this process when the customer returns for example a broken engine and gets a remanufactured engine in return. The committee is cross-functional and consists of employees from all over the world, representing all the different business areas and functions at Volvo

Group. They meet once a month for an online meeting. We believed that this case was a good empirical example which could help us explore knowledge sharing since a lot of work today is pursued by online communication and cross-functional teams. Even though knowledge sharing is not a new phenomenon, it is facing new challenges. The question that one may ask is thus how the increased use of global cross-functional teams could affect knowledge sharing and our idea was that by looking into this committee we could get a deeper understanding of knowledge sharing, or maybe rather non-sharing.

When looking into the committee we quickly realized that remanufacturing is a very complex process. Remanufacturing is not as easy as just to renovate any part of the vehicle. We soon realized that to create a functioning process a range of stakeholders must be included; such as product design and development, sales and marketing and logistics. For an engine to be remanufactured a couple of years after being produced it has to be developed in a way which allows for remanufacturing. We also saw that different stakeholders held different views and opinions and that there was an unawareness and lack of knowledge of remanufacturing within the organization and we wondered why it was like that.

During our first week at the Volvo Remanufacturing Office we had informal conversations about EBC and about remanufacturing. We soon realized that within this cross-functional committee is an extensive amount of individually held knowledge. However, if one individual knew something, this knowledge was not necessarily transferred to the other members of the committee. This became obvious when we found out that different functions worked in different ways. Different functions and different geographical areas showed very differing results and so we wondered why the knowledge the successful parts held was not transferred to the less successful parts in a way which could improve the performance of the whole group. The problem that we found and the question we asked ourselves was thus:

Why is the knowledge not shared between the members of EBC?

This reasoning suited our theoretical field of knowledge sharing. The extensive field of knowledge sharing and transfer covers how knowledge is shared or transferred between individuals or other units such as organizations or functions. We found the problem suitable for the theoretical field and we carried out a literature review to see what had been done so far within the field and how our research could contribute to this field. Our initial finding that remanufacturing is very complex made us wonder what could hinder the sharing of knowledge. In the literature this is referred to as barriers (see chapter 3) and our ambition was to contribute

to the theoretical field of knowledge sharing by finding new barriers or by looking deeper into already identified barriers and by doing so increase the understanding of knowledge sharing.

To do this we first had to look into how knowledge is shared and we would then be able to look at the barriers. By interviewing members of EBC and by observing the meetings held we hoped to increase the understanding of knowledge sharing and thus bring some clarity to the blurriness.

1.4. RESEARCH QUESTIONS AND PURPOSE

Based on the history of knowledge sharing discussed above, where researchers have pointed out the long history of knowledge sharing as well as the growing importance of knowledge in our society, we could not help but wonder what problems today's modern firms are facing when it comes to the sharing of knowledge. With help from the problematization discussed above, we asked ourselves two questions concerning the knowledge sharing:

What does the knowledge sharing processes look like between different markets and functions connected to the Remanufacturing Unit at Volvo Group?

What knowledge sharing barriers hinder the knowledge sharing in these processes?

The answers to these questions will help us understand what role knowledge sharing and knowledge transfer has in today's modern firms and what problems they are facing. By conducting interviews and observations we intended to get explanatory and interesting answers and deepen our understanding and knowledge within the subject and so our purpose of the study was to:

Increase the understanding of the process of knowledge sharing between dispersed units of a large organization.

1.5. LIMITATIONS

In this thesis our focus lies on knowledge sharing and knowledge transfer. The concept of knowledge management is left out since there is a question of whether knowledge sharing is part of knowledge management or not. This question is not of importance in our work and so knowledge management will not be covered. The thesis is also limited to one case why the research will be narrow and there is a risk that our findings may be challenging to apply to other cases. We will give detailed descriptions of the context and by doing so we will hopefully help

the reader understand what findings are applicable to other cases. The transferability will be further discussed in chapter 2.

1.6. DISPOSITION

Our research method is described in chapter 2. This chapter is followed by the theoretical framework that we have used as a basis for our analysis. Our focus has been the model of organizational knowledge creation from Nonaka (1994) as well as different theories about barriers. In chapter 4 we have given a more detailed description of our case.

The analysis and empirical material is presented in chapters 5 and 6. These chapters consist of both empirical material and an analysis. In chapter 5 we focus on the knowledge sharing mechanisms we have identified, based on the steps in Nonaka's SECI model. In chapter 6 we focus on the barriers to knowledge sharing. Chapter 7 consists of discussions of the empirical material as well as some critical discussion about our impact as researchers and a short discussion about knowledge. In chapter 8 the reader will find what conclusions we have drawn as well as some directions for further research and for management.

2. METHOD

In this chapter the reader will get a detailed description of our methodological framework. First we describe our choice of method where the research design is discussed as well as the tools to collect data. Then follows a section where we describe what data was collected. In the end the reader will find some reflections around the method.

2.1. CHOICE OF METHOD

2.1.1. RESEARCH DESIGN

We chose a qualitative research as basis for our research design. Through a qualitative research we were able to understand other people's thoughts through language (Patel and Tebelius, 1987). Our research includes a case study as well as interviews and observations. To conduct a case study fits very well with the purpose of our study and we found a case that suited well to help us answer our research question. The case was a cross-functional team consisting of members from all over the world. According to Bryman and Bell (2005) the case study often emphasizes intense studies of the specific environment and it could be the study of an office or an organization. They further state that case studies often include interviews and unstructured described below and the case study also lets the researcher use more than one tool, in our case interviews and observations, which gives a deeper insight to the issue at hand.

Primary data was collected from observations and interviews. The purpose of the data collection was to get data which would constitute a basis for the analysis which was to lead to an answer to our research question. Knowledge sharing is a complex phenomenon which required us to understand the thinking patterns and interactions of the employees at Volvo. Formal observations were made of meetings with EBC and the focus of the interviews was on members of EBC. Below the reader can find other characteristics of our research design described, namely *Theory Approach, Epistemology* and *Ontology*.

We followed the abductive theory approach since the abductive approach lets the researcher use a combination of the inductive and deductive approach. It lets the researcher move from theory to empirics and back and adjust to the situation (Alvesson and Sköldberg, 2009). The abductive theory approach suits this thesis well since it allowed us to have an open mind set during the interviews. At the same time the abductive approach allowed us to use the theory as inspiration and guiding throughout the data collection (Alvesson and Sköldberg, 2009). We used this approach to stay flexible with relevant theoretical connections.

When it comes to epistemology, we have used the interpretive perspective which is separated from positivism and realism. Positivism and realism suggests that social science should use the same tools as natural science. The interpretive perspective on the other hand realizes that there should be a separation between the two and that the differences between humans and what is studied in natural science should be recognized. This implies that the researcher using the interpretive perspective tries to understand human behavior and interactions rather than explaining it. The interpretive perspective is suitable for qualitative research (Bryman and Bell, 2005) and it fits well with the purpose of our thesis. The interpretations we make will always be colored by our own experiences, culture and personalities. One may distance oneself from this by reflecting on our own interpretations of others interpretations (Alvesson and Sköldberg, 2009). By doing this we will try to understand how we as researchers have affected the results and findings of our research.

We also found the constructionist ontological standpoint suitable for our study. This standpoint does not take things for granted but rather puts emphasis on the role of social actors and their interactions. It also implies that reality is a social construction. Social phenomena are created by interaction between social actors but the phenomena are also constantly questioned and revised. One social phenomenon is the organization and this means that what is meant by an organization or what an organization is cannot be determined (Bryman and Bell, 2005). This ontological standpoint fits well with Nonaka's (1994) model of organizational knowledge creation which will be described in the next chapter. Nonaka emphasizes the individual's perspective in the creation of knowledge as well as the constant justification and the ongoing nature of the process. We believe that this is a suitable for the research and an important standpoint since it allows us to take into account that different actors perceive reality in different ways. This will help us get a better understanding of the behavior of the interviewees and their interactions during and between meetings.

2.1.2. OBSERVATIONS

One of our data collection methods was to make observations of the EBC meetings. Observations let the researcher study actions and happenings in their natural setting (Patel and Tebelius, 1987). We made observations because in interviews and surveys a researcher has to rely on what is said and not what is actually happening. One way of overcoming this problem is to make observations and thus capture another dimension where one can see actual behavior (Bryman and Bell, 2005), such as interactions between people as well as communication styles and body language. The observations made were so called *non-participative observations* and *unstructured observations.* The non-participative observation is an observation where the observer does not

engage in the activity but just observes what is going on (Bryman and Bell, 2005). By using the non-participative approach to observations we intended to reduce the impact we had on the people who participated and thus get an understanding of their actual behavior. The unstructured observation implies that no scheme is used to register what is happening. Instead the observer uses a narrative approach to describe the behavior. The two types of observations are normally combined (Bryman and Bell, 2005).

When conducting observations the researcher does not have any predetermined ideas of what is important but rather uses the observation to get an understanding of the people observed (May, 2001). Although our literature review had given us some broad ideas of what we were focusing on we were able to use our abductive approach when conducting observations and it let us move from theory to empirics and back.

We were seated in the Remanufacturing Office in Gothenburg from February until May and we were thus able to make continuous informal observations of the behavior in the office and in the lunch room. The formal observations were of two meetings with the Exchange Business Committee were observed. These meetings were held online and so we observed the oral communication between the participants but also the body language of the people who were seated in the same room. The two observations are described further in appendix 1.

2.1.3. INTERVIEWS

The second method we used to collect data was to conduct interviews. We chose to use semi-structured interviews where an interview guide is used. The questions were specified in the interview guide, however, the semi-structured approach let us be flexible in our approach and ask other questions (May, 2001). This approach lets the researcher be flexible since there is no predetermined order, however the researcher can at the same time steer the conversation in a specific direction. The use of semi-structured interviews lets the interviewee reflect and bring up topics that are of interest for him or her (Bryman and Bell, 2005).

During the study several interviews were made. The interviews were held in person but also online through the software made available to us by Volvo. The interviews focused on the members of EBC. The interviews were held in our mother tongue Swedish when possible, so that complex nuances could be captured. When this was not possible the interviews were held in English. When the interviews were held in Swedish we translated the quotes we used in the analysis to English. In total 17 people were interviewed. Please see an attached list of interviewees in appendix 2.

All interviews were recorded and transcribed but due to the large amount of interviews we had to be selective in what to transcribe and what not to transcribe. The parts we did not transcribe were parts we did not find relevant such as small talk about for example the weather and yesterday's game.

The interview guide guided us during the interviews so that the semi-structured interviews were reached. The guide was divided into different sections aiming at discovering different barriers or sharing mechanisms. We tried to use questions where the interviewee had the opportunity to answer with reasoning or a narrative instead of saying yes or no. The interview guide is attached in appendix 3. Our interview guide and our interview techniques were tested in a pilot interview where we interviewed one of the employees from the head office where we were seated. This interview was then transcribed and analyzed. After the pilot interview we changed the interview guide by changing the order of the questions and the different sections so that the interviews would run more smoothly.

When conducting good interviews some factors needs to be taken into consideration. These are *Availability, Cognition* and *Motivation*. This means that the respondent need to have the information required available, the respondent needs to understand what is required by him or her and finally understand why the respondent's participation is of importance (May, 2001). To do this we contacted all interviewees by email, writing what we were doing and that we wished to interview them about their work in EBC. By doing so they understood what was required by them and by explaining prior to the interview what we were doing they could get an understanding of why their participation was important and thus be motivated. Since we focused on EBC we made sure the members of EBC had all information available.

2.1.4. ANALYSIS OF PRIMARY DATA

The qualitative analysis stems from the hermeneutic tradition where the idea is that each individual creates his or her own reality (Patel and Tebelius, 1987). This goes hand in hand with our constructionist ontological standpoint. To conduct our analysis we used the tools for qualitative analysis from grounded theory (Bryman and Bell, 2005). It is important when codifying that the categories created is consistent with the purpose of the study and the theoretical interest (May, 2001). Coding includes codification of the data and thereby the generation of concepts. These concepts were generated based on recurring themes and also contradicting themes. These themes were compared and sorted into broader categories. The relations between the categories were then analyzed by mapping out how the categories fit together, how they interact and what that means. During the observations we were able to take

notes separately. These notes where then compared and codified in the same way as the interviews. This was practically done by separately reading through the transcribed interviews and codifying them. The codification was thus made separately so that we could capture as many perspectives as possible. We discussed the codes together and sorted them into themes by cutting out pieces of the texts and putting them into different boxes. These boxes then represented the themes which were then put together into categories to analyze.

Codification and Emergent Themes

During or codification we found 33 emergent themes. The themes we found are listed below.

Emergent Themes	
Areas of Improvement	Learning/Non-Learning or Sharing/Non-Sharing
Attidtudes to Learning	Market Differences
Bringing up Issues at the Meeting	Meeting Structure
Communication with Others	Motivation
Complexity	Network
Contemporary Social and Environmental Analysis	Opportunities
Contradictions	Organizational Differences
External Language Barriers	Organizational Structure
Focus	Prioritizations
Future	Sharing of Ideas
Growth Objectives	Shortage
Hopes and Expectations	Team Building/Kick Off
Ideas	The Team
Inability to Act	Trust
Internal Language Barriers	Understanding of Reman
Knowledge Sharing Mechanisms	Why Reman?
Lack of Resources	

Table 2.1. Codified emergent themes

The themes where then put into 5 categories. In our analysis we used our categories to get an overview of what we had found. Each category contains the themes that we found belong together and each category represent a subject which the interviewees mentioned often. We then matched our categories with our theoretical framework which is described in chapter 3. How we matched is clarified in chapter 5 and 6. Please note that some of the themes were sorted into more than one category and that some categories were used several times in the analysis. The final categories are listed below.

Categories	Consisting of themes
Team	Communication with others Contradictions Internal language barriers Kickoff Knowledge sharing mechanisms The Team Trust
Motivation	External Language barriers Future Growth Objectives Hopes and expectations Ideas Inability to act Lack of resources Motivation Opportunities Prioritizations Why reman?
Meeting	Areas of improvement Bring up issues at the meeting Focus Meeting Structure Sharing of ideas Shortage
Volvo Group	Complexity Contemporary social and environmental analysis Market differences Organizational differences Organizational structure Understanding of reman
Knowledge Sharing	Attitudes to learning Knowledge sharing mechanisms Learning/Non-learning or Sharing/non-sharing Network

Table 2.2. Codified categories

2.1.5. SECONDARY DATA

All information we had about Volvo Group was gathered from documents made available to us from the intranet called Violin. These documents concerned general information about Volvo Group, such as organizational charts and core values. We were also invited to the virtual platform of EBC, called the TeamPlace, were we were able to look into all EBC documentation such as agendas, projects and meeting minutes.

2.2. LIMITATIONS

We have limited the research to one case since we found an interesting case to work with. To compare this case with another case would have been difficult since cases are always very unique. We chose to focus on one case to be able to analyze it thoroughly and have a narrow

focus. By focusing on one case we were able to get deeper understandings of the concept of knowledge sharing and by giving detailed descriptions of the context, our finding can be applicable to other cases as well. Since the focus was the committee, the choice of interviewees and observations was limited to the members and their meetings as well as other employees connected to the committee. More interviews were not possible due to the limited amount of time.

