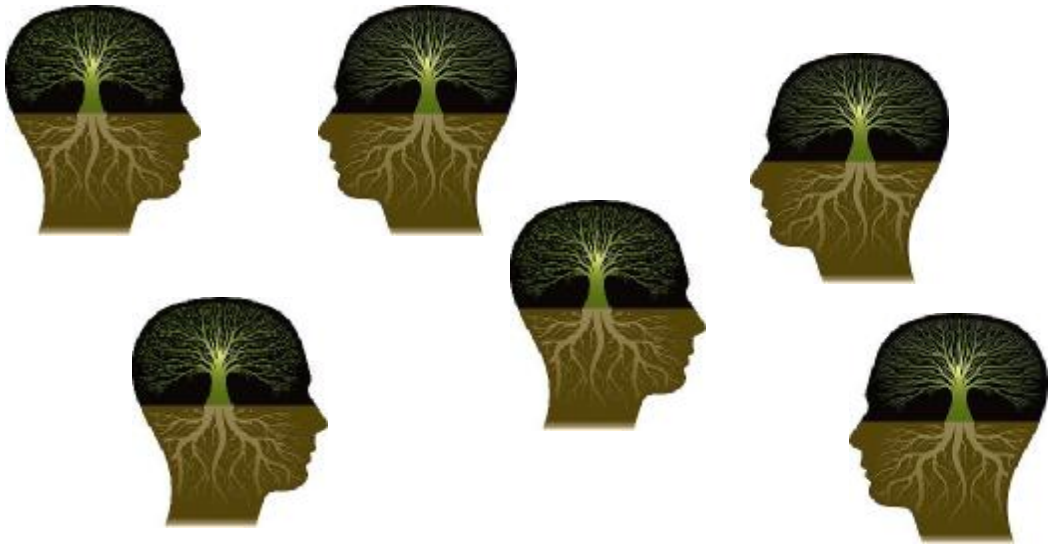
Acknowledging Knowledge Sharing.

A Case Study of Knowledge Sharing in a Company in the Wind Turbine Manufacturing Industry.



A Thesis Submitted for Degree of

Master of Science in

Managing People, Knowledge and Change

SCHOOL OF ECONOMICS AND MANAGEMENT
Lund University

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Date of Submission: 26th of May 2010

Thesis Supervisor: Sara Louise Muhr

Abstract

Title: "Acknowledging knowledge sharing - A Case Study of Knowledge Sharing in a Company in the Wind Turbine Manufacturing Industry."

Seminar date: 4th of June 2010

Course: BUSM Master thesis in Managing knowledge, people and change, 15 ECTS

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Key words: Tacit knowledge, Explicit knowledge, Knowledge sharing, Wind turbine industry, Rapid growth.

Purpose: The purpose of the thesis is to increase the understanding of which types of knowledge is being shared; and further more to increase the understanding of what kind of impact the knowledge sharing has on a company in the wind turbine manufacturing industry.

Methodology: This study is an abductive qualitative case study based on semi structured interviews with 12 co-workers of the organization being researched. The data is analyzed through a hermeneutic approach.

Theoretical perspectives: The theory is based on knowledge types such as tacit and explicit knowledge and concepts of knowledge and knowledge sharing such as tacit and explicit knowledge and knowledge transfer within the subject of Business Administration. The theoretical perspectives are mainly built on the areas: organizational culture, knowledge management and organizational development.

Conclusions: Different kinds of knowledge types have been identified and due to the difference both in the people's knowledge and their seniority a more structured approach towards knowledge sharing could be applied to secure the sharing of both tacit and explicit knowledge at the right time. This becomes important since the company is experiencing hyper growth.

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1 INTRODUCTION

Possession and distribution of key knowledge and understanding is vital to a company's success (Ghauri & Cateora, 2006:234). This notion may sound quite trivial; however, it is far from that. The complex nature of understanding and being able to act according to strategy and an ever changing context is associated to massive amounts of information and knowledge that has to be combined, communicated and acted upon. The underlying questions correspond to how is this done: How do people in organizations understand and accomplish their tasks? What kinds of organizational structures are used to enhance support or create barriers for knowledge sharing? These are a few of the ample questions that currently require increased attention in the field of knowledge and knowledge sharing as a leverage to a company's success.

It is stated that managing the flow or transmission of knowledge is one of the most important competitive advantages that a multinational company can have (Foss, 2006: 2). Newell *et al* (2002) insist that "*how we understand and what we understand*" (Newell et al., 2002:107) defines what gets done and what is important. Despite work tasks being performed over and over again in knowledge intensive companies the context can be complex within the work's intermediary processes: and the factors of what constitutes important knowledge vary and change constantly. This implicates that a company, apart from defining key knowledge, must understand the processes of how knowledge is absorbed and shared within the business.

To gain competitive advantage in a rapid growing industry that is expected to grow 10-fold over the next 20 years (Company webpage), where shortage in qualified labor and huge turnover rate of employees is eminent, management of a organization's knowledge resources becomes even more critical to sustain market positions, both short and long term. The theoretical area of knowledge management offers different perspectives from knowledge being easy to handle to that of knowledge being almost impossible to handle. I consider that this perspective is, to a large extent, depend on how knowledge is defined. I choose to enter a rapid growing renewable energy industry and investigate how a wind turbine manufacture is handling the problematic issues of the long and short term effectiveness in knowledge-sharing through how they work together and share their organizational knowledge in order to secure the future successful growth of the company.

1.1 Understanding the importance of knowledge sharing

"*It is only when people start to interact with each other that the organization's task can be performed in an acceptable manner*" *- Sandberg & Targama (2007:89)*

It is stated that knowledge sharing is a basic feature for companies to create and sustain competitive advantages.

"*The characteristics of knowledge, being tacit, complex and ambiguous influences the process of knowledge sharing*" *- Jonsson (2007:51)*

Knowledge and how it is created, managed and shared is not a completely new issue as it has been studied by the great minds of Socrates, Plato, Aristotle, etc. Sveiby & Risling (1982) has 20 years ago highlighted the so-called novel companies – i.e. knowledge companies – that by selling knowledge without producing anything themselves. The same kind of characteristics has been ascribed to projects organizations and research and development units in multinational companies. Their business idea and competitive advantage is that they have the know-how to solve specific problems. However, in more recent years the focus on Knowledge Management has grown even stronger in the hunt for competitive advantages for companies.

Knowledge sharing is not limited to a unique research field: it is said to reside in all research fields relating to the exploration and management of organizations. The thesis is dealing with an area of complex knowledge sharing. It has been stated knowledge sharing is beyond IT-systems to handle (Alvesson and Kärreman, 2001): So instead great emphasis should be placed on "the socialization process of sharing tacit knowledge" (Nonaka & Takeuchi, 1995:73) when people with different mental models, intentions, motivations and experiences have to work together.

Hardly does it become any easier when looking for a unanimous definition of knowledge sharing since knowledge sharing in self carries a lot of different meanings: knowledge transfer, knowledge dissemination, knowledge transformation, knowledge integration, knowledge translation, etc., which can be regarded as knowledge sharing.

Hong, Easterby-Smith and Snell (2003:569) argues: “various approaches and understandings remain in play (Easterby-Smith et al., 2000) and in any particular study, the chosen characteristics and meanings of organizational learning reflect the researchers’ disciplinary backgrounds and specific ontological assumptions (Easterby-Smith, 1997)”

There have been several attempts to capture the illusiveness of knowledge and the process of sharing it. One of the more common understandings of knowledge is the rationalistic perspective verses a socially centered approach (Nonaka & Takeuchi, 1995; Garvey & Williamson, 2002). The difference in these perspective is that the rationalistic perspective claims that knowledge and information can be objective and therefore seen as the truth, whereas the socially centered approach view knowledge and information as constructed and subjective. From a rationalistic point of view, knowledge can be codified and shared within IT-systems whereas from the socially centered viewpoint, knowledge is transferred through imitation or mirroring, reflection and dialogue. More recent authors (Dixon, 2000:4) have not engaged in this discussion of the rationalistic and social center approach, yet simply acknowledge the different dimensions and accept that the rationalistic and social centered approach are dynamically interrelated and almost impossible to separate. Garvey & Williamsson (2002:47) captures the socially centered idea well in stating that “one cannot be smart against your will”, which means that a company can have all the right tools and processes for doing a task, but if the individual does not want to do the job or like the people he or she works with, then it is not very likely that knowledge sharing will happen to a larger extend.

It has been acknowledged by Kalling & Styhre (2003:53) that it can be beneficial when knowledge sharing is studied to make a separation of knowledge sharing into three categories: organizational levels, tools and mechanisms for knowledge sharing, and factors of enabling and hindering knowledge sharing.

Several studies have contributed to the area of knowledge sharing and multinational companies. Jonsson’s (2007) work elevated the need for more qualitative and empirical research on organizational context and institutional forces to better understand the enablers and barriers to knowledge sharing. In this dissertation the relevance of studying knowledge sharing in multinational companies (MNCs) is discussed and it was argued that it could be

even more beneficial for MNCs to focus on knowledge sharing due to the challenges they are facing (Jonsson, 2007:53).

Jonsson also states that "knowledge sharing should be especially important if we are to understand why some companies succeed and other fails". Foss (2006) has elevated that more research is needed in relation to the organizational aspects and the micro foundations for knowledge sharing in multinational corporations (Foss, 2006: 3). So in order to unravel the complexity of knowledge sharing it is important to look into the characteristics and framework of knowledge and knowledge sharing, such as willingness to share, organizational context, values, culture, etc.

1.2 Positioning of this thesis

There have been several research contributions in the area of knowledge sharing and multinational Companies (MNC). Jonsson has studied knowledge sharing across borders in a large foundation owned retail company (IKEA), where she found that the sharing of vision and values and the build in knowledge sharing in the company was the key to its success.
Kalling have been studying knowledge sharing in relation to knowledge managements systems in manufacturing company registered on the Swedish stock exchange (SCA). It was concluded in the study that institutional factors (the willingness to share) and organizational context created the support or barriers for knowledge sharing in the company.

The company that has been studied in this thesis (further discussed in the Methodology section) is both a manufacturing and a share hold company making it similar to SCA, since SCA is also a manufacturing and share hold company. The point of difference, however, is that unlike SCA the company is in a rapid growing and immature industry segment. The focus of my thesis in not solely on knowledge management systems through an IT system as is the focus for the dissertation by Kalling.
IKEA is a rapid growing company, but it is owned by a foundation and is in the retail business, which Jonsson argues is very different from the manufacturing business since the customers as end-users is impacting the organization directly.
Jonsson further more elevates the need for more research on organizational context and institutional forces to better understand the enablers and barriers to knowledge sharing (Jonsson, 2007:53). This is based on the idea that knowledge and the sharing of it is the base

for existence for MNCs and the only competitive advantage that the MNCs really have. (Jonsson, 2007:19)

Andersson has been studying knowledge creation and sharing in subsidiaries in the research project Centre of Excellence, which was studying different kinds of MNCs. She found that centers of excellence, which is a place, where their competence and knowledge is gathered at one point in stead of being spread out over the entire organization, could be useful in the transformation of knowledge for use in other subsidiaries.