2.3. REFLECTIONS

When deciding on our methodological framework we discovered some important issues to reflect on. Bryman and Bell (2005) state that when doing observations, the person or the people observed may not behave the way they normally do due to the fact that they know that they are being observed. The person observed or interviewed may take on a role that he or she normally does not, or try to make a good impression. We are well aware of this and it is taken into consideration when analyzing our interviews and our observations.

During the interviews it is not certain that the interviewees are telling the truth since they might wish to protect someone or something. This implies that it can be hard for us as researchers to get a deep understanding of the person. By making observations as well as interviews we tried to get a more nuanced understanding of the members of EBC and their behavior.

Our constructionist ontological standpoint applies that there is not one objective reality. This means that we all create our own social reality and our perceptions and personal values are thus likely to affect how we interpret the situation. The analysis and results presented in this thesis are thus likely to be colored by our socially constructed understandings of the world.

2.3.1. TRUSTWORTHINESS

Trustworthiness is the qualitative equivalent to reliability and validity in quantitative research (Bryman and Bell, 2007). According to Lincoln and Guba (1985) it is not suitable to measure the reliability and validity in qualitative research since reliability and validity suggests that there is one objective reality. Instead they use the criteria credibility, transferability, confirmability and dependability. To increase the credibility of the research we are using the method of triangulation from Lincoln and Guba (1985) and one mode of triangulation is to use different sources. This means that the use of different sources such as multiple interview respondents and two observations and the fact that we are two researchers is increasing the credibility of our research. Another mode of triangulation is the use of multiple methods which also increases

credibility (Lincoln and Guba, 1985). To increase the credibility of our research we thus conducted both interviews and observations.

Transferability is the equivalent to external validity (Lincoln and Guba, 1985) and means the extent to which our findings will be applicable to another context. We studied a very specific case and this makes the findings hard to transfer to another context (Bryman and Bell, 2005). To increase the transferability we tried to give detailed descriptions of the context so that it will be easier for other people to understand what in this thesis is applicable to their specific context.

Confirmability is the equivalent to objectivity and to ensure confirmability and dependability is the parallel to reliability in quantitative research (Lincoln and Guba, 1985). We have, in line with Lincoln and Guba (1985), performed an audit trail and increased the confirmability and dependability by focusing on both the product and the process. By auditing the research we have assured that the findings are grounded in the data and that the methods were used in the way planned. We have also tried to motivate the choice of method and we have argued for our choices and interpretations.

2.4. SUMMARY

In this chapter we have described how we have conducted our research. We explained how we used an abductive theory approach and conduct a case study. The empirical material was collected by interviews and observations. We have worked from a constructionist ontological standpoint and used the framework from Lincoln and Guba (1985) to increase the trustworthiness of our research. In the next chapter we describe our theoretical framework.

3. KNOWLEDGE AND KNOWLEDGE SHARING

In this chapter we are mapping out the theoretical framework used for this thesis. The main focus is the model and theory called "SECI" from the article "A Dynamic Theory of Organizational Knowledge Creation" by Nonaka (1994) but we will also define the relevant important terms and definitions such as knowledge, knowledge transfer and knowledge sharing. The discussion concerning Nonaka's model is followed by a section where barriers to knowledge transfer are explained. The chapter is ended by short discussions of critique and limitations.

3.1. WHAT IS KNOWLEDGE?

To gain a deeper understanding of the sharing of knowledge we first have to determine what we mean by *knowledge.* As described in chapter 1, this is not done easily and many tries to define it leads to the concept in the end being meaningless.

Jonsson (2012) divides knowledge into two perspectives; one may see knowledge as an object or as a process. When knowledge is seen as an object, Cook and Brown (1999) write about the epistemology of possession and this includes the traditional understanding of knowledge. The other perspective, knowledge as a process, calls for action and that takes into account the *knowing* of groups and individuals which call for an epistemology of practice. What perspective an organization adapts will have implications for how knowledge then is transferred. The first perspective sees knowledge as an asset, in line with Grant (1996), whereas the second perspective sees knowledge as part of social interaction and as something socially constructed. Knowledge can further be divided into explicit and tacit (sometimes also called implicit) knowledge. Explicit knowledge is knowledge which is easy to codify into for example documents whereas implicit knowledge is harder to codify. Tacit knowledge can be exemplified as something connected to an action such as riding a bike (Newell et al. 2009). Jonsson (2012) writes that these two concepts can be seen as dimensions of knowledge and thus knowledge does not have to be either or, but rather a combination of implicit and explicit knowledge. Cook and Brown (1999) states that emphasis within the epistemology of possession is explicit knowledge held by individuals, and they argue that organizations are better off treating knowledge as distinct forms which exist simultaneously and which enable each other. These forms of knowledge are tacit, explicit, individual and group knowledge. They add a dimension to the concept of knowledge by stating that more focus of research should be put on not only the knowledge but also the *knowing* within organizations i.e. how knowledge is used.

We use a model from Nonaka (1994) and the definition of knowledge from his article will hence be used. Nonaka (1994) embraces the traditional definition of knowledge as *justified true beliefs*. However, he chooses to emphasize the personal beliefs and the importance of justification of these rather than the truthfulness, due to the static and nonhuman nature of the concept of truth. Nonaka sees knowledge as a process where the human justifies his or her beliefs in search for the truth. In his model emphasis should be put on "the active, subjective nature of knowledge represented by such terms as 'belief' and 'commitment' that are deeply rooted in the value systems of individuals" (p. 16). This is thus the emphasis and the definitions which we embrace.

One may ask why knowledge is valuable and why it should be shared and there are many answers to this question. For example, Grant (1996) wrote in his article *Towards a Knowledge Based View of the Firm*, which is an extension of the resource based view of the firm, that knowledge can be seen as the most important asset for an organization. Argote and Ingram (2000) stated that knowledge which has been created within the organization can be an important competitive advantage. Argote et al. (2000) showed that according to empirical evidence, a firm which can effectively transfer knowledge will probably do better than a firm that cannot. According to Bollinger and Smith (2001) knowledge sharing can help an organization reach better results. One can thus see from these articles that knowledge is a highly valuable resource in organizations and that it can lead to competitive advantages. This is why we adopt the perspective that knowledge is a critical source of value and that knowledge transfer is important for organizations.

3.2. WHAT IS KNOWLEDGE SHARING?

This thesis has the purpose to increase the understanding of knowledge sharing and thus definitions of knowledge sharing and knowledge transfer are appropriate. Knowledge transfer and knowledge sharing are two terms often used in the literature concerning knowledge and knowledge management and there are almost as many definitions as there are researchers. In this thesis the definitions from Jonsson (2012) with influences from Argote and Ingram (2000) will be used.

Knowledge is *transferred* when an individual, group or organization communicate information to another individual, group or organization. Knowledge transfer also includes what motivates the transfer (Argote and Ingram, 2000; Jonsson, 2012). This is a one-way communication and should be separated from the concept of knowledge sharing (Jonsson, 2012). Knowledge is *shared* when two or more individuals, groups or organizations communicate information to each other in a two-way communication (Jonsson, 2012). In this thesis the term transfer will be used

when the process is one-way whereas the term sharing will be used when there is a two-way process. We chose to use the term sharing if the situation does not require the term transfer since we feel that sharing and two-way communication have more positive associations.

3.3. THEORY OF ORGANIZATIONAL KNOWLEDGE CREATION

We are in this thesis mainly using the theory of organizational knowledge creation from the well cited article "A Dynamic Theory of Organizational Knowledge Creation" by Ikujiro Nonaka (1994). It may be questioned why we are using a model of organizational knowledge creation instead of a model of knowledge sharing. However we find it suitable because this model puts a lot of emphasis on the role of the individual at the same time as it uses a team to share knowledge. According to Jonsson (2012) this model is a model for organizational knowledge creation but it can also be seen as a model of knowledge sharing. These factors make the model appropriate for this situation since we are studying individuals and a team and the sharing of knowledge.

Nonaka (1994) uses the term *organizational knowledge* and this term is sometimes criticized. For example Alvesson (2004) criticizes the term since it is not used in the same way by researchers. Organizational knowledge is seen by some as the accumulated knowledge held by individuals. By others it is seen as part of culture and norms within an organization. Jonsson (2012) writes that some argue that the individual cannot be separated from organizational knowledge since knowledge is dependent on the individual. Nonaka (1994) agrees to this and states that knowledge is dependent on individuals. Organizational knowledge creation is thus a process in which the individually created knowledge is organizationally enhanced and crystalized to be a part of the network of knowledge within the organization. He does not argue that organizational knowledge is the accumulated knowledge held by individuals but rather that it is a knowledge which is shared and part of the organizational knowledge network. This is, for the purpose of this thesis, a good definition of organizational knowledge since it emphasizes the individual and the importance of sharing knowledge. However, it should be acknowledged that the concept of organizational knowledge does not mean the same thing to everyone and should be used carefully.

3.3.1. SECI

Nonaka (1994) differentiates between tacit and explicit knowledge according to the reasoning in section 3.1. Nonaka has been criticized for the way he separates them since many argue that tacit and explicit are dimensions of knowledge and cannot be separated. Even though he has

been criticized, his SECI model of how knowledge is converted and where he separates between tacit and explicit knowledge has been well cited (Jonsson, 2012). The SECI model is explained below. SECI is an abbreviation of *Socialization, Externalization, Combination* and *Internalization*.

According to Nonaka there are four different modes of converting knowledge and they spring from the distinction he made between tacit and explicit knowledge. The first mode is *socialization*, where tacit knowledge held by one person is converted to tacit knowledge held by another. This is done by what is called socialization and here experience is the key. As in the guild society where an apprentice could learn from a master, knowledge can be shared through observation and imitations. This means that socialization does not have to include language or communication; instead it has to include experiencing. The shared experience which is created by this activity helps individuals share a thinking process and helps making sense of the information. A shared thinking process also helps individuals make sense of information that is shared, since information out of its context makes little sense (Nonaka, 1994). Tacit knowledge is by its definition hard to formalize and is part of the unique individual. This means that the sharing of tacit knowledge through socialization often occur outside of the workplace where employees can socialize and share mental models and build trust (Nonaka et al., 2000). In this mode it is crucial that the individuals are willing to share knowledge to make the process efficient (Nonaka and Takeuchi, 1995).

Externalization is when tacit knowledge is articulated into explicit knowledge through crystallization (explained in section 3.2.2). When the knowledge is crystallized it can be shared by others and also constitute a basis for new knowledge (Nonaka et al., 2000). During this mode group commitment is important (Nonaka and Konno, 1998)

The next mode is when explicit knowledge is converted to explicit knowledge. This is called *combination*. When an individual combines existing knowledge with new information and for example adds on or re-categorizes; new knowledge can be created (Nonaka, 1994). In this mode explicit knowledge is transformed into more complex sets of explicit knowledge. Throughout this process databases and IT systems can play a major role (Nonaka et al., 2000).

The last mode is called *internalization* where explicit knowledge is embodied to tacit knowledge. For example this can be when a process is shared to other people in the organization and then used. Through learning by doing the individuals in the organization can thus gain experiences and tacit knowledge (Nonaka et al., 2000).
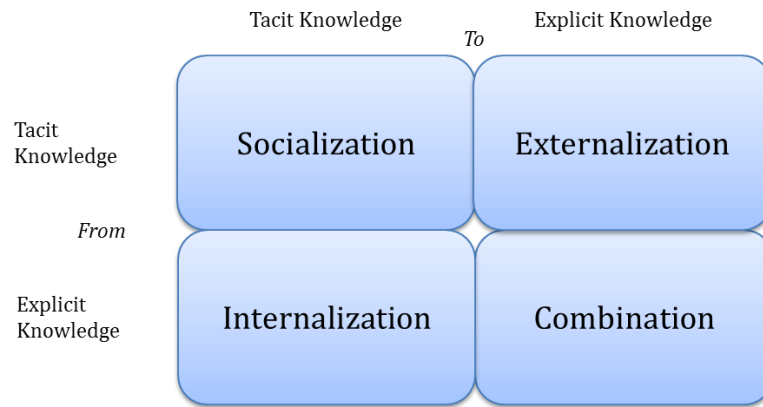
Figure 4.1. Modes of Knowledge Creation, based on Nonaka (1994) p. 19

These modes can all separately create new knowledge however Nonaka argues that they are to be combined in the creation of organizational knowledge. Knowledge should be created by building both tacit and explicit knowledge and to only focus on combination or socialization could have negative effects. If only combination is used, the knowledge created will have little connection to the current reality and if only socialization is used the knowledge created will be hard to apply to other contexts and hard to share. If all the four modes are dynamically combined one may reach organizational knowledge creation and all the modes will form a cycle (Nonaka, 1994).

This cycle can be divided into some intertwined phases where the first phase is socialization which is characterized by the formation of a field or a team. The next step is the externalization where the members are able to participate in dialogue and by the use of metaphors they can find hidden tacit knowledge and it can help them to explain their perspectives and thoughts. The team will thereby, using combination, form concepts and these concepts can be combined with information that already exists. The concepts are then experimented with until they can be developed and emerge in concrete form. This is internalization through learning by doing. The explicit knowledge that they hold can then be internalized to tacit knowledge (Nonaka, 1994).

If individuals are provided with autonomy they will be more motivated to share knowledge and the organization which provides autonomy is more likely to find unexpected opportunities. This organization is also more likely to be flexible when it comes to handling information. An individual who is given autonomy is free to absorb knowledge (Nonaka, 1994).