Andersson study is gathered from a lot of different MNCs, not knowing in which industry they are in, I see the study differentiating on that as well.

Both Jonsson and Kalling acknowledge that to unravel the complexity of knowledge sharing it is important to try to look into the characteristics and frameworks on knowledge and knowledge sharing. It seams that knowledge can take many forms and by nature be totally different. The authors argue that knowledge sharing must be matched with an appropriate sharing method or process to be of value.

I intend to investigate knowledge sharing in the wind turbine manufacturing industry both in relation to what kind of knowledge that is shared and what kind of knowledge sharing processes and structures are applied. Thereby I find that I can claim the uniqueness of this study, since it is deviating from previous research and in this way bringing the research in this area a step forward.

1.3 Purpose of the thesis

The purpose of the thesis is to increase the understanding of which types of knowledge is being shared; and further more to increase the understanding of what kind of impact the knowledge sharing has on a company in the wind turbine manufacturing industry.

1.4 Demarcations

I will be focusing on different types of knowledge and knowledge sharing within a specific regional headquarter of a global company, afterwards called Wind Wind AB (pseudonym). I will investigate knowledge sharing within three specific business streams and one support function in this regional. I will identify specific types of knowledge within this regional headquarter and relate this to specific factors which has in previous research been seen as

having a significant impact on knowledge sharing. The study will have a hermeneutical approach and focus on qualitative data collection.

2 Theoretical frame of reference

In this chapter an overview of the theoretical framework of the study is presented. First an introduction to different characteristics of knowledge is presented. This is done in order to create a basic understanding of the knowledge and to be able to grasp why barriers and support for knowledge sharing is created.

Knowledge can take many forms. The two authors Nonaka and Takeuchi describe one of the most accepted ideas about knowledge being either tacit or explicit. From there it moves to how knowledge can be seen in relation to data and information. The knowledge introduction will be looking at how knowledge can be connected to different situations and areas. This to facilitate a basic understanding of how knowledge varies in relation to being individual and collective, and related to a certain type of situation and context.

The last part of the chapter is used to explain different sharing process of knowledge. Here it is framed how the sharing of knowledge is deeply effected by how knowledge is understood and how it is being defined. A model of knowledge transfer is presented in order to show some of the more pragmatic ways of describing simple knowledge flows. Then an elaboration on the SECI model is presented in relation to, how knowledge is transformed between the two different the types, tacit and explicit knowledge, in four different phases of externalization, socialization, combination and internalization. In extend to this, three factors are brought forth, which are perceived to have a very big impact on knowledge sharing are brought forth. The factors are: organizational context, institutional forces and shared understandings.

2.1 Knowledge - Can knowledge be defined?

There is in the field of business administration literature not one accepted definition of knowledge, but a large variety of definitions. Several dictionaries have a definition of what knowledge could be. These descriptions are quite superficial and risks boxing knowledge in terms that over simplify the meaning or make it more blurry than necessary. One of the most acknowledged definition is by Nonaka and Takeuchi. They state that: "knowledge is justified true beliefs" (Nonaka and Takeuchi, 1995:86)). This statement captures two side of the word knowledge, where knowledge first becomes something that has been proven "right" (justified) and secondly aligned with values held by the one having the knowledge. Knowledge is a very ambiguous term, since the one having the knowledge can both be individual, a group or an entire organization. In other words in order to talk about knowledge it has to be defined according to the situation it appears in.

2.1.1 Data, Information and Knowledge

In knowledge management literature there are several ways of making distinctions between data, information and knowledge is often made to define knowledge (Davenport & Prusak, 1998, Nonaka and Takeuchi 1995, Jonsson 2007, De Long & Fahey, 2000). Data can be viewed as isolated facts without any direct application area and no value of its own. Information can on the other side be regarded as a message with somebody sending it and some one to receive it, and only if the receiver finds that the data in the information carries value. Knowledge on the other hand is a combination of instincts, ideas, rules and procedures that guide one's actions and decisions. (Davenport & Prusak, 1998)

Knowledge and information are often seen very had to separate where by this needs distinguishing. Three parameters are set up whereby the similarity and differences can be understood. First of all knowledge is different from in information since it is about beliefs and commitment. Secondly knowledge is action, since information is seen as a flow of messages, whereas knowledge is created from this flow and connected to the commitment and beliefs, becomes directly related to the actions taken from the information flow. The last parameter underlines the similarity of information and knowledge as both being carries of meaning rooted the context and relational. (Nonaka and Takeuchi, 1995)

A couple of authors (Alvesson, 2007 and Alvehus, 2006:175) have highlight how more information can reduce uncertainties, but at the same time highlight that more information

will not solve an ambiguous situation. This is because in ambiguous situations there is no clear idea of how to interpret the information that is received. If more information is received, the information will be causing even more confusion instead of creating the clarity and knowledge. Alvehus state that rather than feeding the problems with information, communication should be facilitated (Alvehus, 2006:175). Communication can be deriving from the latin word communicara meaning: sharing or making common, i.e sharing of knowledge (http://www.etymonline.com/index.php?term=communication 2008-08-11).

2.1.2 Tacit and Explicit Knowledge

We can know more than we can tell." - Polanyi (1968:4)

This quote relates to a special problem which has puzzled both philosophers and authors trying to capture the concept of knowledge. One of the classical definitions of knowledge originating from Polanyi, but is often ascribed to Nonaka and Takeuchi. The definition is seen recurring in contemporary knowledge management and knowledge sharing literature (See Jonsson, Alvesson, Newell, et all). The definition is a distinction of knowledge as a fundamental duality, where knowledge can be either tacit or explicit (Jonsson, 2008:24).

Explicit knowledge is seen as objective and rational knowledge that can be expressed in words, sentences, numbers, or formulas. This dimension makes knowledge tangible, clearly stated, recordable and storable. Examples of explicit knowledge can be seen in conceptual models, documents, manuals, databases, newsletters and the like.

Nonaka and Takeuchi argue that tacit knowledge on the other hand can be divided further into two other dimensions. The first dimension is what they call a technical dimension, which refers to skills and crafts encapsulated in know-how or knowing (Nonaka and Takeuchi, 1995:8). This dimension of tacit knowledge is often explained in relation to riding a bike, it is something that we know how to do, but we can not explain to others in words in order for them to ride the bike on their own. The knowledge can be seen as built into the body to such a degree that a person is not aware of the knowledge which he/she possesses.

The second dimension of tacit knowledge is a cognitive dimension, where the knowledge is a process of active thinking. Tacit knowledge here "*consists of schemata*[1]*, mental models, beliefs and perceptions so integrated that we take them for granted*" (Nonaka and Takeuchi,

[1] Here interpreted as how a complex reality or experience can assist in doing a task

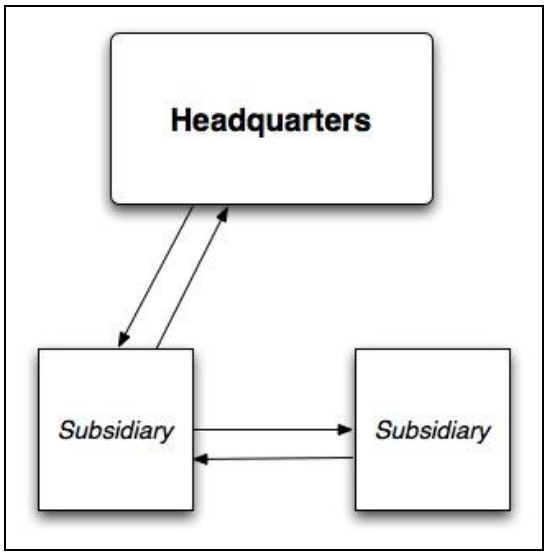
1995:8). Just like the first tacit dimension these characteristics can not be communicated or shared easily.

Tacit knowledge is by some authors considered more valuable and wanted because it provides and contains context, places, ideas, and experiences for the employees. Sandberg and Targama (2000:77) express it as “how we understand and what we understand defines what gets done and what is important”. Since it is not the same task which is being preformed over and over again in companies, then the perception of what is important knowledge also constantly change. This implicates that a company must try to understand the processes of how knowledge is absorbed and how it is shared in order to facilitate progress on the most business critical issues.

2.2 *The Sharing of Knowledge*

2.2.1 Knowledge flow and transfer

Knowledge sharing has been explained through different forms of knowledge transfers or knowledge flows. The flow of knowledge in relation to organizational levels in the organization can be seen in relation to three organizational flows as show in Figur 1 - Knowledge flow. Research has been conducted with respect to knowledge being transferred from headquarters to subsidiaries, subsidiaries to head quarters, and subsidiaries to subsidiaries. (Schlegermilch, 2003)



Figur 1 - Knowledge flow

It has been concluded that to maximize the use of employees' knowledge sharing abilities in multinational companies a transnational knowledge flow would be preferable in order to share knowledge in all directions rather than constraining it to one specific flow. Equally, knowledge that is transferred from headquarters to subsidiaries should be done in a collaborative way in order to secure local compliance with priorities and goals. (Schlegermilch, 2003)

A special kind of knowledge flow can be seen as expatriation. Expatriation has been seen by several authors (Kalling, 2000:72 and Nonaka & Takeuchi, 1995: 89) as a key component in effective knowledge sharing. Expatriation could be a senior employee who is expatriated to new countries or business unit in order to secure transfer of business processes and tacit knowledge such as mental models, norms, value and culture.

2.2.2 Knowledge sharing in the SECI model

Knowledge is as stated earlier defined by Nonaka and Takeuchi as "justified true beliefs", and is closely linked to these authors research of how knowledge is created and shared.

Knowledge sharing is conceptualized by Nonaka and Takeuchi in the SECI-model. The idea behind this model is that the tacit and explicit knowledge are in a constant dynamic relation, where tacit knowledge can be turned into explicit knowledge through dialogue (Nonaka and Takeuchi, 1995:14), making it available or shareable for other people in the organization. The authors describe how the available knowledge has to be received and internalized before it can be regarded as a successful knowledge creation or sharing process. The authors' capture the knowledge sharing capabilities of the company by stating that: "the capabilities of a company as a whole to create new knowledge, disseminate it throughout the organization and embody it in products, services and systems" (Nonaka and Takeuchi, 1995:3).

The SECI model builds upon four stages where the types of knowledge are transformed through the processes of Socialization, Externalization, Combination and Internalization. The model acknowledges the dynamic interaction of all four stages in the process of creating new knowledge separating it from other how-to models or N-step models, which have received a lot of critic lately by authors like Alvesson & Sveningsson (2007) and Dawson (2003), The criticism addresses the chronological and static way where a certain number of steps, hence N-step, has to be followed. A N-Step model is seen by the authors as unsuitable in relation to knowledge sharing in rapid changing environments and companies within such environments.

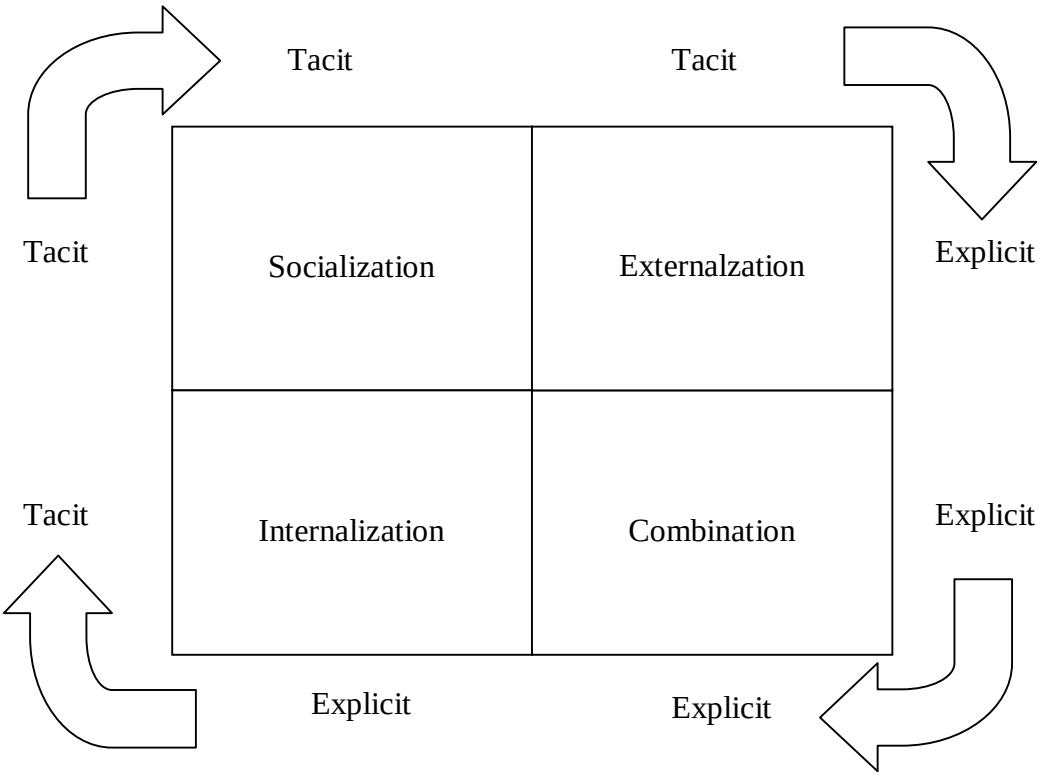
The Socialization process is described as where tacit knowledge is being transferred to another person but without having been made explicit first. Examples of this are non-verbal communication such as routines, behavior, culture and informal rules. In order for the tacit knowledge to be shared it has to be observed and imitated. This makes the knowledge almost impossible to transfer outside the setting where it takes place.

This socialization process is seen as vital for project groups (Nonaka and Takeuchi, 1995:63,85), because without some form of shared experience of culture or redundancy in knowledge, the knowledge that is shared will not make any sense to the others member in the project group, and hence making effective use of group member's knowledge impossible.

Externalization is the process of making tacit knowledge explicit through different symbolic abstractions which includes models, hypotheses, metaphors and analogies. The process is conducted in a social process relying on dialogue and reflection. The difference between the externalization phase and the socialization phase is that instead of purely imitating your surroundings, a dialog between the individuals produce knowledge which is explicit.

In the combination process, different types of explicit knowledge are incorporated through the exchange of documents, e-mail, phone calls and meetings, whilst the existing knowledge is reinterpreted and new explicit knowledge can be made. This phase can be seen as the falsification phase, where knowledge (justified true beliefs) are justified and made into beliefs. The knowledge that has been conceptualized is put into action and evaluated on its effectiveness.

Finally, internalization is explicit knowledge being made into tacit knowledge, which is often in the process of the making of a prototype if a product is produced, or practicing the know-how when it is a service being produced. The authors argue that when explicit knowledge has been made tacit knowledge, it is not reflected upon and is therefore accepted as a true belief making it hard to question and investigate.



Figur 2 - SECI model

The authors argue that a fifth phase can be stated as the dynamic nature of the model and how the process is repetitive in it self. Knowledge sharing and creation never ends due to new circumstances and new knowledge developed.

There has been some criticism formulated towards Nonaka and Takeuchi´s line of thinking, such as it being too individually focused. Like wise can the justification phase (Combination phase) of knowledge be questioned in relation to services and knowledge products, as they are by Alvesson (2007) seen as impossible to measure the quality of, and therefore to justify.

2.3 Organizational context and willingness to share

The most important process for knowledge sharing according to Nonaka and Takeuchi is the socialization process. Therefore this dimension will be investigated further.

One could argue that Nonaka and Takeuchi actually defines knowledge sharing as first and foremost the socialization process (Nonaka and Takeuchi, 1995:65), where tacit knowledge is made into new tacit knowledge. Thereby there is shed some light on why the studies by Kalling 2000, Jonsson 2007 and Anderson 2003 mentioned in the beginning under previous research draw the conclusion that organizational context and institutional forces are the most important factors, since these are seen as inseparable from the socialization process. Nonaka and Takeuchi themselves emphasizes the importance of the organizational context and the constant exchange of knowledge with the organization (Nonaka and Takeuchi, 1995:85).

These factors are of very tacit nature and therefore very ambiguous. Kalling and Styhre (2003) argued for two categories within this field of factors (1) Organizational context and (2) institutional forces should be considered as main factors in knowledge sharing. The organizational context can according to Kalling and Styhre be referred to organizational environment and organizational structures. The organizational environment will be presented under chapter 3.3 The wind turbine manufacturing industry: a unique industry? Organizational structures can be seen as centralization or decentralization of the organization, but also as structuring of the organization in either a matrix or project based form.

The organizational structures are perceived to influence the pre-understanding of the knowledge sharing processes and how individuals engage in these. Even if the structures can be explicitly explained, they still affect the work processes in ways that are very difficult to explain, and thereby can be explained as being a part of the tacit knowledge. The affection has been referred to as institutional forces. Institutional forces are explained by Jonsson (2007) as the will to share knowledge. Why co-workers are willing or unwilling to share is seen to relate to individual and group, and the norms and values which they hold in common and the culture they build. This process is also highlighted by others authors as the ability or the opportunity to share knowledge (Nonaka and Takeuchi, 1995:62; Ciabuschi, 2005: 88).

Leinonen & Bluemink (2008) address that it is equally important to explore what kind of knowledge that is assumed being shared: To give some kind of indication if it is the “right” knowledge and the “right” processes for sharing knowledge. This process of relevant knowledge for the company can be linked to the thoughts of Lane and Lubatkin (1998) (in Jonsson, 2007). They state that the absorption ability of relevant knowledge develops over

time. This means that the process of gathering the right knowledge to some extent is a self-regulating process. The longer it takes to gather the knowledge the more "correct" knowledge is actually accumulated.

Organizational slack is in the contrary to many popular lean ideas seen as highly important in the workplace environment. This is because it allows a high absorption capacity in the organization and mental presence of employees to engage in the sharing of knowledge (Nonaka and Takeuchi (1995: 67)). Drinking coffee in Swedish companies are essential to the will to share according to Jonsson just as the importance of drinking Sake in Japanese company according to Nonaka and Takeuchi. It creates the potential for higher absorption capacity and mental presence of the employees and enables them to engage in the sharing of knowledge by building trust and relationships (Richtner, 2004:13).

2.4 Knowledge sharing culture

The product of an interacting process of sharing knowledge can also referred to as shared understanding. The concept of understanding has been dealt with separately by Sandberg and Targama (2007). They elevate the problem around issues of co-workers "being able to understand the same work in qualitatively different ways" (Sandberg & Targama, 2007: 77). The authors explain some of the difficulties that occur with respect to achieving a common understanding within an organization and a group: How people tend to stick to ones' own perspective of the reality or picture of the truth in relation to what needs to be prioritized and shared in the work process.

Sandberg & Targamas (2007) argues that knowledge sharing can be strongly supported if management trusts the co-workers ability to follow a strategic direction. Managers are then able to influence the employees' perception of what is important to share. This can be done by sharing the understanding through processes such as creating a vision and mission statement, actively cultivating culture and implementing values (Sandberg & Targama, 2007:12). Other authors actually proclaim that companies must have a sharing culture. Hatch & Schultz (2002:994) explicitly proclaimed that an organizational culture does not fix knowledge sharing by it self. This statement, on the other hand, has been criticized by Dixon (2000) who states that knowledge is always being shared and there is always a knowledge sharing culture whether it has been proclaimed or constructed from the beginning.

A special group of employees have been identified by Alvesson (2004) as knowledge workers– these people have a higher education, large expertise in their own field and a high

degree of autonomy in their work (Alvesson (2004:38)). This group of people is explicitly difficult to manage. Indications have been made by authors that the best way to manage this category of employees is through influencing their understanding through norms, values, culture and other self guiding systems (Kärreman, D., Svenningsson, S. & Alvesson, M., 2002).

Several ideas regarding how to measure and estimate the value and amount of tacit knowledge has been brought forth: none of them seem to capture the illusiveness or dynamics of knowledge. One reason could be that the stated values and culture of the company are quite tricky, as it has been highlighted (Alvesson and Sveningsson, 2007:121), and that hyper culture is often created in companies. Hyper culture is defined as too big of a discrepancy between what is explicitly stated in the corporate culture and values versus the "real" exciting culture in the company: thereby making the proclaimed value and culture counterproductive towards its actual use. (Alvesson and Sveningsson, 2007)

3 Methodological frame of reference

In this chapter an overview of the methodological frame of reference of the study is presented. First a short explanation of why an abductive approach has been chosen. Then a case is build on why the wind turbine manufacturing industry can be seen as a unique business. Here after the company being studied is introduced. This is followed by a description of why a qualitative study has been chosen.