3.3.2. THE PROCESS OF ORGANIZATIONAL KNOWLEDGE CREATION

Nonaka created a process model for the creation of organizational knowledge based on the reasoning above. This model is to be seen as a never ending circle (Nonaka, 1994). The first step is to *enlarge an individual's knowledge* so that the knowledge can then be shared. To do this the individual must reflect on the experience while experiencing. Nonaka explained this by writing that "individual knowledge is enlarged through this interaction between experience and rationality, and crystallized into a unique perspective original to an individual. These original perspectives are based on individual beliefs and value systems" (Nonaka, 1994, p. 22). The next step in the model is to *share tacit knowledge*. In the first step individuals create their perspective of the world. When these perspectives are shared through social interaction, individuals can together create a new concept and thus new knowledge. This is to be done through what Nonaka refers to as a *field* or a *self-organizing team* and this is socialization (Nonaka, 1994). This field is to be a place where perspectives can be shared and conflicts solved. In organizations this is usually done by forming a team, and Nonaka (1994) suggests a cross-functional team. These teams can share tacit knowledge by building trust which helps members to create a common perspective and this perspective can be *conceptualized* by continuous dialogue. The created knowledge should then be tested by various departments and put into use in a process or product. This is called *crystallization* and is done by externalization. This process is made easier if characterized by redundant information. The next step is to *justify* the created knowledge and this is where the knowledge is screened to see if it is useful for the organization. During the last step, the justified knowledge is integrated into the *knowledge network* of the organization.
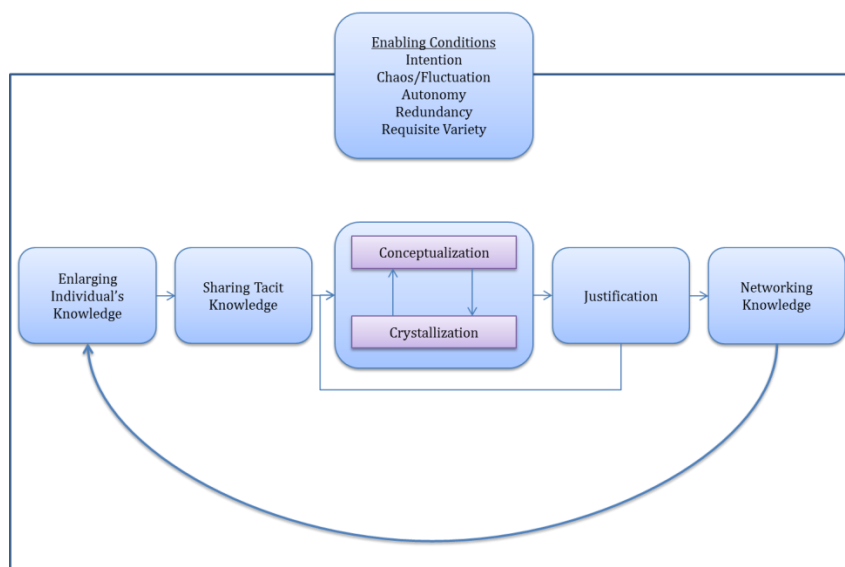

Figure 3.2. Organizational Knowledge Creation Process, based on Nonaka (1994) p. 27

There are some conditions which enable this process, namely *creative chaos*, *redundancy* and *requisite variety*. Creative chaos is when the organization is facing some kind of crisis or when a sense of urgency is created. This is positive since it makes people focused on problem solving. Information redundancy is when there is overlapping information and this is positive since it speeds up the process and managerial hierarchy can be reduced by redundant information. Requisite variety is when the team is creating diversity within itself to match the diversity that is to be processed (Nonaka, 1994).

3.4. BARRIERS TO KNOWLEDGE TRANSFER AND KNOWLEDGE SHARING

In this section we will discuss the concept of knowledge sharing barriers as a complement to the theory of Nonaka in order to understand what knowledge sharing barriers there are within EBC.

Knowledge sharing is often identified as a facilitator for effective knowledge management that can help organizations to reach better results (Bollinger and Smith, 2001). However, Sharma et al. (2012) argue that organizations cannot reach better results through knowledge sharing if they are not aware of and understand the knowledge sharing barriers which exist within and around their organization. To make the knowledge sharing mechanisms work, one has to be observant and pay attention to various obstacles that may hinder the transfer (Argote and Ingram, 2000).

3.4.1. LACK OF MOTIVATION

One of the most important barriers, or facilitators, to knowledge sharing is motivation (Jonsson, 2012). To be able to transfer and acquire knowledge one has to be motivated (Wu and Lee, 2012). Wong (2005) suggests that motivational aids are critical for the success of the process of knowledge sharing. He states that if there are no working incentives to do so it does not matter how much an organization tries to implement new processes or strategies to share knowledge because it would not work. Watson and Hewett (2006) state that motivation is important for people to contribute with knowledge and to reuse knowledge. One may conclude from this that motivation is an important factor for people to share knowledge. Argote et al. (2000) writes that motivation is crucial when sharing knowledge since employees might be hesitant to knowledge which was not created there. Motivation, according to Argote et al. (2000), does not have to be monetary but could as well be social. Motivation can be seen as a prerequisite for knowledge sharing because if knowledge sharing is not motivated, the above mentioned literature suggests that it will not happen. Since it can be seen as a prerequisite, lack of motivation is a barrier to knowledge transfer.

Motivation and Job Design

One thing which may affect motivation according to Foss et al. (2009) is job design. Job design could be a barrier to knowledge sharing if it is not constituted to motivate employees to share knowledge. They argue that people have to be motivated to share the knowledge they have to others. Foss et al. (2009) differs between external motivation and intrinsic motivation. External motivation is when the employee does something to gain direct positive outcomes or to directly avoid negative outcomes and could for example be monetary rewards or to simply avoid punishment. Intrinsic motivation makes the employee engage in an activity because it is in line with the employee's interest and values and because the employee likes to do it. Whether an employee feels externally or intrinsically motivated is, according to Foss et al. (2009) connected to job design. Autonomy and task identity characterizes a job design which makes the employee intrinsically motivated whereas feedback characterizes a job design which makes the employee externally motivated. Task identity refers to how much of the task is performed by the employee, for example if the employee can see the task from start till end. Foss et al. (2009) found in their research that employees intrinsically motivated by job design are more motivated to share and to receive knowledge.

Motivation, Attitudes, Norms and Intentions

Gagné (2009) developed a model for knowledge sharing motivation. This model is also related to job design and other HRM practices. Her model is showed in figure 3.3. The model shows that HRM practices affect norms and need satisfaction. Need satisfaction also affects attitudes which in turn affect one's intention to share. Staffing affects attitudes, need satisfaction and norms. Norms and need satisfaction affects the motivation which then together with attitudes and norms affect the intention. The intention then leads to actual behavior.
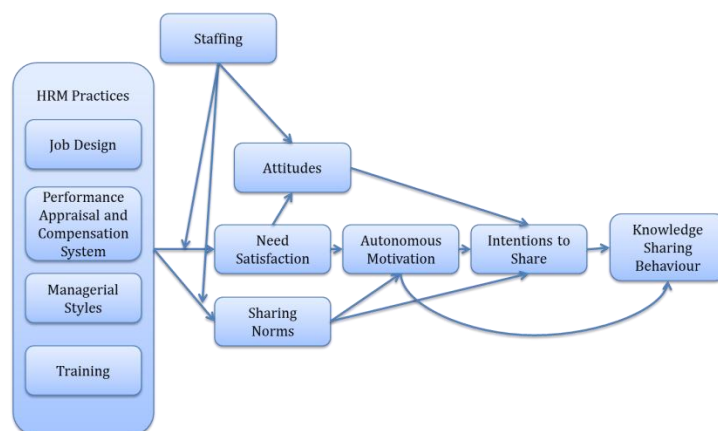

Figure 3.3 The Model of Knowledge Sharing Motivation, based on Gagné (2009) p. 575

This can be summarized by stating that HRM practices affect motivation, norms and attitudes. These in turn affect one's intention, and the intention is crucial for an actual knowledge sharing behavior. The conclusion we draw from this is that lack of good HRM practices, good norms and good attitudes can be seen as barriers to knowledge sharing.

3.4.2. TRUST

An enabler of knowledge sharing is trust. The employee who is to share knowledge has to trust not only the person, to whom the knowledge is to be transferred, but also top management and the organization. The more trust the employee feels, the more the employee will share (Jonsson, 2012). According to social exchange theory, an individual share knowledge when the individual trust that this service will be returned (Watson and Hewett, 2006). Watson and Hewett (2006) states that when trust increases, so will the sharing of knowledge. For an individual to use knowledge received from another individual or another source, he or she has to trust the source.

According to Nonaka and Takeuchi (1995) "building trust requires the use of mutually understandable, explicit language and often prolonged socialization or two-way, face-to-face dialogue that provides reassurance about points of doubt and leads to willingness to respect the other" (p. 222). This puts emphasis on the importance of physical meetings when it comes to the building of trust.

The argumentation above thus states that trust is a critical factor for the sharing of knowledge. This means that lack of trust will be a strong barrier to knowledge sharing and this trust concerns individual, group and organizational level.

3.4.3. TECHNOLOGY

Wong (2005) identifies a well working IT system as a critical success factor for knowledge sharing. Desouza (2003) writes that technology and IT-systems are often installed to enable knowledge sharing. However, he states that to install one is not enough and management support is also needed. Desouza (2003) has seen during his research that technological tools such as IT-systems and tools for communication are often not used in the best way. One can see here that IT and technology seems to be a critical factor for knowledge sharing but a lack thereof and a system not used in the ultimate way can be a barrier or at least prevent knowledge from being utilized within the organization.

3.4.4. LACK OF RESOURCES

Wong (2005) argues that resources are critical when sharing knowledge. He stated that resources could be financial when for example implementing a new system but it can also concern HRM practices and the time needed to share knowledge. According to Bollinger and Smith (2001) the organizational perspective might be that knowledge sharing is costly and time consuming. Lack of time and money can lead to the organization not prioritizing knowledge sharing and consequently lack of top management support. Lack of resources can thus be a barrier to knowledge sharing.

3.4.5. LACK OF TOP MANAGEMENT COMMITMENT

Lack of top management commitment is also described as a barrier for knowledge sharing (Bollinger and Smith, 2001; Sharma et al., 2012; Wong and Aspinwall, 2004). Some authors even go as far as saying it is the most critical barrier to knowledge sharing. Since top management is responsible for the corporate vision, culture, policies, goals and resources, it influences the way the organization works and handles problems (Sharma et al., 2012). Knowledge sharing will always be present in some ways because organizations consist of humans who interact with each other (Argote and Ingram, 2000) but if it is not supported from the top management it hampers effective knowledge sharing (Sharma et al., 2012).

3.4.6. ORGANIZATIONAL STRUCTURE

Organizations can have different types of structures. Islam et al. (2012) make a difference between mechanic and organic structures. The mechanic organization is characterized by having specific regulations and often a strong hierarchy and the organic organization is characterized by a high level of decision-making process, low degree of hierarchy authority and strong complexity (Islam et al., 2012). Lord and Ranft (2000) argue that there is a risk with vertical and hierarchal structures since different units within the organization work independently and no knowledge sharing might be encouraged between the separate units. Therefore, it is important to consider the organizational structure when trying to optimize and favor knowledge sharing in an organization (Islam et al., 2012).

3.5. CRITIQUE

At this point there is some critique to the theory which can be put forward. It can be questioned whether knowledge can be defined at all since there are so many definitions and since they are often vague, all embracing and have an empty view of knowledge (Alvesson and Kärreman,

2001). It can also be questioned whether knowledge, and thus the sharing or transfer thereof, is a good thing. Knowledge is often seen as something objective which solves problem but one may argue that it rather increases the opportunity to exercise power and creates new problems (Alvesson and Kärreman, 2001). This arguing could undermine the theoretical framework described above. Our purpose is to increase the understanding of knowledge sharing and not to facilitate it. We have taken this critique into consideration and will use it to get a more nuanced understanding of knowledge sharing by taking this aspect of knowledge as something bad into consideration as well.

Another critique to put forward is that the complex nature of knowledge leads to the fact that it is hard to measure and thus it will be difficult to actually determine whether knowledge is shared. This complicates our study and we will take it into consideration in our analysis.

It can also be questioned whether Nonaka's model is the best one for our purpose. It may be argued that there are other models and theories more useful to help us answer what the knowledge sharing process look like within EBC since Nonaka's model concerns organizational knowledge creation instead of knowledge sharing. One applicable model, which is slightly more up to date, would have been Szulanski's (2000) process of knowledge transfer. This well cited article has the advantage that it covers the concept of stickiness in knowledge transfer. Stickiness means the different difficulties which can arise during different stages of the process. It is good to acknowledge that difficulties will arise during the process; however, the process Szulanski proposes is very sequential and divided into some predetermined steps (Szulanski, 2000). The model proposed by Nonaka (1994) instead suggests that the process is constantly ongoing and dynamic. Considering the fact that the complex concept of knowledge is involved, combined with human beings, we believed that a dynamic model is more suitable.

Argote and Ingram (2000) developed a framework for knowledge which could have been applicable to the situation at hand. The article concerns knowledge reservoirs and how they can be moved, for example how a tool is a knowledge reservoir and how it can be moved. It also covers knowledge spillover to other organizations and the role of people when it comes to knowledge transfer. Argote and Ingram (2000) emphasized the important finding that transfers are often incomplete. This article could have been an alternative to Nonaka (1994), however, Arogte and Ingram's (2000) framework covers specific types of transfers which makes it narrow and thus hard to apply. The article covers many different types of knowledge transfers but none of these were applicable to our specific case. Argote and Ingram's (2000) finding that knowledge transfer often is incomplete works as an argument for using Nonaka's model where the transfer

or sharing itself is not sufficient but rather a crucial step in a larger process. Argote and Ingram (2000) made us aware that it is often incomplete and Nonaka (1994) will help us understand why it is so.

3.6. SUMMARY

In this chapter we have mapped out the theoretical framework used for this thesis. The theoretical field of knowledge transfer and knowledge sharing is wide and so this chapter had to be limited. The concept of knowledge management is left out (as mentioned in chapter 1); even though it is a recognized management field. The definition of knowledge which will be used is *justified true beliefs* with emphasis on *justified* and *beliefs*. The model which we used is Nonaka's dynamic theory of organizational knowledge creation where the sharing of knowledge within a team can lead to the creation of organizational knowledge. Barriers to knowledge transfer, which can hinder the transfer, were mapped out. In the next chapter we describe our case which we will later analyze using the theoretical framework described above.

4. VOLVO GROUP AND REMANUFACTURING

In this chapter the case company, Volvo Group, will be described to give the reader an understanding of the case as well as the context. The chapter starts with a presentation of the company, followed by a more detailed description of the actual case.

4.1. THE CASE COMPANY – VOLVO GROUP

Volvo Group is the world's largest manufacturer of trucks, busses, engines and construction equipment (buses and engines fall under the Business Areas in the charter below). Volvo Group also offers Financial Services. The products are sold in over 190 markets and production facilities exist in 19 countries. The headquarters are located in Gothenburg, Sweden and the sales amount in 2012 was 304 billion SEK (Volvo Group, 2013a). Volvo Group consists of nine brands; Volvo, Renault Trucks, UD Trucks, Mack, Eicher, Volvo Penta, SDLG, Prevost and Nova Bus (Volvo Group, 2013b).

Figure 4.1. Volvo Group

4.2. REMANUFACTURING

Remanufacturing, where our case study is conducted, falls under the subdivision Power Train Production, PTP, and PTP is part of the division called Global Trucks Operations, GTO. Remanufacturing works with all brands in Volvo Group and they remanufacture parts of vehicles such as engines and gear boxes. Their goal is to extend the period of time where Volvo can earn money on the vehicles by renovating old parts of vehicles so that they get the latest technology and are as good as new ones. By offering remanufactured parts, Volvo can stay competitive by offering high quality products to a lower price. The remanufactured parts are sold and this allows Volvo to earn more money on the parts. Remanufacturing goes hand in hand with Volvo's core values since the remanufactured parts to fulfill the same quality and safety requirements as

new ones and to remanufacture is also a good way to reduce the impact the company has on the environment since remanufacturing is a way of recycling.

Remanufacturing works with what is referred to as the exchange business. The exchange business is what the customer experiences, which is when one part of the vehicle, for example. an engine, is exchanged for another. Remanufacturing works with cores which is the main component of what is remanufactured. More than 10 years ago a point system was introduced where a dealer could get points when collecting cores and returning them to Volvo. These points could then be used as deduction of the price when the same dealer was to buy a remanufactured part. This system aimed at collecting cores by motivating dealers to return them to Volvo so that cores did not end up in the hands of competitors or somewhere else as scrap metal. This system did not work and a lot of focus right now is on introducing a new system.