The last part of the chapter is focused on explaining the methodology behind the hermeneutic approach, which serves as the core of the methodology, and the guidelines for the studies validity and reliability.

3.1 Abductive approach

"I believe it when I see it or I see it when I believe it."[2]

How a research is conducted is to a very large extend a reproduction of the beliefs of the authors, just as the quote above highlights. Since the gathering of theoretical material was done before the empirical material was obtained, the study will be applying an abductive approach, looking for barriers and support for knowledge sharing in the interpretation between theory and the empirical data. As the quote above highlight, research can be done in many ways. The standpoint of me as an author before engaging in this thesis was that data will be structured by the theories and pre-understandings held by me. Since it is not the intention to construct general theories in relation to the study, but merely to try to offer a perspective of how the theories could be interpreted in relation to the empirical data.

3.2 Abduction

This study is based on an abductive research approach. This is mainly based on our pre-understanding, that both an inductive and a deductive will be less favorable uncovering the meanings and understanding behind knowledge sharing. An abductive approach can be seen as going from the general to the particular, by exploring a general knowledge in order to give the best explanation for a particular situation or as Alvesson and Sköldberg (2000:17) explain abduction "*the ability to se patterns to reveal deep structures*". The difference between abduction and deductions is that deduction only allows one true answer, where as abductions

[2] Alvesson - Lecture on qualitative research at Lunds University 080114-12.35

recognize that there can be several answers to the same event. It seams like the abductive method will allow more depth into the problem area than a deductive method. An inductive approach seams out of the question since the frame of reference was made first and hence will have a too high impact on my pre-understanding to be able to be inductive according to Glaser and Strauss in Alvesson and Sköldberg (2000:17).

The methodological approach is based on a qualitative study rather than a quantitative study. This is due to two factors, first of all due to the complex nature of knowledge and the sharing of it. Alvesson and Sköldberg (2000:59) states that the qualitative research method are "*more appropriate to the study of complex phenomena and processes*". Secondly because qualitative studies in an interview form has been elevated by May (2001: 174) as being able to capture how people understand their social world and how they act in this. This is mainly why I chose to do semi structured-interviews, to have the possibility to study how the employees perceive their work and how they share knowledge, understandings and information. The semi structured interview further gives the advantages in adding a interpretive perspective from where a more rich understanding can be derived.

Data is constructed which in the eyes of Alvesson and Sköldberg (2000: 307) indicates that it is possible to chose from three different qualitative methods for analysis of the empirical data. Grounded theory has to be ruled out since this perspective is build on data being theory independent as stated by Alvesson and Sköldberg (2000:32), which has already been stated as the fundament of this study. The study is going to be based on a hermeneutic approach. The reason be hind this is that this study is not going to engage in critical theory or take a post modernistic view, since it is not the intention to elevate either political, religious or gender perspective in the thesis.

The hermeneutic approach focuses according to Alvesson and Sköldberg (2000:144) on "interpreting interpretive beings". Knowledge can, to some degree, be seen as is an empty signifier or tool, which means that what ever it is filled with it will become. This makes the hermeneutics even more interesting since according to Betti in Alvesson and Sköldberg (2000: 67) "*what is to be understood, should be understood in terms of it self*". This study will look at the relation of how the interviewed experience knowledge or understand the sharing of it.

The research process can be displayed in many ways, a quite common model presented by Richtnér (2005:72) is a trunk narrowing down and refining the research step by step. Going from 1.) Litterateur collection to 2.) Data collection to 3.) Analysis to 4.) Results to 5.)

conclusion, with apparently only thought and findings effecting the next coming step, gives no possibility for refinement of previous steps and thoughts.

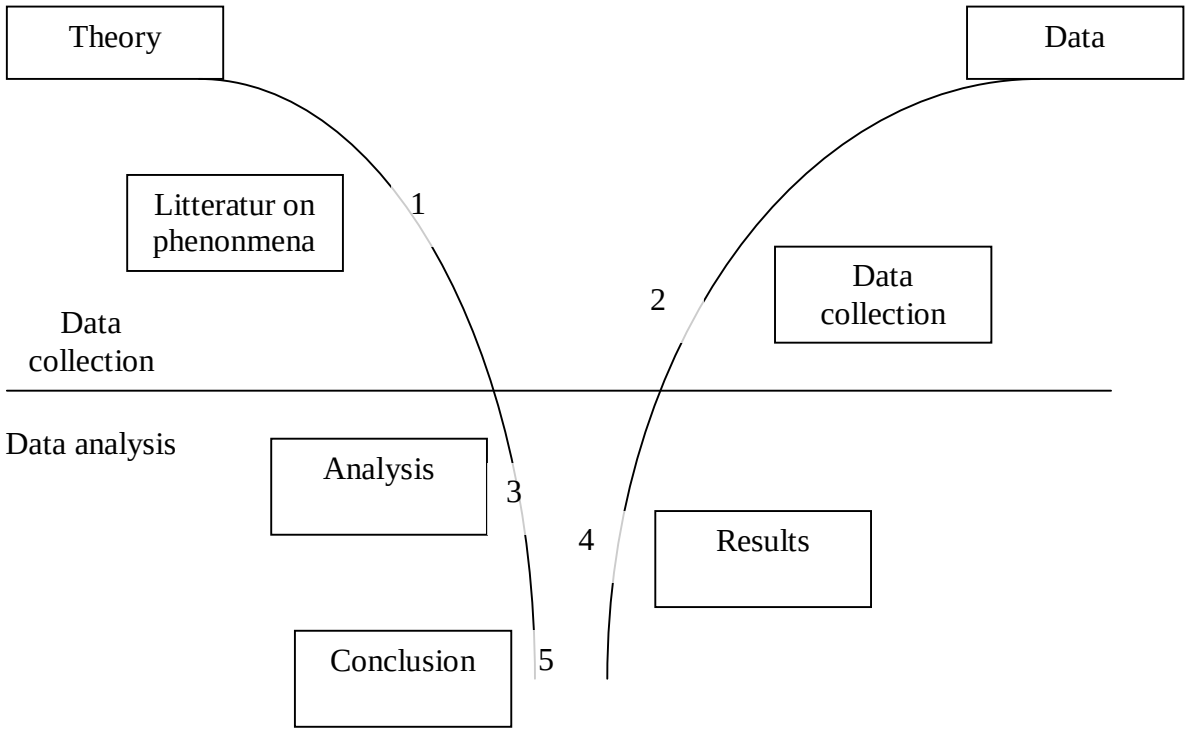


Figure 3 - Step by step analysis interpreted from Richtnér (2005:72)

Since a hermeneutics approach is chosen this step by step model does not apply. The hermeneutic research process that is to be used in this study is based on the ideas of Alvesson and Sköldberg (2000) and their circular process. Their data construction process circles between; the individual part and the whole; and the pre-understanding and understanding, instead of the chronological process displayed in Figure 3 - Step by step analysis interpreted from Richtnér (2005:72). The hermeneutic approach opens the possibility of having a much broader base of theoretic concepts without narrowing it down as fast as in Richtnérs model. In my view this enables me to be more open-minded or as Alvesson and Sköldberg (2000:6) argues for to have a "*sufficiently flexible and mobile frame of reference for handling reflective elements*". Creating both flexibility and mobility in theoretic and methodological frame of reference, this should result in new interpretations and hopefully enabling a more rich study.

The concept of the basic hermeneutic circle is to combine the more scientific oriented objective hermeneutics with the more social centered alethic hermeneutics to take the best from two worlds. The objective hermeneutics enable a broader frame of reference, a logic in

argumentation and further enables a link to the context of the company, where as the alethic hermeneutics allows me to use my pre understandings and intuition to a much higher extend, hopefully securing a more interesting study.

3.2.1 From part to whole and back again:

This hermeneutic process is characterized by looking at a part of the phenomena, tacit knowledge for instance and connecting it to the whole, barriers and hinders for knowledge sharing. Alvesson and Sköldberg use the term dialog when examining the part or the text. The dialog between the text and the researcher is a process where the researcher constantly asks questions to the text (transcription), neither leading the text nor being lead by the text (Alvesson & Sköldberg 2000:62). When the question has been answered, this answer is then further questioned to stretch the understanding of the phenomena even further. This question process could be in the following form:

Is tacit knowledge present in the organization? à (transcribes)

How does that effect knowledge sharing? à (frame of reference)

How does that effect the organization? à (transcribes)

How is this kind of knowledge affected by the impact factors and does it increase the impact on the organization? à (frame of reference and transcribes)

In this questioning manner of “knocking on the text” listening for answers or the resonance of the knock, a relationship between pre-understanding and understanding further enhances the study of the phenomena. The movement between the known and the unknown emphasizes the search for something new and gives the tool for doing so, in form of intuition and logical argumentation (Alvesson &Sköldberg 2000: 62).

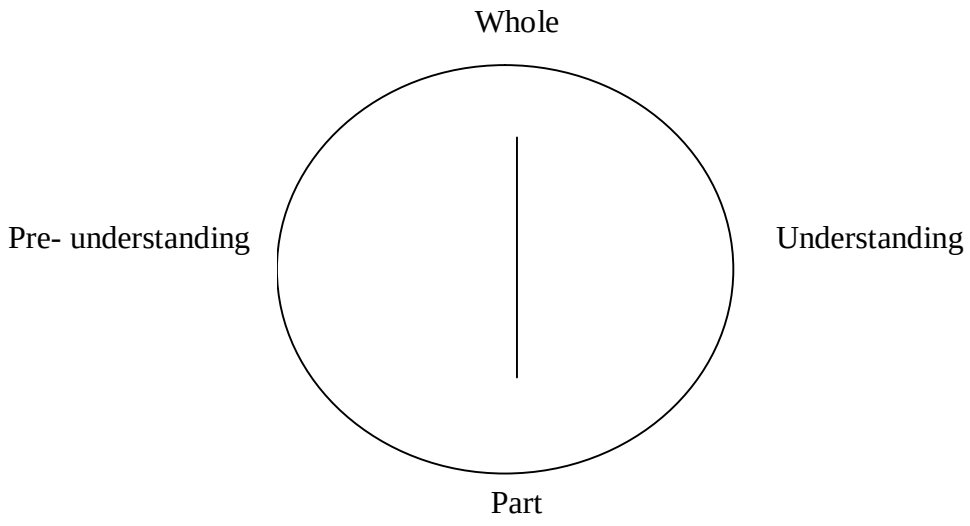


Figure 4 - Basic Hermeneutic circle inspired by Alvesson and Sköldberg 2000:66

It is believed that digging into the understanding and the thoughts of people by relating these to the first hermeneutic circle where the researcher relates the part of transcribe to the bigger picture (going from part to whole in figure 4) will enable the unravelling of "*understanding of it self* (knowledge sharing)" as described by Betti in Alvesson and Sköldberg (2000:26). Further seeing knowledge sharing in the relation to my pre-understandings and understanding it might be possible to discover more about the phenomena in a more intuitive manner, hoping to end up with more than reproducing trivial knowledge about knowledge sharing.