Remanufacturing has its headquarters in Gothenburg, Sweden, and has production facilities in Europe, North and South America and Asia. Further expansions are planned. Remanufacturing is, as stated above, working with all brands. It is therefore a large business and the complexity of the process inhibits the work. For the process of remanufacturing to be successful it has to start already at the product development and design and then be part of all the following steps until the product is to be remanufactured. For example if the product is not designed to be remanufactured it might be impossible to remanufacture it. This means that the employees working with remanufacturing have to consider all steps in the product life cycle and have strong connections to all involved parts of Volvo Group. This is further complicated since the different brands work with different products and have their own almost independent organizations.

4.3. ORGANIZATIONAL CHANGE

Olof Persson became new CEO of Volvo Group in 2011. He decided that the group was not to be governed as independent companies reporting to him, but rather as one unit where a lot of the decision making and planning were to be made through committees. This extensive organizational change is still in progress but a lot has been done. The committees are cross-functional to lessen the time between concept and action which makes the organization more flexible and adaptive to changes in external and internal environment.
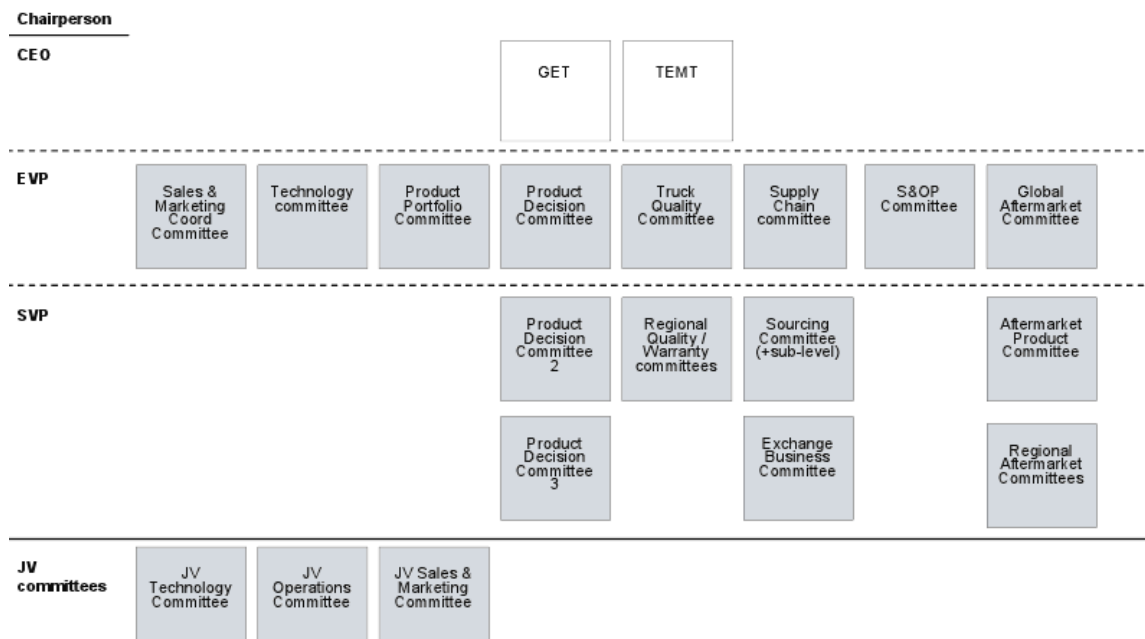
Figure 4.2 Cross-Functional Committees

4.4. EXCHANGE BUSINESS COMMITTEE

In connection to the organizational change the committee Exchange Business Committee, EBC, was founded. This committee works to secure business growth for the exchange business and has 19 committee members. All members represent different areas of the Volvo Group Exchange Business and work all over the world. The committee was founded in the end of 2012 and at the start of this thesis the committee had had three meetings. The entire committee met in person once in October at a kickoff in Flen, Sweden, and during this kickoff the members had the opportunity to get to know one another. One of the activities was to brainstorm around goals and visions for the committee.

EBC is a new committee but previous similar groups have been working with almost the same thing. Before EBC group called Exchange Business Network worked as a forum for the exchange business and before that a group called Reman Council worked with similar questions. Some of the members in EBC were also part of previous groups and the general opinion among them is that none of the previous groups reached any major results.

The committee has meetings 8-10 times per year to discuss and to further develop the business according to the purposes of the committee. The purposes are listed in Table 4.1. One purpose of the EBC is to facilitate cross-functional knowledge transfer and best practice. The meetings take

place online and follow a predetermined agenda. Members of the committee have the opportunity to raise questions prior to the meeting, by contacting the member responsible for the agenda. These questions can then be put on the agenda for the next meeting.

	Purposes of EBC
1	To agree on sales volumes/capacity planning
2	To define and agree on the approach to new markets
3	To define the exchange offering framework
4	To define guidelines and framework for the Exchange business
5	To securing product release from technical, industrial and commercial standpoint
6	To initiate and implement Exchange Business Development Projects
7	To facilitate cross-functional knowledge transfer and best practice
8	To define and agree on common core management business principles
9	To manage and monitor Volvo Group KPI[1] for the Exchange Business

Table 4.1 Purposes of EBC

It is clear from the purpose that this committee is supposed to transfer knowledge. The knowledge should be shared both within the committee but also within the larger organization. The knowledge which should be shared is both explicit, for example knowledge about products, processes and best practices from the different markets, but also tacit. When it comes to tacit knowledge, it is by its nature hard to grasp, but members have expressed how they wish to learn on a deeper lever and share perspectives, how other areas think, and "know how" about the business.

4.5. PERSONAL BUSINESS PLAN

All Volvo employees have a Personal Business Plan called a PBP. This plan is created together with the employee's manager and clarifies what the employee should work with and what the employee is responsible for. The PBP is updated once a year. The large areas the employee is supposed to work with are often expressed in percent of working hours. Some of the members of EBC have the exchange business expressed in percent of working hours whereas others have not since it is not a major part of their obligations.

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[1] The Volvo Group KPI that is measured for the Exchange Business is the Sales Growth.

4.6. SUMMARY

In this chapter we have given a detailed description of our case, Volvo Group and the Exchange Business Committee. The committee is cross-functional and was created after the major organizational change carried out recently. This committee works with the exchange business which is connected to remanufacturing where old parts of a vehicle are renovated and sold again. In the next chapter we present and analyze our empirical material.

5. KNOWLEDGE SHARING IN A CROSS-FUNCTIONAL TEAM

At this stage we have presented the theoretical framework and our case and will now move on to the presentation and analysis of our empirical material. The material is divided into two chapters. Chapter 5 concerns the knowledge sharing mechanisms we have identified. Each subchapter represents one step of Nonaka's (1994) SECI model which was described in chapter 3. In chapter 6 we focus on the identified barriers.

5.1. SOCIALIZATION

The first letter in the SECI model stands for *socialization.* As described in chapter 3 this is where tacit knowledge is transformed to tacit knowledge, or for this purpose; shared.
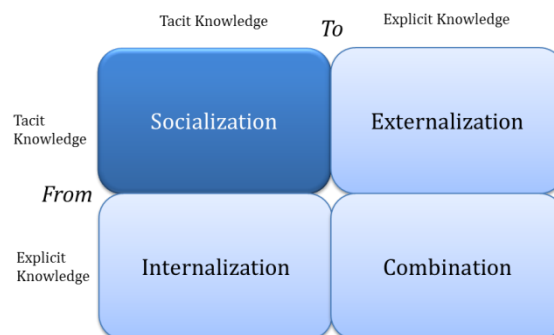
We have used the steps in the process of organizational knowledge creation to explain the different modes in SECI. In the socialization mode all the steps until the conceptualization of the tacit knowledge are included. In this section we have used the categories *Motivation, Meeting* and *Team* as well as our *Observations* as the empirical material.

In our analysis our focus is put on socialization in EBC and we have seen that the other modes in SECI are hampered because of the none-completed socialization mode. A further discussion of this can be found in chapter 7.

5.1.1. EBC – A TEAM OF UNIQUE INDIVIDUALS

The first step in Nonaka's (1994) process model (see figure 3.2) is to enlarge an individual's knowledge. This is not necessarily part of socialization since it is done by the individual, however this is where the tacit knowledge comes from and thus worth mentioning. The individuals, the members of EBC, are the most important factors in the knowledge sharing process. All individuals have a lot of tacit knowledge to share, which has been created by the individual through experience and enlarged by the individual reflecting on experiences.

This means that within EBC all members have unique knowledge and perspectives. These stem not only from the fact that every individual is unique but also from the fact that they all come from different parts of the world and different parts of the organization and thus they have differing experiences and perspectives.

5.1.2. THE CREATION OF EBC AND THE HHARING OF KNOWLEDGE

The second step in Nonaka's (1994) process model is to share knowledge. The enlarged individual tacit knowledge can be brought into a social setting by the creation of a field or a self-organizing team. The self-organizing team is where individuals can interact and in a business setting this team is often cross-functional – just like EBC. As stated above, each individual has a unique perspective. By sharing the unique experiences and perspectives within this team, the members can share tacit knowledge. The self-organizing team should be characterized by interdependence and the building of this team helps the building of trust (Nonaka, 1994). The trust is crucial for the team to collaborate. By the sharing of experiences the team can create a common perspective by which the members can share tacit knowledge. The perspective is conceptualized through continuous dialogue which will be further discussed in the next section.

EBC was created in October 2012 and the committee then met for a live meeting. During the live meeting several workshops were held and the group paid a visit to a remanufacturing factory. The workshops concerned the perfect EBC meeting, preventions from reaching 15 % growth and visions. The live meeting was a much appreciated activity and most of the interviewees mentioned how the members now became people instead of names on a paper. Most of our interviewees talked about this live meeting using positive words as showed in quote below. A new live meeting is planned in September 2013.

> *I experienced the building of bridges. I felt that the live meeting was the creation of a team and I felt that we left the meeting with a common agenda. It was powerful.*

During this live meeting most members of EBC were present and on the agenda were some tasks where the members had to cooperate and get to know one another. A lot of time was spent socializing and the members had time to talk and share experiences and perspectives in workshops and during coffee and lunch breaks. Some of the members were not able to join in, some of the members who were there have now been replaced by other members and in one interview we were told that not all of the members had received invitations. Most of our interviews were conducted 4-5 months after this live meeting and the general opinion among

the interviewees was that a new live meeting was needed since the built trust was beginning to fade and the committee seemed to need a new energy injection.

When it comes to a common perspective, the team leaving the live meeting had partially a common perspective and partially not. In our interviews the members showed a common perspective on why remanufacturing is important for Volvo. Almost everyone answered in the same manner, emphasizing the importance of staying competitive and giving the customer a good offer and keeping the cores away from competitors. All interviewees also mentioned the environmental aspect of the business. This shows that the members of EBC share a common perspective when it comes to the importance of remanufacturing and the advantages of this business. However, it is not clear whether this common perspective was created through the sharing of experiences and perspective at the live meeting or if this was something the members brought to the meeting. One thing indicates separate perspectives because when talking about what focus EBC should have and what the committee was supposed to do, comments were sprawling. At a team building and kick off for a committee, the perspective to be shared maybe should have been the perspective on the committee rather than the perspective on remanufacturing, which is the industrial process, which indicates that not enough focus was put on the sharing of perspectives. For example, members had different perspectives on one of the major issues discussed during the meetings, namely a pre-study in Russia, which shows that the visions among the members are different:

> *"The pre-study in Russia does not impact it. I think these are good initiatives. But maybe we should work more on initiatives that will impact business growth."*

> *"Russia is really good. I do not know if you heard but this is one of the first initiatives which actually can lead to business growth."*

These quotes indicate that the members of EBC are not on the same page. They have different ideas of what EBC should be doing and in what direction the exchange business should be going. Most of the interviewees also mentioned how they were missing a commercial focus on the meeting which perhaps could have united the team in one common perspective. We saw that perspectives were not shared, not even the very important perspective of the focus of EBC.

The interdependence, which characterizes the self-organizing team, is obvious from the interviews since everyone agrees that every function is needed to make this work. However, when it comes to mutual trust, the existence is not as obvious and we saw that the members do not trust each other's competences and efforts:

"It is not about difficult things. It is about competence and planning. It is not hard."

"The functions are right, but maybe not all of the people are right."

"Of course we are a global team and we have started to build the feeling that everyone wants to participate and do not have hidden agendas. Or not hidden agenda that was the wrong word but to have the courage to tell people "what do you mean by that" and "ah, you have that point of view, I look at it this way". We do not really have the time to do that."

In the last quote the member makes the important reflection that there is no time to build trust or share perspectives during the meeting. It is starting now to get better but yet this member believes that people do not have the courage to ask when they do not understand someone – and how is one then to be able to understand their perspective? This process is also made harder by the fact that members are being replaced within the committee:

"You have to understand how they are thinking to understand and change your perception. What makes me feel a bit negative now is that I felt that the CD is stuck on replay. Because there are new people everywhere and I just feel... No."

Sometimes we got the perception that most members thought of EBC as a meeting they had to participate in, in some case even just something that they had to observe, instead of thinking of it as a team meeting. One may wonder how this affects the motivation of the team. When asking the members about the topics brought up on the agenda, the majority answered that the issues rarely affected them. The quotes below show some of the members' opinions about the topics being brought up during the meetings:

"Sometimes I feel that the focus is wrong for my needs, for our needs."

"There is a portion of the meetings that don't necessarily apply to me."

One way to socialize and thereby share tacit knowledge is to spend time together and share hands on experiences (Nonaka, 1994). This was not really an option at the meeting since technology constituted an obstacle and members were not always heard and meetings were delayed. This led to the social part of the meeting somewhat left out. However, a lot of the interviewees mentioned that they were communicating with other members and they also went on business trips to pay visits to the members of the committee and these are examples of socialization:

"As a matter of fact I am going there next week and one of the things I have on the agenda is reman."

These opportunities they take to spend time together in the same environment are clear signs of socialization.

5.1.3. CONCEPTUALIZATION

Another aspect of socialization is the conceptualization of the knowledge. At this step in the process, the knowledge is articulated so that it can then be crystalized into explicit knowledge (which is called *externalization* by *crystallization* is clarified in section 5.2.).

Given the theoretical background, EBC needs to communicate with each other to create a common understanding and share their individual experiences and perspectives. Since the EBC meeting is just two hours every month the chairman has to make it effective. All members are encouraged to bring up issues on an issue log on the agenda prior to the meetings and then the issues are discussed within the group. This is a way to streamline the meetings and reduce the small talk which is a sign of lack of *creative chaos* which is an enabler of knowledge sharing (Nonaka (1994).

The meetings thereby presume that all members take their responsibility to address issues and ideas and this is naturally crucial for the process of conceptualization. However, it is not always the case that members bring up issues. When the question was asked whether they thought that everyone takes chance to bring up issues on the agenda the answers were negative:

"No I definitely don't think so and again we come back to that people don't have time."

"It is a little bit like if you come up with an idea then you most likely get the responsibility to develop it also".

If the members think that they will get to do the job themselves if they have an idea or an issue, they seem to avoid bringing them up on the agenda. This lack of motivation to bring up issues and ideas on the agenda may be due to a lack of resources in the first place. Lack of motivation and resources will be further discussed in the following chapter.

Although it seems as though issues are not always brought up at the agenda, many of the members have informal conversations with each other between the EBC meetings to exchange ideas and look for help to solve issues concerning their own functions and this of course is a way

to share tacit knowledge and then conceptualize it through continuous dialogue. These conversations mostly concerns issues that they need help with and think that the other member can be useful for. These conversations between the meetings definitely encourage the conceptualization of knowledge because they get an opportunity to express in words what they have experience of and their tacit knowledge may transform to explicit. But if the newly shared knowledge is not brought up on the EBC agenda and discussed there then it cannot be used globally. Volvo Group is a very big organization and if two employees are having a dialogue and manage to conceptualize their knowledge and express it with words, there will be no global use of this knowledge if it is not taken to a committee or a forum with power to bring it further and develop a form for it such as a system or a product or strategy. The two employees will benefit from the knowledge but it will not be of global use. Therefore it is of great importance that there actually is room for discussions at the meetings so that the members can be encouraged to contribute with their experiences without feeling that they cannot afford to say something.

When we made our first observation of an EBC meeting it was in a room with just four members. None of them were leading the meeting and they all spoke when their topics were on the agenda but not otherwise. When we made our second observation twelve members were in the same room and there was energy in the room. People volunteered to develop the topics until next meeting and informal sub-groups were formed to continue what was started at the meeting and report their findings at the next meeting. There was a clear difference in the atmosphere when so many could be in the same room and the chairman even had to cut some discussions due to the time limit but the discussion could continue within the sub-groups and thus the knowledge was bound to the EBC. The sub-groups would come back on the following meeting to report their discussions and share their conceptualized knowledge with the others and they could start up the discussion again and the development of a form to the knowledge to communicate to the rest of Volvo Group. Thereby, the creation of informal sub-groups keeps the knowledge sharing process going at EBC.

5.1.4. SUMMARY

In this section we have analyzed how socialization takes place in EBC. We have seen the sharing of tacit knowledge through the creation of a self-organizing team and their kick off as one part of socialization. This was followed by continuous dialogue and the conceptualization of the shared knowledge. This stage consisted of business trips, the formation of sub groups within EBC and general communication with other members, where even more tacit knowledge was shared. Although we do see clear signs of socialization and the sharing of tacit knowledge we do not find it complete and this is due to some barriers which we have identified. These barriers, which will

be discussed in chapter 6, are lack of trust, lack of motivation, lack of resources, technology and not enough time spent on team building, which led to lack of team commitment.

5.2. EXTERNALIZATION

The second step in SECI is *externalization*. This is where the tacit knowledge, which was conceptualized in socialization, is put into explicit forms, in other words into something that is easier to grasp such as a process or a product. This is referred to as crystallization. In this section we have mainly used our *Observations* as empirical material but also the category *Team*.
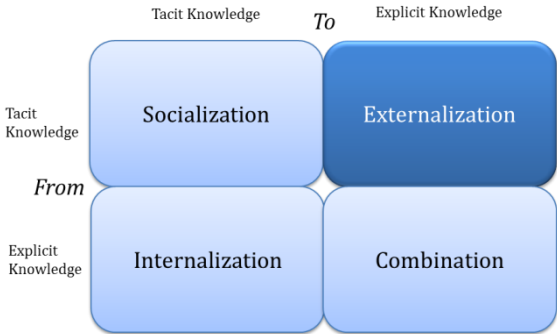
During our observations we have seen a few examples of externalization through crystallization out of which two will be presented here. One of the examples concerns a TR (Technical Regulation) project and the other example concerns the pre-study in Russia. The TR project was initialized by members of EBC since this process has not worked in the past. The different members held different opinions about this – someone wanted a detailed description whereas someone else wished to have a less detailed description. During a meeting a sub group was formed and within this sub-group, members from different functions have shared knowledge and together they are coming up with a solution which will be presented during the next meeting.

> *The issue of the TR was brought up during the meeting. A sub-group is formed and consists of two members from different functions. Other members showed interest but in the decision log on the TeamPlace only the two members in the sub-group are active and the project is assigned to one of them.*

> Extract from field notes from observation 2

Here one can see that the process started with socialization and the formation of a team. This team is collaborating and sharing knowledge to then conceptualize and finally crystalize this

knowledge into a TR process which will be presented at the next meeting. The TR process is then EBCs shared knowledge in crystallized form.

The pre-study in Russia is the other example. As explained above members had differing opinions about this. This project was conducted in a different way than the TR project. This sub-group consisted of one EBC member who then created the group with stakeholders from other parts of the Volvo Group organization. In this sub group knowledge was shared and is now to be crystallized into a presentation of the strategy during the upcoming meetings. Here the strategy is the crystallized knowledge, but it is not the shared knowledge from EBC but from other stakeholders.

The different projects and the presentations they lead to thus lead to the crystallization of knowledge. We cannot see any clear barriers to this and it seems as though the main barriers to the externalization stems from what happened in the previous phase which was socialization. Almost all of the projects are assigned to one person and in the case of the formation of a sub group these groups are informal. This means that the knowledge sharing in in the socialization mode might be lost. One thing to consider is the fact that the SECI model is a spiral and thus one does not have to start the knowledge sharing at the socialization square, but what implications will this have on the overall knowledge sharing and the next steps, combination and internalization?

As mentioned in chapter 3, team commitment is very important for the externalization mode and lack of team commitment will be discussed in chapter 6.

5.2.1. SUMMARY

Within EBC we can see signs of externalization since projects undertaken leads to the presentation of the solution to the problem or of the process or product developed. This is thus externalization through crystallization where tacit knowledge is transformed, and shared, into explicit knowledge. We have not identified any clear barriers to this process, except for lack of team commitment, but we have raised a question of whether it is a problem that the knowledge sharing here only concerns part of the group and sometimes skips the process of socialization. We have seen that sub-groups seem to be a prerequisite for the crystallization and thus the sharing of explicit knowledge within EBC, but if a project is assigned to one person, can one really call it knowledge sharing?
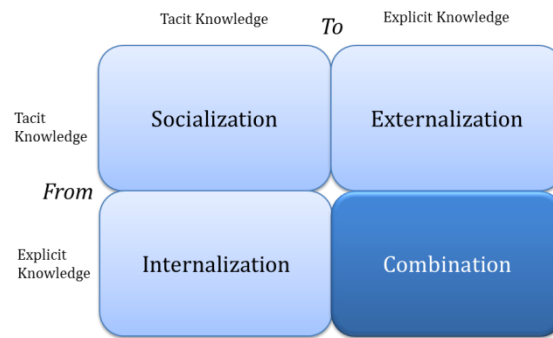
The third step in SECI is *combination*, where explicit knowledge is transformed to explicit knowledge and for the purpose of this thesis, where explicit knowledge is transformed so that it can be shared to the rest of the organization. This can for example be done through the use of databases or manuals. The explicit knowledge is combined with other knowledge and it can be a base for the creation of new knowledge.

The combination mode constitutes the justification of knowledge and partially the networking of knowledge in Nonaka's process of organizational knowledge creation. In this section we have used our *Observations* and the categories *Volvo Group* and *Motivation* from our empirical material.

As mentioned in chapter 3, part of combination can be to put the crystallized explicit knowledge into a database and the last barrier we found when we looked at combination was technology. A well working IT system is an enabler to knowledge sharing according to Wong (2005). Volvo Group is using a tool called TeamPlace where all the documents connected to a certain area, in this case the exchange business, are uploaded. This seems to be a great way to spread knowledge to the knowledge network. However, the only people having access to the EBC TeamPlace are the members connected to the actual committee, not to the exchange business. This leads to the fact that the conceptualized and crystallized knowledge may end up at the TeamPlace – but may not be shared further than that. This became clear to us when members of EBC who have also been members of EBN, the network which preceded EBC, told us that material produced in EBN was stuck on a TeamPlace which not everyone at EBC had access to. There is thus a danger in relying too much on existing technology to share the knowledge further.

One example of combination which we found within the committee was the creation of a list of strategic parts. Here one member collected explicit knowledge from the other members to then create a list of all the strategically important components for every brand. When completed, this list will be presented at the meeting and it will be put into the larger already existing database

which is open for employees who are not connected to EBC. Here all brands have contributed with explicit knowledge which has been combined with old knowledge.

5.3.1. JUSTIFICATION AND THE NETWORKING OF KNOWLEDGE

The justification of the knowledge crystallized relates back to the definition of knowledge which is *justified true beliefs*. The shared knowledge can have resulted in a new process or maybe a product and the justification here concerns the justification of the usefulness of the product or process and the usefulness in this case is the usefulness for the organization. Nonaka (1994) writes that this justification can be done by the use of standards such as cost or the contribution to development of the organization. When the knowledge is justified it can then be spread to the rest of the organization and to the knowledge network and this step, *networking knowledge,* is the last step of the process.

Since the committee has only existed for a few months' time it is hard to determine whether the shared knowledge has been justified at all, and if so if it has been done in a successful way. Nonetheless it is important to do this in order to share the knowledge further to the rest of the organization (Nonaka, 1994). What is important to note is that to spread the knowledge further in the organization it has to be justified, and maybe that is what has gone wrong in the past.

Among the members of EBC and other people we have met who are connected to the remanufacturing organization, there is a common understanding that the rest of the Volvo Group has little or no understanding of remanufacturing. This can have severe consequences for the remanufacturing organization when people who do not have knowledge about the business make decisions that concerns it. As mentioned in chapter 4 the business is very complex which makes the understanding of this business harder but maybe also more important. Some people within the organization even believe that remanufacturing is "cannibalizing" on the genuine parts sales. Some members of the committee believe that the understanding is increasing due to the organizational change that has been made and others think that the understanding will increase in the future due to the increased understanding and concern of the environmental impact. Nevertheless, at the moment there seems to be no understanding of remanufacturing and the exchange business:

> *"I would almost like to claim that if you do not work with it you do not understand it. A lot of people think, even people in this very building, when I show them how much we sell they ask if the decimal is wrong."*

> *"A lot of component owners does not know why this is something to care about. Is it not just to exchange the product for a new one? This can never be profitable according to them."*

The members of EBC and everyone connected to remanufacturing are of the opinion that this business is really good for Volvo Group, so that the company can stay competitive for the second and third owner of the vehicle as well. But the message and the knowledge about this business is shared to the rest of the organization.

From our interviews we found a few barriers to this. Almost every member of EBC complained about having a lack of resources. Some of them only worked 5 % with this business, others told us about the lack of money and personnel. The general perception that we got was that the willpower was there – but not the time:

> *"I think we could have gotten more out of this. But like I said, today we have too little resources to work with this in an active way in this forum and outside of the meeting."*

Lack for top management support was another barrier we recognized. By not allocating enough resources, management signals that this business is not important and it will leave the employee unmotivated to share knowledge about it to other employees:

> *"Having 5 % of your time to spend on the exchange business is almost like telling someone that it is ok not to do it at all."*

Another barrier which we identified was the complexity of not only the organizational structure, but also the business. The complexity of the organizational structure as a barrier will be further discussed in chapter 6. Since so many people are involved it seems to be hard to understand the business, and the people involved seems to have very different opinions about how to run a vehicle company:

> *"It is such a hard business to handle, already from the product development to the actual remanufacturing. There are so many functions involved. And then it is hard if you have an organization without the understanding. It is hard to run it alone."*

> *"But if you ask the constructers, they want to develop components which last forever. Because then they are done. "This is a great component it never breaks!" And then*

you talk with the aftermarket and they say "but we earn a lot of money on that component". That balance. It is really tricky."

5.3.2. SUMMARY

When it comes to combination where explicit knowledge is shared, we have seen that this has not been successful in the past which has resulted in low understanding of this business in the rest of the organization. We have identified a knowledge sharing mechanism since the knowledge is put into the existing IT system which the members of EBC have access to. However, the idea that Nonaka had was to share the knowledge to other parts of the organization and this is not happening. The reason for this is an IT system which is not adjusted for knowledge sharing when it comes to sharing knowledge within the entire organization, as well as lack of resources, motivation and in some cases lack of top management support. The sharing of explicit knowledge is made harder due to the size of the organization and the complex organization structure as well as the complexity of the remanufacturing and exchange business. However, we have seen that explicit knowledge has been combined and shared in the creation of a list with strategic parts.

5.4. INTERNALIZATION
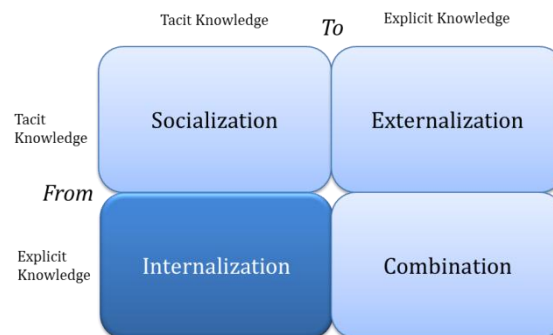
The last part of the SECI model is *internalization* where the explicit knowledge is shared and transformed into tacit knowledge held by an individual. This is part of the networking knowledge and is done through learning by doing. By using the explicit knowledge which was spread through combination, the individual can create tacit knowledge through own experiences. In this section we have used the categories *Motivation* and *Knowledge Sharing* from our empirical material. The internalization mode is both about internalizing the crystallized knowledge *within* EBC as well as *outside* the committee. Since we have not seen clear signs of crystallized knowledge, or knowledge spread further than the meeting, it is hard to determine whether the explicit knowledge is shared and even more important – used. If no knowledge is

crystallized, there is no explicit knowledge to share which can then be transformed into tacit knowledge.

The idea of sharing knowledge is that it should be used to improve the business elsewhere. However, during the interviews we did see some signs of doubt about the shared knowledge's applicability to the members' own areas and the committee's ability to implement concepts and processes:

> *"When you have councils and things like that it is easier to just lay back and create models and processes. It sounds very intelligent and logic and so on, but it is very challenging to implement and practice in reality. So it is a bit naive to believe that it is just to have a council that will implement models."*

> *"In one sense you learn things. But maybe what I learn is not what I work with."*

> *"Well you get inputs from different markets and their situation and products and so on. How they work so to speak. But then, that is not applicable to our business."*

The quotes show that even though the members have high hopes about EBC, the members doubt the ability EBC has to implement the crystallized and justified knowledge. There seems to be a lack of motivation and trust and the members have to be willing to share knowledge for something to happen (Foss et al. 2009).

5.4.1. SUMMARY

We cannot see any clear signs of internalization and it seems as though the spiral of knowledge sharing is not complete, and one may wonder what happens to the crystalized knowledge. Since we have only observed two meetings and been at Volvo for a short period of time, it is hard to say whether our observations and reflections in this matter are correct. Nevertheless, one of the purposes of EBC is to share best practices and knowledge, but this process is not complete. The committee has also existed for a short period of time and we have not been able to identify any best practices which could have been shared. In the last mode of the SECI spiral the knowledge should have been transformed into tacit knowledge but due to lack of motivation and trust within EBC, this is not happening.

5.5. SUMMARY

The identified knowledge sharing mechanisms are summarized in table 5.1 below. In the next chapter we will discuss the barriers to these mechanisms.