3.3 The wind turbine manufacturing industry: a unique industry?

The wind turbine manufacturing industry is a fairly young industry. The wind turbine manufactures which are producing wind turbines for a larger scale commercial sale have only existed since the 1970s.

Wind Wind AB is a multinational company. Wind Wind AB could qualify to be categorized as a manufacturing company, but the people in the company on average have a very high education level, in which the company also could qualify as a knowledge intensive company (Alvesson (2004:21)). Further more the company is in a special segment of the manufacturing business which is in a very rapid growth phase. The largest wind turbine manufactures expects "*that the present wind power share of about one per cent of global power consumption will grow to at least 10 per cent by 2020….These targets mean that installed*

capacity is set to rise from 75,000 MW in 2006 to at least 1,000,000 MW in 2020, which translates into annual growth of more than 20 per cent" (Company webpage).

Figure 5 displays the historical development of the wind capacity in the world. This shows the sign of the beginning of an S-curve, which is typical for the hyper growth industries (Izosimov (2008)). Another sign of hyper growth is the impressive growth which previously in Sweden has been 28 percent per year (Energimyndigheten - webpage). Izosimov (2008) claimes that hyper growth companies go through the same phases as "normal" companies in the maturing process. The major difference between hyper growth companies and normal companies is the speed which they go through these phases.

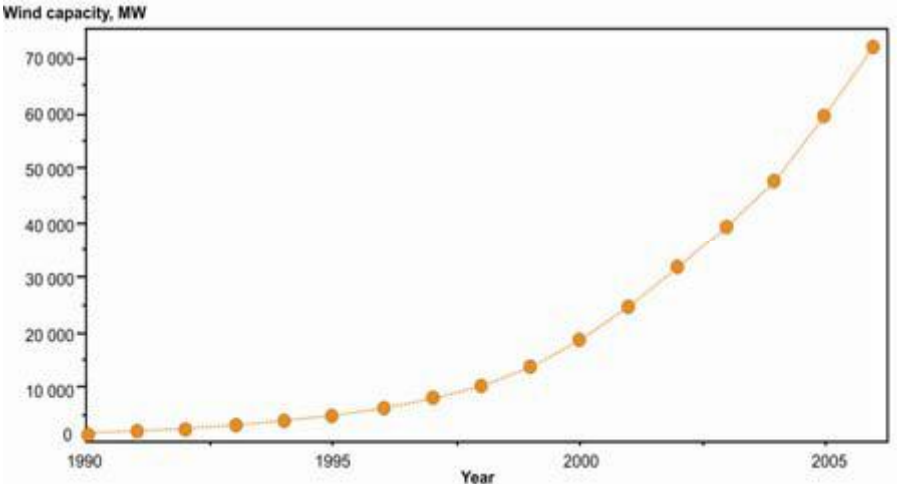


Figure 5 wind capacity development – *World Energy Council - webpage*

There is a favorable external context for the industry such as: global climate changes, oil prices expected to raise over 150 dollars and a favorable global public attitude towards the products. This in turn creates a large political support towards helping the industry overcome initial economical and legislative barriers, and it creates a extremely favorable business environment for the all parties involved in the wind power industry. One of the most important factors is that demand today is three times as big as supply. This has created an environment where the industry can pick their customers and not the other way around (Sales manager Wind Wind AB).

On the other side, as World Energy Council states, this will depend on "*the level of political support provided by governments and the international community, in turn reflecting the degree of commitment to achieving emissions reduction targets.*" (WEC 2007:16). Where by the growth is stimulated or reduced by the profitability in relation to different kinds of

monetary subvention from governments on building new wind turbines, such as tax rates subvention on energy certificates fore non CO2 producing energy forms.

Hence it is argued that the industry relating to wind turbine manufacturing should be treated as a unique part of the manufacturing industry seen in relation to the rapid growth, favorable political conditions and immaturity of the industry. Whether it is appropriate to call it a unique industry or if it is only the need to create certain uniqueness to this paper is yet to be discovered. This will be discussed later in the thesis.

3.4 The wind turbine manufacture Wind Wind AB

The reasoning behind choosing the wind energy industry as a study area instead of many other rapid growing sectors can be described in two-fold: First is the fact that the are of sustainability and climate change has been debated over the last years; second, the wind turbine manufacturing industry has not been studied extensively in terms of knowledge sharing even despite the argument of its uniqueness.

Wind Wind AB is a one of the world leaders in wind turbine manufacturing and a key player in driving the development of the rapid growing wind power industry. It is a multinational company with operation in more that 65 countries. Wind Wind AB has implemented a matrix style of organizational structure, whereby the organizations was trying to take advantage of an economy of scale and specialization of task and units. This will further more enable the company to unify and align the main business core processes in order to make use of best business practices, which can be transferred within the different business streams.

3.5 A qualitative case study

Due to the limited research in the field of knowledge sharing in the wind turbine manufacturing industry a case study is preferred since there is no other literature to consult for a literature study. Jonsson and Kalling (2007) argue that there is not that huge difference between industries such as manufacturing and retail. Other authors like King and Marks (2007) who have investigated knowledge sharing in public sectors have draw the conclusion that a very critical approach should be taken in the application of the studies conclusions outside this area.

A literature study has to be based on several other studies within the same industry. This was not the case when the study was initiated, since it was not possible to find any studies on knowledge sharing and wind turbine manufacturing industry. A factor which is counter arguing a literature study is as Jarzabkowski and Wilson (2006:349) elevates: *"theory fails to keep pace with the changing competitive conditions of a 'knowledge economy' – globalization, deregulation, technology and increased rates of innovation"*.

There are on the other hand other authors that claim that change is not that rapid (Salaman, Storey and Billsberry (2005: 255)). Which leave me with only a leap of faith and the intuition that an empirical study is appropriate to catch some of the more illusive aspects of knowledge and barriers and hinders for the sharing of it.

3.6 Authors and theoretical concepts

A choice was made to search for recently produced dissertations on knowledge sharing, and a dissertation of Jonsson (2007) was found. My thesis has to a large extend been guided or structured the theoretical frame work of this study. It was soon realized after reading several of the articles referred to by Jonsson that the framework of Nonaka and Takeuchi (1995) was referred to in most articles. Thereby it seamed reasonable to include this as guiding for the theory. Other authors which are referred to in this paper is mainly based on their relation to the research of Jonsson (2007), Andersson (2003), Kaling (2003), (Richtner (2005)) and Nonaka & Takeuchi (1995) and thereby verified by those.

A verification of the validity of the articles of the others authors have been made by either a search in the article database (ELIN) of Lund's University which to a large extend validate scientific contribution of the articles.

There are on the other hand some articles which could not be verified through ELIN, such as Golfshani (2005), how this article appears in the journal The Quarterly Report.

Information about the wind turbine manufacturing industry is mainly obtained through limited distorted sources, which means that they are not gathered directly from Wind Wind AB.

3.7 Critic towards the chosen frame of reference

As pointed to in the introduction knowledge sharing is derived from a lot of different ontological perspectives and different epistemological understandings, which can be seen as problematic in combining the different ideas of authors and articles. Since theories and ideas are taken out of their context this could result in a loss of important background understanding and a risk of misinterpretation the essential idea behind the theory. This should though be regarded as a common feature in interpreting any kind of text or article. Even if the article or text is epistemological or ontological congruent the chance of understanding the material in the same form as the author did is very limited or as Alvesson and Sköldberg (2000:68) puts it, we continuously interpret our environment in relation to our individual understanding. This should on the other hand not be interpreted as simply mirroring the data, but understood in the form that attention is paid to own reflections and the contextual background.

Alvesson also highlights the problematic surrounding of the concept of knowledge and the fad that it carries in western society today, making it a concept that can not be refused, because no one knowledgeable or wise can refuse the word knowledge. This creates a strong affinity to a subject or term that maybe have been thoroughly researched but under other terms and names. Further my distinction of types of knowledge has been criticized by Alvesson (2007: 47) as: “at best only partially helpful” and warns that in doing so, it may 'exaggerate problematic distinctions. This will be taken into consideration and reflect upon in the closing discussion.

3.8 Empirical data construction

Wind Wind AB organization is a matrix organization divided into 3 business streams and 4 support functions. In order to study barriers and hinders for knowledge sharing a segment of these departments where chosen. Interview persons were identified in the 3 main business streams and in one support function. The study ended up with 12 interview persons. The interview persons were divided as follows: 3 people from sales department, 4 people from HR, 3 from the service department and unfortunately only one from a project department. This number of people from the sales- , HR - and service departments should secure that a not to biased[3] base of data is retrieved. Since only one co-worker from project was interviewed a general picture of how this department shares knowledge with the other business stream will be more of a guess.

The person from the project department was a graduate enrolled in a graduate program, and had been there for a month.

These persons were seen fit for the study since they could provide a larger spread in relation to investigate if knowledge sharing also should be looked at in relation to position and experience.

The selection of interviewees was based on the wish of having different inter-organizational positions and departments. Wind Wind AB were able to exchange a couple of interviewees, which were perceived by the company as “experienced and good to talk too”, to some other co-workers which were outside this internal classification. Whether these “outside” co-workers represent another view of knowledge sharing and can be seen as “Black Sheep” as Alvesson and Sköldberg (2000:72) strongly recommends having in data construction, is yet to see. Taken into consideration that the company where extremely busy due to its rapid growth and the office which were newly established, it seems unlikely that they would have had the time to strategically plan a biased setting for this study.

The interviews were held face to face with the Wind Wind AB co-workers allowing follow up on questions from the semi structured interview guide that the study is based on. The interview all took place in the regional headquarters of Wind Wind AB and lasted for approximately 1 hour.

The interviews were recorded on digital recorder and transcribed shortly after.

The interviewed persons can be categorized as show in Table 1 - IntervieweesTable 1 - Interviewees.

[3] Bias refers to the interest of the interviewee in manipulating the study. For further reading se Alvesson and Sköldberg 2000:72

Table 1 - Interviewees

	Junior employee (not holding a management position)	Senior Employee (more than 1 year in a managers position)	New employee (1-4 month)
Sales Worker 1			**x**
Sales Worker 2			**x**
Head of Sales and Projects		**x**	
Sales Manager		**x**	
Maintenance Director		**x**	
Maintenance Manager			**x**
Maintenance Planner			**x**
HR Manager		**x**	
Head of HR		**x**	
HR Worker	**x**		
External HR worker			**x**
Project Worker			**x**

Sales worker 1 has been with the company for 3 month and is not in a management position

Sales worker 2 has been with the company for almost than 4 month and is not in a management position

Head of Sales has been with the company for 8 years and is head of the sales department

Sales person 4 has been with the company for 2 years and is holding a management position

Maintenance Director has been with the company 4 year and is in a management position

Maintenance Manager has been with the company 5 month and is in a management position

Maintenance Planner has been with the company 1 month and is not in a management position

HR Manager has been with the company 1 year and is in a management position

Head of HR has been with the company 1 year and is head of the HR department

HR Worker has been with the company 1 year and is not in a management position.

External HR Worker is an external consultant and has been with the company 5 month. This person is not in a management position.

Project Worker has been with the company 9 month year and is in a graduate rotation program

3.9 Critic towards research method

There is authors like Barley & Kunda in Alvehus (2006:47) who claims that interviews is one of the methods that have pushed studies of organization away from the work it self. This can be due to the special setting that is used under the interview process and due to that the employees are taken away of their normal work situation and only left with a reflection over their work. I do think that since I am trying to interpret the employee's thoughts and reflections, this would have been almost impossible in other ways like in an ethnographic observation study.

3.10 Validity and reliability

A discussion on validity and reliability is often done to shed some light on whether the study can be trusted and if it can be reproduced. This elevates as states by Watling in Golafshani (2003) that : "*Reliability and validity are tools of an essentially positivist epistemology*." Golafshani (2003:598) argues that validity and reliability should be used carefully or preferable redefined if used in qualitative research. Other authors like Alvesson and Sköldberg ties this problem to a hermeneutical approach and argues that the validity of the study should be seen as logic of argumentation instead of logic of validation (Alvesson and Sköldberg (2000:63)) - meaning that it is the argumentation process that validates the study rather than a rigorous data collection process. This is also highlighted by Alvesson and Sköldberg (2000. 63) as rather than tackling data collecting problems and process more attention should be paid to "*discuss arguments and counter arguments fore reaching the most plausible result*". Reliability is not in the relation of reproducing a study, but rather a measurement of the quality of the qualitative study. The quality can in the eyes of Golafshani (2003:601) be seen if the study has been able to help us understand a phenomenon better which was before very complex and diffuse. Alvesson and Sköldbergs argue for a more reflexive approach in qualitative research which combines logic of argumentation and

reflection on the quality of the study as guidelines. This could substitute the more trivial and positivistic view of the concepts validity and reliability. The authors further argue that quality should be estimated in relation to 4 guiding criteria's, which is the four elements which is already build in to the research process, being; reflexivity, logic of argument, going between part and whole, and using pre-understandings and understandings.

4 Analysis

In this chapter the analysis of empirical data will be done based on the hermeneutic methodology and the theoretical frame of reference.

The analysis will be guided by the following flow of themes

1. Describe different types of explicit knowledge .
2. Describe different types of tacit knowledge
3. Describe the 4 impact factors.

4. Identify the explicit knowledge descriptors in transcribes.
5. Which kind of effect does this have on knowledge sharing as such?
6. Which kind of effect does this have on the organization?
7. How is this kind of knowledge affected by the impact factors and does it increase the impact on the organization?

8. Identify the tacit knowledge descriptors in transcribes.
9. Which kind of effect does this have on knowledge sharing as such?
10. Which kind effect does this have on the organization?
11. How is this kind of knowledge affected by the impact factors and does it increase the impact on the organization?

Since the study is based on a hermeneutic approach deviations from the 11 steps described can occur. This is to allow new and more fruitful questions to appear, which at the current stage is not possible to foresee.

Specific words will act as indicators in order to identify explicit and tacit knowledge in the transcribes.

The following indicators of explicit knowledge have been chosen since these are all based on a form of objective knowledge which can be falsified and evaluated upon.

Manuals, documents, contracts, standard letters and concepts can be communicated in formal and systematic way.

The following descriptors of tacit knowledge are chosen: routines, gut-feeling, mental models and view points. These are all elements where the knowledge is difficult to falsify and to

share with others in structured way, since they can not be communicated in text and are contextual depends.

Expatriations and face-to-face meetings are seen as a very important carrier of tacit knowledge by Nonaka and Takeuchi. Therefore these descriptors are taken into account as the final indictors of tacit knowledge in the organization.

The indicators for the knowledge types are displayed in Table 2 - Knowledge types.

Table 2 - Knowledge types

Explicit knowledge (objective)	Tacit knowledge (Subjective)
Manuals Documents Contracts Standard letters Concepts	Routines Mental models Expatriation Face-to-face meetings

The last part in the analytic path is to examine the relation to factors which would, seen from the theoretical frame of reference, have a significant impact on knowledge sharing itself and therefore also a significant impact on the company. These factors are organizational context, organizational structure, willingness to share and knowledge sharing culture. The factors are displayed in Table 3 - Impact factors

Table 3 - Impact factors

Impact factors
Organizational context Organizational structure Willingness to share Knowledge sharing culture

As referred to in the theoretical frame of reference and further developed in the methodological part, the organizational context has a significant impact on the kind of

knowledge which is important and relevant to share. The organizational context indicates growth potential, political climate and maturity of the industry. These factors will as Killing has brought forth speed up certain types of knowledge sharing and inhibit others.

The organizational structure of being either centralized or decentralized, or based on a matrix or project based structure facilitate the knowledge types and the sharing of it in different ways.

Willingness to share is also referred to in the theoretical frame of reference as an institutional force to get knowledge sharing to take place. If there is no will to share amongst the employee there is limited likelihood that the quality and amount of knowledge is shared to keep the organization operational and competitive.

Knowledge sharing culture is the last impact factor. It is here described as consciousness of knowledge sharing and as the cultural factor which can support the autonomous work and knowledge sharing by the employees.

4.1 Explicit knowledge

Is explicit knowledge present in the organization?

Yes, there are several places in the interviews where documents such as binders, manuals, contracts, procedures and tools are referred to in the interviews.

There are several examples where explicit knowledge is referred to in the interviews.

In the sales department the sales manager has bi-weekly meetings with his sales team. During this meeting customers are being prioritized which is documented in an excel spreadsheet.

Which kind of effect does this have on knowledge sharing as such?

According to Nonaka and Takeuchi, explicit knowledge is easy to share and can quickly be put into action and evaluated whether it is the right explicit knowledge to act on.

Is this the case in Wind Wind AB

Seen in relation to how the sales department is using these procedures and excel-sheets this is beneficial in relation to prioritize their customers. Having this knowledge explicit allow them an aligned focus and understanding where they have to focus their resources.

Is this effect something that helps the organization?

The sales manager is complaining about the massive load of emails and explains that he has a very large workload. If this dimension is taken into account the procedure and excel-sheet definitely allows this person to optimize the time-usage of the team.

How is this kind of knowledge affected by the impact factors and does it increase the impact on the organization?

Seen in relation to organizational context since the market is experiencing such a growth it is important to change the prioritization of the customers if new and more interesting projects appear which potentially can be more valuable to the company. The political climate can also change to make it more favorable to sell the turbines to specific markets. This indicates that the need of monitoring and having the knowledge spread increases even further.

Seen in relation to the organizational structures since the organization is a matrix structure the mapping of prioritized customers allow the sales department to share this knowledge rapidly to other departments and aligned input can be given to the specific sales projects. Here again we see the positive impact which knowledge in the form of a prioritization list can have on the organization.

Since the sales manager is referring to this process of prioritizing the customers and how this process is done it indicates a strong willingness to share this information enabling transparency and aligned focus in the department. This willingness to share information in the company is expressed by one of the sales workers. The sales worker received a reply on a question sent to another colleague by mail. She expresses how she was amazed with the friendliness from the co-worker whom she had never met. The sales worker felt that it was: ”*making it a lot easier to ask more questions*”.

The heads of the sales department always inform the people they are hiring: “*nothing is served on a silver plate in Wind wind AB (authors editing). The information is there, but you have to go out and get it yourself*”. This can be seen as a very strong support for the knowledge sharing culture which is enforced in the organization. The sales director also expresses that he is trying to enhance the knowledge sharing culture by giving the employees very straight guidelines in relation to what needs to be done. This also supports that the employees themselves have to go and get the required knowledge which is needed for the specific sales contracts in relation to the prioritized customer. Promoting and enforcing a knowledge sharing culture could seen in the eyes of Johnsson help the company in the long run accelerate the development of the companies competitive advantage towards other companies. A question which can be put forth is whether a rapid growing company is able to have a long term focus seen in relation to the massive boarding of new employees.

There seems to be a big challenge in relation to whether the employees are actually ready to absorb the information and knowledge which they are exposed to. One of the sales coordinator statements: “*I find it rather difficult to find just really simple stuff, can be a bit, is*

that kilo watt per hour or is it, you know...there are a lot of different things but they are pretty easy, but sometimes you get confused, and especially in the beginning when you have not studied wind power things before. So the really simple stuff has been really hard to find (on the intranet and internet)". Here a "simple" information as kilo watt per hour becomes difficult to find or in my interpretation to understand because the individual do not have enough knowledge to understand it. There is as apparently not enough redundant knowledge for the individual to make sense of the information.

Alvehus argues in chapter 2.1.1, stating that it is not more information that is needed to solve the problem but rather more communication. The sales worker further argues that it is easier to understand the "simple" thing "when you can ask somebody", where my interpretation is that knowledge is created by the information flows in both direction in the communication. This is just what is brought forth in the SECI Model.

4.1.1 Standardized documents and systems

In the maintenance department standardized documents are referred to.

In relation to how this kind of knowledge can effect the organization the same arguments apply to why it is good to have standardized documents as explained above in relation to the sales department, such as a shared view on what needs to get done and how to do it in the best way.

The maintenance planner refers to the standardized documents, but explains how these documents are not applicable to the actual needs of the co-worker intended to use them.

The maintenance planner explains how he has to add comments and change the standards to fit his needs.

Another and maybe more fruitful interpretation could also be seen in relation to the seniority of the maintenance planer. Since he has only worked in the company for 1-4 month, the likelihood of him having the solid overview of knowing whether the standards are good enough or the standards should be changed is quite limited. This could be interpreted as if the right amount of knowledge was not shared with the maintenance planner. This does emphasise the need for training of employees in the standard systems to such an extend that they are comfortable working with the systems and that the company does not risk having all new employees coming in and making changes to the standard documents and processes, since this would undermine the whole idea behind standardized documents and procedures.