	Knowledge Sharing Mechanisms	Barriers	Empirical Categories
Socialization	o Creation of a Self-Organizing Team o Live Meetings o Creation of Informal Sub Groups o Business Trips o Communication	o Lack of Trust o Lack of Motivation o Lack of Team Commitment o Lack of Resources	o Motivation o Meeting o Team o Observations
Externalization	o Projects o Presentations	o Lack of Team Commitment	o Team o Observations
Combination	o IT-system o Strategic Parts List	o Complex Organizational Structure o Technology	o Volvo Group o Motivation o Team
Internalization		o A none working process in the previous steps	o Motivation o Knowledge Sharing

Table 5.1. Identified knowledge sharing mechanisms

6. BARRIERS TO KNOWLEDGE SHARING

During our empirical presentation in chapter 5 we identified a few barriers to knowledge sharing within the exchange business. We have divided them into three, sometimes overlapping, categories, namely Motivation, Team Commitment and Organization. These categories will be discussed below.

6.1. MOTIVATION

The first and maybe the most important barrier to knowledge sharing is motivation. This was identified in all modes of knowledge sharing and in all the stages of the process of organizational knowledge creation. Maybe it is all very straight forward – if you are not motivated you will not share. In this category we include the barriers motivation, lack of resources, lack of focus and technology which create a vicious circle for knowledge sharing. The discussion is based on the empirical categories *Motivation, Knowledge Sharing* and *Meeting.*

We mentioned in chapter 3 that the willingness to share knowledge is crucial, especially in the socialization mode. When comparing EBC with the argumentation from Foss et al. (2009) about motivation and job design it is clear that not all members of EBC are externally motivated by their job design to work with the exchange business because it is not their manager who runs EBC.

The main motivational tool at Volvo leads to external motivation in accordance with Foss et al. (2009) and this motivational tool is the PBP. This tool constitutes a basis for feedback and monetary rewards. When we asked the members about their PBP the answers showed that not everybody had the exchange business as an objective from their home organization and some had it described as something that should be developed but not prioritized. Only a few work full time with the exchange business. It seems as though the motivational aids are not aimed at the exchange business.

It may be discussed whether the members of EBC are then intrinsically motivated. According to Foss et al. (2009) a job design which leads to intrinsic motivation is characterized by autonomy (which is also mentioned by Nonaka, 1994) and task identity. All members have the mandate to speak for their organization but it has shown during interviews that not all members have the authority to make decisions. They have to pass the decisions on to their organizations and report back to their managers and so the autonomy can be questioned. The task identity is higher and it is clear that all of the employees truly believe in remanufacturing and think it is important for the future. Thereby it is in line with the members' interests and values and they should be intrinsically motivated. However, the signs of lack of motivation indicate that this is not the case.

The faith the members have in the committee and the hopes they have for the business indicate some level of intrinsic motivation but it is crucial that the members actually want to share their knowledge. Without the willingness to contribute there will be no sharing of knowledge. It seems as though the level of intrinsic motivation is not enough and the quotes below show how the lack of intrinsic motivation among some of the members:

> *"It is not until we sit there together at EBC, it is not until then we can take in the information and we can change our actions. If you go to meetings and just wish and hope that it will be over quickly so you can go back to your ordinary work. Then you will never have the understanding. You will never want to have that understanding."*

> *"Well I have time for it, I have time for it. I'm just not looking for a lot of busy work to do."*

When we asked the members if they felt motivated to contribute to EBC they all answered that they believe EBC is a great forum where decisions can be made and a forum which can influence Volvo Group on a global basis. However, some of them do not seem to have the interest to influence and contribute themselves. The impression is that most of the members have a laid back attitude towards EBC and expect others to get the group going.

All members mention how important the business is for Volvo and how they really care for the business, but why are they not motivated then? Can it be that the external motivation to do other things outweigh the intrinsic motivation which comes from inside? One of the reasons that the members are not motivated to share knowledge stems from the fact that the motivational tools at Volvo are mainly external, such as the use of a PBP, which in most cases was not even aimed at the exchange business.

Gagné (2009) considered the implications job design has on the intention to share knowledge. In chapter 3 we explained how HRM practices such as Job Design, Performance Appraisal and Compensation System as well as Managerial Style affected the intention to share (please see figure 3.3). If we think of the members of EBC, they often only work with the exchange business part time. For the purpose of knowledge sharing this indicates inappropriate job design since the members do not have sufficient time to work with the exchange business. The performance appraisal is based on the PBP which, as mentioned above, leads to external motivation. In chapter 5 we identified lack of management support for some of the employees. This means that the managerial style here affects the intention to share in a negative way. To this we can add that the members of EBC all feel a lack of resources – they do not have time or enough resources to

even bring up things at the meeting, and how is knowledge to be shared if the members do not even have time to raise questions and problems? The lack of resources indicates bad staffing, since not enough man hours are made available, which also affects the intention to share.

In the section about socialization in chapter 5 we explained how members do not bring up issues at the meeting since they feel that they do not have the time to do so:

> *"EBC works like everybody get to speak and I can sometimes feel that us who are in this committee have so much to do so you come to the committee loaded with all other information in some way, with all other work."*

Almost all the members expressed similar thoughts about lack of time and resources since many of them do not work with the exchange business the majority of their time. They feel like they simply do not have enough time and resources to talk to other members of the EBC between meetings and this hampers the conceptualization of their knowledge and thus the socialization mode. Since the home organization sets the agenda for how the members should prioritize, EBC cannot expect to have full attention. However, they can expect some attention on the meeting, but since the members seem to believe that they have to do the work themselves if they bring something up, this is clearly an issue. If they do not have clear objectives to work with the exchange business they will not do so even if they believe it is a good thing.

What we can conclude from this is that the members of EBC seem to be to some extent intrinsically motivated to work with the exchange business but a range of other factors are making them unmotivated. To motivate the members of EBC to share knowledge the committee and the rest of the connected organization have to work with motivation – and the right kind of motivation.

One thing connected to motivation which the committee really needs to work on is the lack of shared visions and focus. The lack of focus for a team as a barrier of sharing knowledge is not something we have seen during our literature review; however we believe that this is crucial for the motivation and team feeling which in turn affects the knowledge sharing. Almost all interviewees mentioned this as a problem and how is an employee supposed to feel motivated to share knowledge when the employee feels that what is brought up at the meeting is wrong? The issue with a lack of shared focus is something that is harder to correct during the meetings since it is conducted through online communication and the members have expressed concerns about misunderstandings and misinterpretations. This indicates that a team which relies on online communication has to create a shared focus when they meet face-to-face.

The technology is thus a resource which affects the motivation. Members not only expressed the risk of being misinterpreted but also the fact that it is hard to hear the other members and that it would have been easier to meet face-to-face.

Technology does not only affect motivation but can also be seen as a barrier to knowledge sharing in itself (Wong, 2005). The two meetings we observed both had some delays due to technology, some people were disconnected, some were not heard and the main computer ran out of battery. During the second meeting the major part of the committee were seated in the same room, forcing the few members connected through the Internet to repeatedly ask the members in our room to speak into the microphone. This issue of people not talking straight into the microphone has also been a topic during the interviews. The technology thus makes it even harder for the members to communicate and share concepts. Since a lot of meetings today, at least at Volvo but probably elsewhere as well, are conducted through online communication, it is important to realize what implications this has on the team building and sharing of experiences and perspectives.

The IT system was also mentioned in chapter 5 since it sometimes hampers the sharing of knowledge to reach further than the committee itself and thus hampers the combination and internalization. Technology simply impacts all the stages of the SECI model for this team. The technology is a prerequisite for this committee, as well as for other cross-functional teams relying on online communication, to even exist but at the same time it hampers the work and their knowledge sharing.

The lack of motivation, lack of resources and the technology together create a vicious combination where the lack of motivation is intensified by the lack of resources and the members are left frustrated due to the technology. All these factors affect all the modes of knowledge sharing from the SECI model.

6.2. TEAM COMMITMENT

The second barrier we are to discuss is labeled team commitment. Here we include the barriers lack of trust and lack of team commitment. The empirical categories we have used for this discussion are *Team* and *Meeting*.

The lack of trust was brought up in chapter 5 as well as in our theoretical framework. It was clear in chapter 3, both from Nonaka and from our section about barriers, that trust is crucial when it comes to knowledge sharing. Jonsson (2012) state that to share knowledge one has to trust the receiver and Watson and Hewett (2006) argue that the sharing will increase with the

trust. In the interviews the members state that the live meeting helped to build trust, but now, 5 months later, this trust is fading, leading to a decreased sharing, not only of perspectives, but also of knowledge:

"Well it fades a bit. It is time for a new live meeting."

Trust was to be built during the socialization mode; however the members do not trust each other's competencies and abilities. Some comments were made on the initial existence of trust however this trust does now seem gone. What is interesting to note here is that a lot of the members actually knew one another before this committee was created and so the issue of trust should maybe not have been a problem. The building of trust is of course also made harder due to technology since it can be hard to build trust, especially for the recently added members.

There is obviously a lack of trust between the members at this point – but what is also missing is a team feeling, or a lack of team commitment, which may contradict the interdependence that we felt them having. During the observations it was clear from the way they communicated that issues being brought up either concerned *us* or *them*. The word *we* was rarely used and when it was used it was when the members talked about themselves and their home department. In the interviews when asking questions about EBC, the common way to phrase the answer was to use the word *they* instead of *we* and *them* instead of *us:*

*"**They**…**They** are good at the internal part. I think **they** are relatively successful. While **they** might not be as successful externally [emphasis added]."*

In the externalization mode of Nonaka's SECI model group commitment is crucial. In our opinion, team commitment is not only crucial in the externalization mode – we believe this is of great importance in all stages of the knowledge sharing process. Since the communication is hampered by technology the team needs a stable common ground and a true team feeling to make sure that the members trust each other, work together as a team and perhaps above all – work in the same direction.

Team commitment could lead to higher intrinsic motivation, since the commitment to the team means that the work carried through by the team is of personal interest and values for the employee, and higher intentions to share knowledge. Team commitment can also lead to a stronger joined force when it comes to combination and internalization where knowledge is shared to the rest of the organization. A team is always stronger than individuals (Hill, 1982) – and as it is now, EBC consists of individuals working in separate directions.

6.3. ORGANIZATION

The last barrier we are to discuss here concerns the organization. Here we have included the barriers lack of top management support and the complexity of remanufacturing and the complexity of the organizational structure. We have used the empirical categories *Motivation* and *Volvo Group* as the basis for the discussion.

As mentioned in chapter 3, the organizational structure and the organizational size can be barriers to knowledge sharing (see Lord and Ranft, 2000 and Islam et al., 2012). The literature stated that mechanical organizational structure hampers knowledge sharing. Volvo Group is very hierarchical and mechanical but the idea is that EBC should be more organic in its nature. Nonetheless, the hierarchical structure from the large organization shines through, which complicates the knowledge sharing process. The members are from different hierarchical levels in the organization which makes the communication harder and the loyalty complex. The majority of the members have different managers than the chairman of EBC and since there is a lack of understanding of the exchange business within Volvo Group, a lot of the members lack top management support. This is not made simpler by the complexity of remanufacturing and the exchange business. The complex organizational structure also makes it harder to share the crystallized explicit knowledge to the rest of the organization through combination and internalization, however the organizational structure is not something EBC can do anything about and so they have to learn how to overcome this issue.

Lack of top management support is seen by some as the most important barrier to knowledge sharing (see for example Bollinger and Smith, 2001; Sharma et al., 2012; Wong and Aspinwall, 2004). Lack of top management commitment is connected to motivation since, according to Gagné (2009); motivation to share knowledge is affected by HRM practices such as job design and the allocation of resources. This means that by not allocating enough resources to a person, management makes this person less willing to share knowledge. The allocation of resources signals intentions and lack of support by management.

What complicates the issue of top management support is, as mentioned above, that some committee members have other managers than the chairman of the committee, who is the manager of the remanufacturing unit. This leads to the fact that the committee members have to respond both to the chairman of the committee and to their own managers which leave them with sometimes dispersed tasks and objectives. Since different departments have different objectives it is hard for the committee members to stay focused on the exchange business and

the growth objectives of the committee. The members of EBC seem to be aware of how the complex structure and the hierarchical organization affect their work:

> *"Even though I engage in the initiatives because it is good for the business, at the end of the day it is my boss who decides what I should do."*

> *"I think it can be a bit like this, the members of EBC they are convinced. They know what to do but they cannot get their managers on board."*

It is clear that the members doubt the commitment they get from their respective managers and according to for example Bollinger and Smith (2001) the lack of top management support is the most crucial barrier to knowledge sharing.

To complicate the sharing process even further, the rest of the organization sometimes seems to be uninterested when it comes to remanufacturing and that seems to be another barrier to spread the knowledge to the organizational network. Within the Volvo organization the focus is on releasing new vehicles and to spend time and resources on remanufacturing old parts is not something people within the organization seems to be interested in. This in turn leads to frustration among the EBC members who are starting to feel like there is no point in trying.

> *"Everyone thinks it is fun with new technology. Then there are so many possibilities and everyone wants to have a piece of the pie. If you work with reman there are not many who wants to have a piece of the pie. It is a bit like that."*

> *"First of all, reman is not sexy."*

EBC is thus facing a huge challenge when it comes to spreading the knowledge into the organization's knowledge network. Forces from within the organization and interpretations even within the committee are leaving the members with a challenge and maybe frustration and lack of motivation.

To enable the knowledge sharing within EBC and the exchange business we thus believe that the only thing they can do is to try to increase the understanding of the business throughout the organization by, as mentioned above, join forces and work on building team commitment. This could also ease the forming of a more organic team where knowledge sharing is made easier.

In this chapter and the previous chapter we have presented our empirical material and an analysis of the material. We have identified some knowledge sharing mechanisms and some barriers to these and they are summarized in table 5.1. In the next chapter we will discuss the material in more depth.

7.

In this chapter we discuss our empirical material. First we discuss the knowledge sharing mechanisms we identified. Then we focus more on the barriers to knowledge sharing and develop the literature within that area. The discussion of the barriers is followed by a final discussion of Nonaka's (1994) SECI model. The chapter is ended by some critical discussions.

7.1. KNOWLEDGE SHARING MECHANISMS

In chapter 5 we identified some knowledge sharing mechanisms (summarized in table 5.1.). We saw that the members of EBC believe in remanufacturing but unfortunately and obviously, this is not enough to share knowledge to the organization – they have to want to share it too (Wong, 2005; Wu and Lee, 2012).

When studying the analysis it is clear that the members of EBC put a lot of effort into the Socialization mode. They highlight the importance of a face-to-face meeting so that they get to know each other. They all feel strongly that this mutual trust and understanding is important and on some level they want to share their knowledge however this sharing is hampered by the barriers. Overall this self-organizing team seems to understand what they are supposed to do and they started off in the right direction. However, they have not managed to form a common perspective. The members want different things from EBC and the focus of the group is not clear. The group commitment is low and even though the members see the potential advantages EBC can bring, they tend to think more about themselves than the team. The members experience the lack of a shared focus as a problem and this may be the reason why they seem to embrace the idea of face-to-face meetings where they can create a shared focus. According to Jonsson (2012), trust is important when it comes to knowledge sharing and Watson and Hewett (2006) state that knowledge sharing increases when trust increases. The members of EBC do not trust each other not to have hidden agendas and by getting to know each other on a more personal plan they get the chance to see the real person behind the agendas. Nonaka and Takeuchi (1995) highlight the importance of meeting face-to-face to build trust but the road to mutual trust is long for EBC. However, the members of EBC are clearly working on the socialization mode and the transfer of tacit to tacit knowledge between the members, but this seems to be the only thing they are actually working on if we look at the whole SECI model.

The need of face-to-face time seems to increase when people only meet once a month through the intranet. Nonaka (1994) seems to have taken for granted that the team actually can meet face-to-face to exchange and share knowledge, but this is not the case for virtual cross-functional

teams. EBC tries to find ways out of this dilemma by making business trips to get new knowledge, by communicating with others outside EBC to learn new perspectives and by creating informal sub-groups. These knowledge sharing mechanisms have occurred due to the fact that they cannot meet all the time and act as the ideal cross-functional team they want to be. The socialization mode is a real challenge to EBC and their focus is clearly on sharing tacit to tacit knowledge. Nonaka (1994) argued that all modes in the SECI model can be performed separately (even though focusing on only one mode could be a danger). In chapter 5 we asked ourselves what were to happen with the modes if one starts the sharing process in another mode than socialization. We doubt that skipping the socialization mode would work for a cross-functional team since we have seen that the members of EBC really suffers from not knowing and understanding each other. This is in line with the research of Watson and Hewett (2006) who state that if someone is to use knowledge from another person, the person has to trust the source. The members feel that they need to understand each other to be able to share not only tacit to tacit knowledge but knowledge in other modes as well. We have seen that the sharing processes within EBC are not complete and that this stems from the fact that the socialization mode is not complete.

In the externalization mode the tacit knowledge is transformed to explicit knowledge in the projects the members work with. The sub-groups seem to play a major role to go around the fact that there is no time for deeper discussions on the meetings but despite the creation of sub-groups the projects are only assigned to one owner. It is not always the case that the projects are run in EBC (like the pre-study in Russia) and thereby it seems like the socialization mode is skipped. There is no need for a common perspective if there is only one person dedicated to the project, so here EBC does not take advantage of the knowledge embedded in the team members. It seems a bit odd to put energy and resources on creating a team feeling and a common perspective if the working methods do not encourage the tacit knowledge to be transformed to explicit knowledge. Wong (2005) and Bollinger and Smith (2001) all highlight the importance of having enough resources to share knowledge. The members of cross-functional teams in large organizations often have their attention in other directions and to avoid more work they use as little resources as possible to keep going. It is just a shame that they miss great opportunities to share more knowledge. The transformation from tacit to explicit knowledge is obviously more complicated and harder to understand than the importance of a social connection and team building. The complexity in this process is clearly an obstacle for knowledge to be shared.

Further, the sharing of explicit knowledge and the transformation of explicit to explicit knowledge is working reasonably. The internal IT system and the example with the Strategic

Parts List are examples of knowledge sharing mechanisms in the sense that they enable explicit knowledge to develop into more complex sets of explicit knowledge. Desouza (2003) argues that IT systems ofteh are installed to enable knowledge sharing, which is the case at EBC, but he also states that the systems are often used in the wrong way. The knowledge saved in the internal IT system is sometimes only for the members of EBC and is thereby not shared outside the committee. The members can take advantage of this knowledge but it is not uplifted to a higher platform in the organization. The Strategic Parts List will hopefully be of global use when it is developed. Then it is a perfect example of how the members provide each other with explicit knowledge and together create explicit knowledge on a higher level, which is then transferred to the whole organization. The problem here seems to be that the organization does not understand remanufacturing and Bollinger and Smith (2001), Sharma et al. (2012) and Wong and Aspinwall (2004) all highlight the importance of having top management support. How is the knowledge that EBC can provide to the organization supposed to be accepted if the organization does not approve of remanufacturing? This goes back to the discussion about socialization and the creation of a common perspective. The members of EBC believe in this, even if they want to work with it in different ways but this belief is not shared outside the committee. How will they share their explicit knowledge if they have not shared their vision? Once again we are back on square one. The combination mode works partially; they just have to convince the organization that what they are doing is brilliant –but how this is done is another side of the coin.

The internalization mode, the sharing of explicit knowledge which is then transformed to tacit knowledge, is far from complete. We have asked ourselves what happened to the crystallized knowledge after it was combined. The answer is; we do not know. EBC is young and even though they try their best to get the socialization mode going, the externalization and the combination modes are only halfway. The knowledge sharing mechanisms in these modes have great potential but they are weak and crave for attention. This attention only seems to arise if the team get together and start acting like a team so they can share their knowledge in all modes and be alert to new concepts and ideas.

To conclude, the socialization mode seems to be the key to success for EBC, and for other cross-functional teams. Like mentioned above, Nonaka did probably not expect cross-functional teams to never meet, and thereby the socialization mode did not seem to be that much of a problem. However, many teams have to rely on technology and a tight meeting schedule. We saw signs of knowledge sharing in socialization, externalization and combination but not in internalization. It seems like the sharing of knowledge is becoming harder for each step and when we ask

ourselves why, the answer always brings us back to socialization. In virtual cross-functional teams the socialization mode is crucial to make all the other modes work.

After the socialization mode we saw that the sharing of explicit to explicit knowledge in the combination mode seemed to take up most of the attention for the team. In chapter 5 we saw that there is a lack of understanding of remanufacturing and the exchange business in the rest of the organization which indicates that the sharing of explicit knowledge is not complete. We ask ourselves how EBC is to share their vision when they do not even have one within the committee. The team had a workshop during the live meeting where they tried to create a common vision and it is clear that EBC understands the importance of this process. However, this effort was not sufficient. The process of creating a common vision and focus is not too complicated, while we have seen that the transformation from tacit to explicit and from explicit to tacit knowledge is much problematic to recognize.

Even if we have identified knowledge sharing mechanisms in all the modes in the SECI model (except for the internalization mode) there seem to be a strong lack of motivation and understanding to use them. This lack may stem from the building of a team commitment that is far from completed and from operating in an organization that does not understand the importance of what they are doing which hinder knowledge sharing. The focus is on sharing tacit to tacit knowledge and also explicit to explicit knowledge and EBC does not seem to realize the importance of the other modes. This is because of the complexity of sharing tacit to explicit knowledge and vice versa. They have enough problems making the socialization mode work and thus they have not looked up and identified the meaning of other knowledge sharing mechanisms.

7.2. DEVELOPMENT OF THE LITERATURE – KNOWLEDGE SHARING BARRIERS

As we have seen in the discussion in chapter 6, EBC is facing three types of barriers, namely *Motivation, Team Commitment* and *Organization*. The literature about barriers to knowledge sharing is extensive but when it comes to barriers which affect the sharing of knowledge for cross-functional teams relying on online communication, we would like to develop it further.

We have seen that motivation as a barrier is important according to current literature and we have seen that this can be affected by for example HRM practices. However, we do feel that the importance of motivation when it comes to cross-functional teams is not researched enough. We have found that the motivation to share within EBC is affected by for example lack of resources

and management support. What is also connected to motivation is the team commitment – and this is where we believe that efforts should be put.

A cross-functional team is by its nature made up by team members from different functions. This means that all members have different perspectives. To get this team to collaborate and start to share knowledge they have to be motivated to do so (Jonsson, 2012; Watson and Hewett, 2006). But how to build motivation in a team where the members lack support from their managers, resources, and understanding from the rest of the organization? We saw that the motivational tools available were external and mostly aimed elsewhere. Then where to find motivation? Our answer to this question is – *within the team.* By building trust, team commitment and create a common focus and vision for the team, the team can create intrinsic motivation as well as enthusiasm for the task at hand (Foss et al. 2009).

Now however, we face another barrier, or challenge; how can a team build motivation and team commitment through a monthly two hour long online meeting with a tight agenda? Based on our empirical material our answer to that question is – *the team cannot.* Technology is a prerequisite for this committee but it is still very important to acknowledge what implications technology has on the crucial factors within a team such as trust and motivation. The technology has to be there (Wong, 2005, Desouza, 2003) but it all comes down to the fact that the technology makes it all harder. It is probably valid for most cross-functional and geographically dispersed teams that face-to-face meeting is not possible every time the team should have a meeting.

We saw during our research that the sharing mainly took place outside of the actual meeting. Sub-groups were formed and business trips were conducted – and that was where the sharing took place. This was also where trust building occurred. The conclusion one can draw from this it thus that to make knowledge sharing work and to overcome the important barriers of motivation and trust – the team must meet face-to-face. During a face-to-face meeting members can become a team instead of individuals (Nonaka and Takeuchi, 1995). It might sound primitive but a simple task where the members have to collaborate or even a game during the team building can help the members build the foundation they need to work together. We have identified the team building as a knowledge sharing mechanism and a successful team building can lead to a shared focus and increased intrinsic motivation. A team can join forces and together they can share the knowledge further than the boarders of the team.

EBC have had one face-to-face meeting. However, the activities did not create enough of a team feeling and since no follow up has been done it feels as though the meeting was only halfhearted. The relationships between members are crucial to get this to work, so are the trust they feel and

the shared goal, which everyone has to believe in. Another reason why this has not worked for the EBC is that not all members were at the meeting and some participants have been exchanged for new members. These have thus not had a chance to build the trust or catch up with the rest of the team. EBC have to, in the future, work on the team building and the building of trust, shared visions, goals and commitment to get the knowledge sharing going. One may wonder if a live meeting once a year is really enough.

We have also seen that the organization can be a barrier to knowledge sharing – the complexity of the organization and the business makes the knowledge sharing harder. This is something that EBC cannot do anything about; however, we believe that if the team join forces and work together they can still make it work. We believe that the more complex the structure, team and task, the more important it is to really be a team and find the motivation and energy because there are so many things pushing in other directions.

Our development of the current literature on barriers to knowledge sharing is thus the insight that when it comes to cross-functional teams using online communication, the barriers which are present for teams in general are intensified. A lot of factors are hampering the sharing of knowledge for this type of team, such as technology and organizational structures. To overcome these barriers a cross-functional team thus has to be unified to find motivation from within the team, as well as a team feeling, trust and a shared focus. This development of the literature is based on an extreme case where the business as well as the organizational structure is very complex. Nonetheless, our opinion is that our findings are still applicable to other cases since one of our conclusions is that the more complex the case is, the more energy needs to be put on the team- and trust building activities.

7.3. CONNECTIONS TO SECI

To draw this discussion further we would like to summarize it by explaining what implications this has for Nonaka's SECI model because seems as though it is not perfectly applicable in this type of team in this organization. A cross-functional team which relies on online communication was probably not what Nonaka had in mind when creating this model. We have in our research identified some problems that this kind of team is facing. These problems stem from the technology and the fact that the members cannot meet face-to-face as often as what might be needed and we see that these contextual factors are not taken into consideration in Nonaka's model. Adjustments to the SECI model have been done before (see for example Snell and Hong (2011) who tried to make it more suitable for Asian countries outside of Japan) and we would

like to make some adjustments for the model to take into consideration the contextual factors for a virtual cross-functional team.

We found that team building and the building of trust is more important for virtual cross-functional teams since the trust and team commitment they build at a live meeting will have to suffice until the next live meeting. Building trust and team commitment seems to be hard through online communication but at the same time due to the online communication it seems to be more important. We thus argue that the live meeting and the activities conducted there are of high importance for the knowledge sharing. In a development of Nonaka's model we would like to put more emphasis on the building of trust, a shared focus and team commitment in the building of a self-organized team and this is done in the socialization mode. According to Nonaka and Takeuchi (1995) trust is best built in face-to-face activities.

The team commitment was according to Nonaka and Konno (1998) very important for the externalization mode. We would like to extend the importance of team commitment when it comes to a cross-functional virtual team, since the motivation and communication as well as the intention to share is dependent on whether the individuals feel committed to the team and the activities thereof. The team commitment will also make the team stronger as well as build a team culture. That is why we would like to state that team commitment is of high importance throughout the entire SECI process and the team commitment is built in the socialization mode as well as in the use of sub-groups in the externalization mode.

During our study we saw that the actual meeting is mainly suitable for the sharing of explicit knowledge. The meeting is not really a forum for exchanging perspectives and experiences. The limited amount of time at the meeting also made it hard for the members to use continuous dialogue to conceptualize knowledge. Nevertheless, the forum was a good way of sharing crystallized knowledge by presentations of new material such as processes and strategies. This is why we are of the opinion that for cross-functional virtual teams the formation of sub-groups is crucial. Here the members will be able to share tacit knowledge and crystallize this knowledge into explicit knowledge which can then be shared at the meeting. If the tacit knowledge never reaches outside of the team it will never be of value for the rest of the organization (Snell & Hong, 2011) which means that not only is it important to follow through the entire process, it is also crucial for this type of team to focus on socialization where the tacit knowledge can be conceptualized.

Nonaka (1994) mentioned the danger of not focusing on all the four modes. However, we have seen that EBC at the moment needs to put a lot of effort into the socialization mode in order to

build the trust which, according to Jonsson (2012) and Watson and Hewett (2006), is crucial for knowledge sharing. The socialization mode is also important to reduce the lack of team commitment which we have identified as a barrier to knowledge sharing. We agree with Nonaka that the team needs to focus on all the modes to be able to share the knowledge into the organizational knowledge network but we argue that to create a functioning knowledge sharing process the virtual cross-functional team needs to really focus on socialization throughout the entire process. This means that the SECI matrix is misleading in a sense, at least for virtual cross-functional teams, since it signals that all modes need equal attention.