How is this kind of knowledge affected by the impact factors and does it increase the impact on the organization?

The head of sales explains how the customers have slowly moved from being farmers to now include the large utility companies. Adding this to the growth rate and the intake of new employees just further leverages the importance of having standardized document in the maintenance department. Standardization allows Wind Wind to carry out the same kind of maintenance and service towards the customer each time and thereby create leverage in uniform set of skills which will be constantly developed.

The matrix structure of the organization allows the people to rapidly distribute the standardized documents and allows other people in the same job positions in the other countries to rapidly interpret the information in the documents, whereby risk of loosing valuable time due to illness or employees leaving positions can be minimized.

If the standardized documents on the other hand should be incorrect might reduce the willingness to use and adopt other standardized documents and tools in the future.

The maintenance department could in order to secure the validity of the standardized documents they are using benefit form using the SECI model as a fundament to develop, conceptualize and implement standards in the organization.

If the maintenance people were to meet face-to-face and through the socialization phase imitate the way each of them worked with standardized documents they would be enable to understand which kind of redundant knowledge was needed to use the standards. They would there after through dialog be able to discuss if the standards where right or wrong. In the combination phase they would be able to formulate it all in symbolic language and text, which there after could be taught to new employees securing a better standard for maintenance planning.

4.1.2 Concepts

Is explicit knowledge present in organization seen in relation to concepts?

There are several places where concepts are being mentioned. Just in the HR department concepts as inductions programs, high potential programs, leadership development programs and graduate programs are referred to. In the maintenance and sales department a common strategic concept is being applied. The high potential programs, leadership development programs and graduate programs are referred to, but non of them are further elaborated on by the interviewees

How is knowledge present in relation to the Induction Program?

The HR worker describes the induction program for introducing the new hired employees to the company. The program contains explicit knowledge both as text and lectures about the products being sold, the vision of the company and administrative issues.

There is a welcome package which is sent out to the new employees including "*a magazine, a welcome letter from (the CEO of Wind Wind AB), information about bonus program, some info facts and figures, memory stick with movies with welcome speech from (the CEO of Wind Wind AB)*". This is followed up by an introduction day where the president for the organization gives a speech about the company. The whole induction concept is stated to last 3 weeks. The induction can therefore be seen as relying on sharing explicit knowledge.

The effect on which this kind of knowledge has on knowledge sharing as such can been seen in relation to what both Nonaka and Takeuchi calls redundancy under the chapter 2.2.2. The sharing of explicit knowledge in the relation to the new employees creates a basic fundament for redundancy in knowledge and enables the new employees to better understand and take part in knowledge sharing.

The effect of having such kind of a program in and organization is to make and easy entry for new employees. It enables the new employees to quickly and in a structured way to gain knowledge through information letters and movies about the organization, its products and processes. Thereby is optimized the use of the internal resources, since their manager or other employees does not have to be burden with trivial questions.

The induction day can also been seen in relation to tacit knowledge since it also have such an element where face-to-face meeting is being used. This will be further looked into when the tacit part of the knowledge is more deeply explored later on in this chapter.

How is this kind of knowledge affected by the impact factors and does it increase the impact on the organization?

The external HR worker explains how the regional headquarter has grown from 2 persons to 35-40 persons in approximately 3 month time. This growth rate is important to have in mind when looking at the importance of the induction program.

Since the organization is centralizing and the induction program is based at the regional head quarters this enable all the new employees in the different countries to share the same knowledge.

Since the political climate and the strong public opinion of reducing the CO2 emission the induction program is a perfect way to influence the new employees. Several of the factors pointing toward rapid growth of the company and the experience several of them had of being proud of telling other people what they were working with, indicates the strong will to share and thereby also a strong knowledge sharing culture.

The induction program seems in theory to be very beneficial for a company in rapid growth to conduct a uniform understanding of structures and the processes whereby the company operates. Unfortunately a large hinder arises in relation to the knowledge sharing provided in the induction program for new employees facilitated by the HR department. Several of the employees which was interviewed, did not attend the program the first couple of days of their employment, but several weeks or month later. This does create a short term efficiency loss in relation to transferring tacit knowledge. Basic questions could have been answered during this induction, so that the new employees should not go around and ask other employees, who then used their valuable time, and to some extend it undermines the idea of such a program. Another challenge also arises since the redundancy in knowledge is no longer present making it more difficult or impossible to relate to knowledge being shared from either the colleagues which has attended the program or from employees having worked a long time in the company.

The negative impact seen in relation to the efficiency loss of the transfer of explicit knowledge might be outweighed by the positive effect the delay in attending the program could create by building a stronger knowledge sharing culture. Several of the newly employed interviewees say that when they had to ask questions to other people in the different business streams, they got the answers they needed. In relation to the findings of Kalling there might be a long term knowledge gain here, as this definitely facilitates one of the important support factors for knowledge sharing, as elevated by Kalling in the chapter 2.3, the willingness to

share. Whether it was a conscious or unconscious strategy is not to say but it would have had a positive impact on tacit knowledge sharing in the company, since much more dialogue have had to be carried out to get the same kind of knowledge.

Hypothetically small practical adjustments, such as more thorough planning of the induction program and when people are hired, ought to enable participation of the employees within the first couple of days after being hired.

4.2 Tacit Knowledge

The second question I hermeneutically asked to the transcription text was if there are signs of tacit knowledge.

4.2.1 Routines

Is there any sign of routines being performed in the organization?

The sales meeting which has been explored earlier is held on a bi-weekly basis and can thereby be seen as a well established routine.

Which kind of effect does this have on knowledge sharing as such?

Routines are according to Nonaka and Takeuchi internalized knowledge which has been proven to work and thereby justified as the right way of doing a task or behaviour. Routines are very hard to question and can change, since they can only be transferred in a socialization process between individuals. Routines can therefore be seen as essential in sharing tacit knowledge and it can can only exist when individuals meet face-to-face.

Which kind effect does this have on the organization?

The routine of the bi-weekly sales meetings enables the sales department in gathering the required knowledge to prioritize which customers to go for. The market situation is analyzed and discussed with the input from employees attending the meeting. The final result is a prioritized customer list and a report which is send to the CEO in the global head quarters. The bi-weekly thereby enables the organization as previously described to be very agile and flexible in order to choosing the customer which can make the largest economical contribution to the bottom line.

How is this kind of knowledge affected by the impact factors and does it increase the impact on the organization?

If this routine is seen in relation to the context then the conditions of a rapid growing market where the demand is higher than the supply the company would be enabled to maximize its profits and always serve the customer that is willing to pay the highest price.

The challenge is if the market situation were to change rapidly to a normal mature market situation where supply is higher than the demand, this kind of approach to customers would not be favorable. The likelihood of changing the image as a company aiming for short-term economical benefit instead of being a long-term strategic partner could be quite difficult. This bi-weekly routine is build as Nonaka and Takeuchi state it on the beliefs of how the market is now. The routine has been optimized to match this context and would therefore be very difficult to change. Again seen in relation SECI-model, if relevant knowledge about customers are to be shared and decisions are to be made based on a new context, this would require that in order to create a new routine the employees would have to go through the process of socialization, externalization, combination and internalization.

4.2.2 Routines in recruitment

Are there any signs of other routines being performed in the organization?

There is an established routine in the recruitment process. The first part of the process is based on explicit knowledge in whether the applicant has the right competences and the second part of the process is based on tacit knowledge in relation to a judgment from the head of the HR department whether applicant is the right person for that particular position.

Which kind of effect does this have on knowledge sharing as such?

Here again the description earlier on the effect of routines can be applied.

Which kind of effect does this have on the organization?

The first part of the process where applicants are assessed whether they have right competences are done through assessments centers. The second part of the process is on the other hand very well commented by the head of the HR department.

The head of HR department describes how the applicant is hired or rejected based purely on the intuition and gut feeling. He expressed how he knows whether to hire new employees by

looking them in the eyes and getting a feeling if they have the right spirit for being a good fit for the organization.

How is this kind of knowledge affected by the impact factors and does it increase the impact on the organization?

The head of the HR department describes how the organizational context will be influenced over the next 18 month by having to recruit around 400 new employees. This number has to be seen in relation to the 600 employees which is currently working in the regions belonging to the regional headquarter. The head of the HR department is acknowledging that being a part of all these recruitments is impossible, and therefore a strong team has to be put in place to support the HR department in doing so. There is so to speak a need for this tacit knowledge to be shared concerning how to recognize the spirit or mindset.

The processes for doing so are also very well described by the head of the HR department. He argues that:

"you cannot put a new value set or culture onto a new employee. When you take a new person, you change the culture just a bit ... so culture is created by employees ... we can try to change it and drive it through the business ... but we cannot make it, we can only make it by recruiting that kind of people.". This indicates that on a high level knowledge has been shared between the head of the HR department and the HR manager.

Sandberg & Targama argues that a knowledge sharing culture can be realized through processes such as creating a vision and mission statement, actively cultivating culture and implementing values.

The question is whether this could be good for the company as well. In this current time when a very dynamic culture is needed to match the rapid growth of the company, flexible and dynamic people are hired. The similarity in behaviour between the new co-workers creates a redundancy where people easier can share knowledge as noted by Nonaka and Takeuchi page 21.

4.2.3 Mental models

Are there any signs of mental models being used by the employees?

There are several examples of mental models being used by the employees.

In the maintenance department the maintenance planner explains a typical day, mediating between a customer in one phone line and a technician on another phone line.

He states that the most important thing for him to focus on in this situation is: "*Don't stress them (technician), accident can happen ... and that is Wind Wind AB, no failures*". No failures are accepted can be derived directly from the organizational mission statement.

Which kind of effect does this have on knowledge sharing as such?

Mental models are a part of the tacit knowledge, which guide the individual in relation to how the processes should be carried out. Mental models are very hard to articulate. If the mental models are aligned they can create the fundamental redundancy, which supports knowledge sharing. On the other hand if the mental models are not congruent between to people, then they will have a negative impact both when sharing explicit and tacit knowledge.

Which kind of effect does this have on the organization?

11 out of the 12 interviews were able to articulate the mission statement or a phrase which was almost the same. This indicates that this mental model is shared amongst the employees and that a high level of guiding principles has been generated.

How is this kind of knowledge affected by the impact factors and does it increase the impact on the organization?