Development of SECI

Nonaka's model has been of great use for us during our research. However we are of the opinion that it is not adjusted to suit the knowledge sharing for cross functional teams which to a large extent have to rely on online communication. We suggest the above mentioned adjustments to the SECI model so that it can be used by virtual cross-functional teams. The suggestions are illustrated in figure 7.1 below.
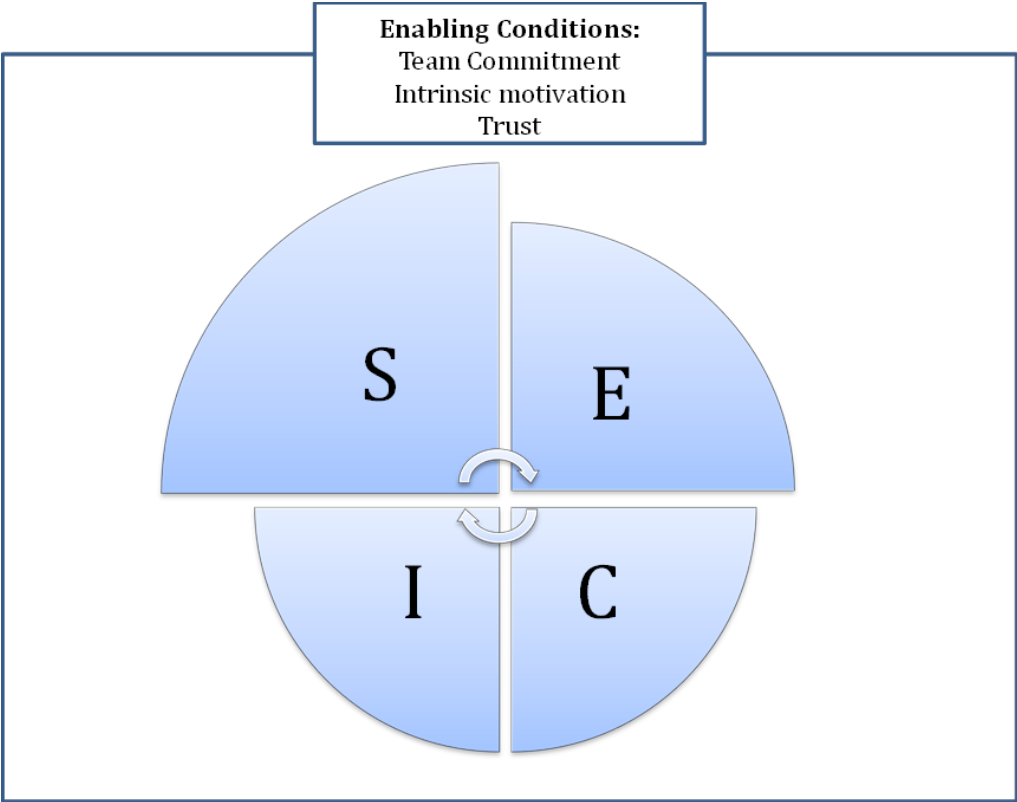

Figure 7.1. Development of SECI

In the figure above one can see how we suggest that the SECI model is used by virtual cross-functional teams. We have enlarged the socialization mode since it requires more attention for virtual cross functional teams. We have also made the externalization mode slightly bigger than the last two modes because here we see that the use of sub-groups is crucial to crystallize the tacit knowledge since this cannot be done at the meeting. Also note that we added some enabling conditions for the knowledge sharing process in virtual cross-functional teams. These are high level of team commitment, high level of trust and high level of intrinsic motivation which we discussed in the previous subchapter, 7.2. We argue that this version of SECI is more suitable for virtual cross-functional teams.

Nonaka's model has been object to some criticism over the years. As mentioned in chapter 3, he has been criticized for separating between the different forms of knowledge. He also does not take into account the difference between knowledge as a process and knowledge as possession. Nonaka's model is also based on Japanese management which can make the reader question the suitability of this process when it comes to knowledge sharing in the western world. These are important factors to consider when determining the applicability of our results. Nonetheless, the purpose of our study has been to increase the understanding of knowledge sharing, and according to Jonsson (2012) this model is very useful as a tool to understand the knowledge sharing processes in an organization.

7.4. CRITIQUE

At this stage it is suitable for us to distance ourselves from our research and discuss some aspects in a more critical sense.

7.4.1. A REFLECTION ON KNOWLEDGE

In chapter 3 we mentioned that knowledge does not always have to be seen as something good but can also be seen as something which can increase power inequalities. In our interviews we have seen that the main reason for people not to share knowledge is lack of motivation which partially stems from lack of resources. However, it could also be seen as a perceived loss of power which the interviewees have avoided to tell us, since interviewees are often affected by their interviewer. This is not our perception however it is important that the reader reflects on this when determining the applicability of our findings to other cases.

We also mentioned the fact that knowledge is very abstract and thus hard to measure. In this research we have listened to our interviewees and what they said about their perception of the knowledge shared. We have also seen the lack of understanding of remanufacturing within the

organization and we interpret this as a sign of a knowledge sharing process which is not complete.

For example Brown and Duguid (2001) criticize the separation between tacit and explicit knowledge and argue that explicit and implicit are dimensions of knowledge which are dependent on each other. It could thus be impossible to separate between them. We have made this separation because it made it easier for us to identify the different knowledge sharing mechanisms at EBC and it made our findings easier to understand as well. The separation is hard to make in practice but it has helped us analyze the empirical material. Cook and Brown (1999) also argued that for organizations it is good to treat knowledge as distinct forms which coexist in the organization.

7.4.2. OUR IMPACT AS RESEARCHERS

Since we have conducted interviews and observations we have most likely impacted the results of this research. As mentioned in chapter 2 interviewees or people who are observed can change their behavior so that they look better and they can of course lie when answering. Additionally, the analysis and discussion is based on our perceptions and conclusions. We have both been present on the observations and during most interviews and we have discussed our different perspectives on the situations in the hope of being able to give a more nuanced description. Nevertheless, we would still like to state that the discussions are based on our views and perspectives and out results and findings are based on our interpretations of the empirical material.

We have most likely been colored by our supervisor at Volvo who gave us our first perception of the situation. When starting this research we thus had an idea of what we were to find. However, initially we thought the focus would be on pride and power and as one can see this is not where we ended up. We are both of the belief that knowledge is good which has affected the analysis of our research where we have not questioned knowledge. During this research we have looked for barriers and sharing mechanisms which may have affected us and made us interpret minor issues as major problems. The literature has most likely influenced us since it showed us what to look for and thus the barriers we identified were sorted into categories of barriers already existing in literature. The use of Nonaka's model may also have led us to see some knowledge sharing mechanisms which fitted into the model while we might have missed out on others. During the first observation we sat in a room with few participants and on the second observation almost all participants were present in our room. This means that we most likely

affected the behavior of the participants more during our second observation since more participants saw us during the entire meeting.

7.5. SUMMARY

In this chapter we have discussed our empirical material. We found that within EBC the focus is mainly on socialization however this process is not complete. This leads to the fact that the other modes are suffering and it seems as EBC are not aware that they have to do more than just share tacit to tacit knowledge and explicit to explicit. We found that the barriers teams meet are intensified for cross-functional virtual teams and the most important barriers are motivation and team commitment. To get the members motivated EBC has to work on the intrinsic motivation because that is the only motivation they can affect.

We suggested some adjustments to Nonaka's model to make it more suitable for virtual cross-functional teams. These suggestions included a higher focus on socialization so that the team can build trust, more emphasis on the team commitment throughout the entire process and focus on the formation of sub-groups where the knowledge can be conceptualized. We argued that Nonaka's model is not complete when it comes to knowledge sharing in a cross-functional virtual team relying on online communication. The chapter was ended by some reflections around knowledge and our impact as researchers.

8. CONCLUSIONS AND CHALLENGES

In this final chapter we conclude our research by a short summary of our findings. The thesis is ended by our contributions to theory, what implications our findings has for management and some reflections for future research.

8.1. SUMMARY AND CONCLUSIONS

Our first research question concerned what the knowledge sharing look like and we have answered this question by identifying and describing the knowledge sharing mechanisms within remanufacturing. The second question concerned the barriers to these mechanisms. In our research we identified several knowledge sharing mechanisms. We saw the sharing of tacit knowledge through the creation of a team, live meetings, sub-groups, business trips and communication with others. In these mechanisms the members had the opportunity to meet and exchange perspectives and experiences and by doing so – build trust and share tacit knowledge. We saw the sharing of tacit knowledge and the transformation of this knowledge into explicit knowledge through projects and presentations. Here the knowledge was crystalized into something explicit. The IT-system and the creation of a Strategic Parts List were examples where explicit knowledge was shared and also combined with new knowledge. Within this committee we could not see any signs of explicit knowledge which was shared and then transformed into tacit knowledge through learning by doing. When it comes to barriers we identified a few, of which almost everyone in the end is connected to motivation. The main barriers were lack of motivation, lack of trust, lack of team commitment, lack of resources, a complex organizational structure and technology. All these barriers are identified in previous literature (see chapters 3, 6 and 7) however we have seen that the barriers are intensified when it comes to cross-functional virtual teams.

The purpose of the study was to increase the understanding of the process of knowledge sharing between dispersed units of a large organization. During our research we have found that cross-functional teams which consist of members from dispersed units and which rely on online communication face some critical challenges. These stem from the fact that it is hard to build a team feeling, trust and motivation though the use of online communication. We saw that the socialization mode is complex due to the nature of a cross-functional team relying on technology and so the other modes of knowledge sharing become complex as well. The more complex the situation, the team and the organization – the more important it is to build trust and team commitment during face-to-face meetings in the socialization mode. We have seen that the SECI

model is perhaps too simplified when thinking of the complexity of cross functional virtual teams and is thus not nuanced enough.

We also increased our understanding of knowledge sharing by reflecting on the barriers cross-functional virtual teams face. In the discussion we came to the conclusion that barriers are intensified due to the complexity that cross-functionality and technology brings. Another conclusion we drew was that the more complex the situation, the more important it is to join forces to increase the intrinsic motivation and the team commitment and by doing so – overcome the barriers.

Our case has been unique and the complexity has been extreme. We still believe that our deepened understandings of the barriers teams are facing and the insight that motivation and team commitment is more important for cross-functional teams in complex situations can be generalized and thus applicable to other teams as well. Motivation and team commitment are important factors for all teams but it requires more attention in cross-functional teams, especially the ones relying on online communication, because it is harder to achieve.

To conclude we have seen signs of knowledge sharing within EBC and remanufacturing and we have seen that these mechanisms are not complete due to the barriers. We have seen that the barriers they face makes Nonaka's model to some extent incomplete and that the barriers are intensified due to complexity. To overcome these barriers the team needs to focus on the building of motivation and team commitment.

8.2. CONTRIBUTIONS TO THEORY AND FURTHER RESEARCH

We soon realized when conducting this research that the theoretical field concerning barriers is not enough to explain the situation and the problems that cross-functional teams meet. Nonaka's SECI model has been of great use but it is a bit old fashioned and does not take into account the fact that some cross-functional teams today have to rely on online communication and simply never meet. A greater focus on team commitment and the socialization mode is needed when using this model on cross-functional virtual teams. If this is not working, the other modes will suffer and the knowledge sharing is hampered. We found that the SECI matrix is slightly misleading since it signals that all modes require equal attention.

Further, the creation of sub-groups as a knowledge sharing mechanism to handle the lack of resources that many cross-functional teams experience is worth reflection. These sub-groups clearly play a major role in the knowledge sharing process in cross-functional teams and deserve more attention.

When it comes to barriers to knowledge sharing we found that the most critical barrier cross-functional virtual teams face is motivation, which is also connected to all other barriers we identified. It is hard to motivate cross-functional teams due to for example technology, organizational structure and lack of resources. Our conclusion was that motivation is crucial to create a functioning knowledge sharing process within a virtual cross-functional team. To overcome this issue the team needs to focus on the socialization mode and by doing so the team can create team commitment and also build trust. This is a way to overcome the barriers and build intrinsic motivation to share knowledge.

We also found that it is easier to focus on the sharing of tacit to tacit and explicit to explicit knowledge compared to tacit to explicit and explicit to tacit knowledge since those two modes are easier to recognize.

We come to the conclusion that more research is needed on the barriers of knowledge sharing within cross-functional teams and also how management can overcome these barriers to make the knowledge sharing in the teams more effective.

8.3. IMPLICATIONS FOR MANAGEMENT

As already stated above we found that in cross-functional and virtual teams, team commitment is central. Managers have to be aware of this and take it into consideration since we have seen that without team commitment and trust the knowledge sharing is negatively affected. We have seen that team building and kick offs are positively associated by the members of the team and the managers can take advantage of this positive spirit and encourage knowledge sharing under less complex and demanding situations. The manager has to make sure that the team is committed to the task.

This thus implies that the manager needs to focus on creating a team feeling and a team culture which enable knowledge sharing, rather than focus on individuals who individually could have increased the knowledge sharing. The team commitment is crucial to find the intrinsic motivation and thus this is where the focus from the manager should lie.

It is clearly a challenge for the manager to make his or her team committed and the problems that the team is facing in its knowledge sharing process are intensified by the complexity of its structure. Nonaka's SECI model is highly simplified compared to the complex reality that virtual cross-functional teams which consist of individuals from geographically dispersed units face. The reality is not only complex since not everybody in the team has met and the fact that all members have different interests and agendas but the complexity also lies in the structure of the

whole organization. We found that the manager faces a challenge both when it comes to creating a common agenda and a shared vision but also to find ways to reach the whole organization. Complexity is an all-embracing word and here it clearly signifies the challenging mission the manager has, both within the team as well as outside it.

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APPENDIX 1 – OBSERVATIONS

Observation 1: Exchange Business Committee, February

The first meeting observed was held in the beginning of our time at Volvo, in February 2013. We were seated in one room together with 4 other participants. 17 people were invited to the meeting and 13 people participated. Two guests also participated in the meeting. One was invited to present a new project and only participated for 20 minutes. The other one normally works with remanufacturing but is not part of EBC and attended since he was visiting from another region.

Observation 2: Exchange Business Committee, April

The second meeting observed was held in April, 2013. This time we were seated in the same room as the majority of the members. 12 participants were seated in our room and 5 participants called in. This meeting took place at the end of our time at Volvo and since we were more familiar with the exchange business we were able to get a more nuanced understanding of the meeting.

APPENDIX 2 – INTERVIEWS

Position	Date	Member of EBC
Director, Business development	2013-02-27	Yes
Business Manager	2013-02-28	Yes
Senior Vice President Industrial Operations Remanufacturing	2013-03-05	Yes
Product Manager Group Trucks Sales & Marketing	2013-03-05	Yes
Global Business Strategies Director	2013-03-06	Yes
Director SPE/I	2013-03-11	No – but former member
Product Manager, Exchange and Driveline	2013-04-10	Yes
Product Manager, Repair & Exchange Parts Volvo Penta	2013-03-14	Yes
Manager, Base Engine and Materials Technology	2013-03-25	Yes
Vice President Reman	2013-03-18	Yes
Director Technical Planning	2013-03-27	No – but former member
Manager Repair Parts & Options	2013-03-27	Yes
Product Manager, Exchange and Driveline	2013-04-10	Yes
Dir - Remanufacturing Product Develop.	2013-04-10	Yes
Director Parts marketing APAC	2013-04-11	Yes
VP After Market & Soft Product Planning	2013-04-15	Yes
Diretor Group Trucks Sales & Marketing	2013-04-18	No – but former member

APPENDIX 3 – INTERVIEW GUIDE

Section 1

- In what way do you think Reman is important to Volvo?
    - What can be improved?
    - Where do you see the Exchange Business in 5 years?
- Why are you a member of EBC?
- What do you do at EBC?
- Is the Exchange Business part of your daily work?
    - Part of your PBP?
    - How do you prioritize EBC and the Exchange business?
    - How do you think you prioritize compared to other members of EBC?
- What motivates you to work with Exchange Business?

Section 2

- How do you work with what is decided at EBC?
- Who do you turn to if you need help?
- What do you learn at the EBC meetings?
- Do you think EBC is a democratic forum?
- Do you think all members take the chance to get their voice heard at EBC?
- How often do you communicate with other Business Areas and markets?
- Do you know how they work with Reman at other Business Areas and markets?
- Is there something you can learn from the other Business Areas and markets? What stops your organization from learning by looking at others?

Section 3

- Do you often get the opportunity to meet new people who can be valuable for you in your work with Reman?
- What use do you have of your personal network at Volvo?

Section 4

- Do you think EBC is a good way to work with and develop the Exchange Business?
- Do you think that the work could have been done more efficiently with another organizational structure?
- Do you have any contact with dealers?