As it is expressed by Sandberg and Targama "how we understand and what we understand defines what gets done and what is important". This can be seen in relation to the organizational structure and especially in relation to the matrix structure. This structure would have a strong influence on the way the employees in the different departments relate to what is important and what actions are appropriate to take based on the statement "no failures". In this situation which the maintenance planer refers too there are even problems in getting the different internal teams to "understand each other". If the statement were to further include and make sense between the sales department and HR department, it could make it difficult to share the knowledge of what a failure is since the knowledge becomes too specific to be understood by other departments. In the maintenance department there would be a strong focus on getting the right maintenance done at the right time, where as the sales, HR and project department would have other priorities in relation to getting the sale through, looking after the employee's development and getting the turbines erected in time. This complexity could potentially create problems since there was no direct evidence of the mission being

translated down to specific actions, which could be explicitly shared amongst the departments. When the maintenance planner interprets “no failures” it is done in relation to safety aspects, whereas safety is not mentioned by any of the sales people.

It seems likely that a mission statement with more explicit knowledge attached would create a better understanding amongst the different department. The better understanding will allow more trust to be built, since expectations would be clear.

Since the interviews indicated the maintenance people either had a degree from the university or had long time experience from similar positions, they can be viewed as knowledge workers seen in relation to the criteria stated by Alvesson in chapter 2.4. As knowledge workers, a high degree of autonomy would then also be needed, whereby high level guiding principles such as vision and mission becomes even more important for the company to have in place. Here again a too high level of such corporate statements has to been seen in relation to Alvesson’s and Sveningsson’s idea in chapter 2.4 of hyper culture, where there is a discrepancy between what is real or can be related to by the employees and the corporate statements. The statement of “no failure is accepted” could very well be seen as hyper culture, since it is impossible to imagine a company not making any mistakes. If a hyper culture is in fact established it would be counter productive as a common frame of reference, whereby non of the employees would really care to much if they fail in relation to different task, since nobody else is living up to a zero rate of mistakes or failures.

Are there other signs of mental models being used by the employees?

The sales manager has some mental models which he uses in order to guide him self and the employees which he is managing. He states when asking about how he sets boundaries for his employees: “*it's very difficult to set words on things you just do*”. This indicates that the task of leading people has been internalized to such a degree that it becomes too difficult to explain. The same manager also relates to the goal setting as being based on “gut feeling”. The sales manager has great confidence in his employees being able to make and take the right decisions by “*trusting their instincts*” and the manager is convinced that “*people in this world know somewhere deep inside” “you know what kind of decisions to take, what to do, what not to do*”. The person is trying to pass on this knowledge through “*the leadership I show*”.

Which kind of effect does this have on knowledge sharing as such?

Mental models are a part of the tacit knowledge, which guide the individual in relation to how the processes should be carried out. Mental models are very hard to articulate. If the mental models are aligned they can create the fundamental redundancy, which supports knowledge sharing. On the other hand if the mental models are not congruent between to people, then they will have a negative impact both when sharing explicit and tacit knowledge. In order for mental models to be shared between people, they need to be physical together.

How is this kind of knowledge affected by the impact factors and does it increase the impact on the organization?

In order to know if there is an impact on the organization there has to be physical meeting to take place to transfer the tacit knowledge. There seems to be two things supporting this tacit knowledge transfer. The first event has already been described in relation to the bi-weekly meetings, where the tacit knowledge can be shared by studying how the manager is behaving and doing his job during these meetings. The other factor is related to the organizational structure. Wind Wind AB has an open office landscape. This organizational structure allows the employees to a much larger extend to physically experience how the manager is actually working. This would make the sharing of the tacit knowledge possible. It can thereby be argued that the organizational structure of the open office landscape is supportive for knowledge sharing.

The Sales managers actually have a strategy for the employees to engage in knowledge sharing. This is interpreted as a trait of the strong knowledge sharing culture which is present in the company. The sales manager is deliberately trying to stay away from meetings of operational matters. The argument is that if he is attending the meeting, then the team turns to him all the time for solutions instead of figuring it out them selves. He argues that they need to own the problems to have the power to act on them, forcing them to use the knowledge that they already have and developing that further. This can be seen in relation to two processes which are argued to be very supportive for knowledge sharing. The first one being trust which Sandberg & Targamas argues in chapter 2.4 when managers are showing this kind of trust in the employees that will support the knowledge sharing in the organization. This will allow the employees a confidence to pursue the knowledge needed. The second process being autonomy as described by Alvesson in chapter 2.4. The mental models which the sales manager possesses are very supportive towards giving knowledge-workers the necessary autonomy to do their work.

As referred to earlier when explicit knowledge was gathered and shared in the sales meeting a certain amount of redundancy in knowledge has to be in place for new employees in order for

such a knowledge sharing strategy to work. It is doubtful whether the mental model used by the sales manager can be seen as helpful for the employees and therefore also for the company in a short-term perspective. As referred to earlier sales worker 1 experiences it very difficult to find simple information. In order to give the new employee a feeling of confidence in themselves by doing a good job, more effort should be put into place where the sales manager in a structured way could help the new sales employees by sharing more general knowledge in relation to both products and operational procedures. If the sales manager was to some extend to assess the amount of redundant knowledge or previous experience this would enable him to better fine tune a suitable knowledge sharing strategy to the individual.

4.3 Tacit knowledge on Knowledge sharing

Are there other signs of mental models being used by the employees?

There are several signs of the employees understanding the implication of knowledge sharing working physically beside each other.

The HR worker tries to explain how this person works together with another person: *"We sit in the same room. We try to combine our urgent tasks and work on our laptop but we sit at the same table and just talk and make notes ... and I do not know, that's it."*

In the following example it seems like the interview person is aware of the importance of the tacit dimension: *" I'm really convinced that if you meet another person, in person, you can gain much more from the conversation. It's difficult to describe but it's something different from phone conferences even though you discuss the same things. You just can feel another person."*. And continues *"It gives me confidence that I talk about right things when I see the face of the person who is listening to me. When she nods or looks like she was surprised. It gives me suggestion on how I should continue on what I should talk about. It's like reading a book, reading other person's face and gestures and everything."*.

The head of HR department is equally aware of the importance of how to get an aligned view of what to do and to take ownership in order to help the department forward. The head of the HR department expresses this in the following way: "*Most importantly making a workshop asking them to bring in their knowledge. They are from outside Wind Wind AB, which is quite important. They have a different view on many things. When you have been in a company, you adapt to it (the culture/the right way of thinking) .. they haven't yet ... when we make this session…. We will ask them to put in their ideas and knowledge on how to do it (work) and*

how to proceed". The interviewee continues: "*we want it to be team based to get the ownership and full understanding of where we are going. That's the way we would like to go. That's definitely not the way Wind Wind AB was before .. but if we start in our own department, we enable the actors including myself within HR ... "Hey we did it like this in HR, isn't it a good idea for you to do it with your management team or group of employees as well"*. The statements from the head of HR department can be interpreted as the acknowledgement of the importance of knowledge sharing. If the statements are examined a little more thoroughly however, it shows that this is just an idea and it is not a process which has been implemented in the organization.

Which kind of effect does this have on knowledge sharing as such?

This understanding of the importance of the physical meeting and the transfer of knowledge is in it self supportive to tacit knowledge sharing. This can been seen in relation to the importance which has been acknowledged by Nonaka and Takeuchi in chapter 2.2.2, where the shared experience of culture and redundancy is highly supportive for knowledge sharing.

Which kind effect does this have on the organization?

Since both the Hr worker and the head of sales is aware of how the tacit dimension of knowledge is affecting the sharing of knowledge in general this can be seen as a support to the knowledge sharing in the organization. The head of the HR department even speaks of the cascading effect which successful knowledge sharing would have in relation to a structured implementation of this in the organization. The descriptions by head of the HR department can be translated directly to several of the steps in the SECI-Model. The externalization phase can be seen as referred to when the head of the HR department explains how the different people would be making their different ideas and knowledge explicit. The combination phase can be seen as the falsifying process of actually discussing the knowledge and getting common agreement of where the department is going. Finally internalization of the explicit knowledge and ownership of it is created since the knowledge now have been justified and proven as true. The only step which is hard to deduct form the head of the HR departments of knowledge sharing is the socialization phase. This is on the other hand explained by the HR worker, in relation to how this person is learning by just sitting in the same room, but also in relation how knowledge is easily shared when facial expression can be seen. The HR worker can see where the other person has redundant knowledge and thereby he is able to either continue the knowledge sharing or secure a more basic level of knowledge. This statement by the HR worker really highlights the importance in face-to-face meetings in relation to efficiently make use of redundancy in knowledge.

It seems like a complete example of the SECI-Model is demonstrated here when all knowledge in HR department is combined. This would without doubt impact the organization in a positive way if this knowledge was used to facilitate the knowledge sharing processes in other departments.

How is this kind of knowledge affected by the impact factors and does it increase the impact on the organization?

The external HR worker is referred to several times by employees in all other departments. This person is acknowledged as the person you can go to if you need to know about who works around the office in relation to practical matters. Having external consultants or manpower can be seen as a part of the organizational structure. The external HR worker could be seen as very ineffective for the organization to handle knowledge sharing long-term. If this person were to leave the external agency or if Wind Wind AB would not prolong the contract with the agency, a lot of explicit knowledge would be lost. The organizational structure can have a large impact on the organizational effectiveness, when it comes to hiring external contractors in to the company. If on the other hand the position was filled with an internal employee, this would really secure future knowledge sharing in an effective way. The HR function is seen as a support function, which makes the need for knowledge sharing both to the new employees but also to the people which have re-located due to the centralization of the headquarter even more important. That is if they plan to fulfil their objective of being a supportive function. The company ought to re-evaluate whether this person should be offered a permanent contract internally in the company.

The HR worker states that *"Recruitment, the thing I am good (at), is only 10% of my work. So it's learning all the time. And people are really open, they do not hesitate to share their knowledge. It's surprising that even though the employees are busy, always when someone needs help or asks different (people, they would find) time to help this person. That is typical (Wind Wind AB). I did not meet this attitude in other companies, so it is really great"*. This underlines the experience of the strong willingness to share knowledge, which would be essential to accelerate the knowledge sharing process. The statement by the HR worker both indicates that the person feels that she has become more knowledgeable and that it is to a great extend due to the attitude towards sharing knowledge. If the knowledge sharing is, as Dixon states, something natural in all companies or if it really is something special in Wind Wind AB, just like the employee states, can be hard to determine. But the HR worker experienced a very little time was spent in this area where he previously worked. The culture can from this perspective be seen as creating and supporting knowledge sharing to a much

higher degree than the normal level Dixon refers to in chapter 2.4, since the knowledge to do all the other different tasks has to be acquired. But there are also signs of managers not sharing knowledge.

The sales manager states that he knows that the “massive email abuse” is creating loss of efficiency in the whole organization, but chooses to make an excuse for him self that it is not his responsibility area. The person is very aware that he could have an impact on the organization but chooses not to.

The service director also acknowledges the massive use of email. This person is also to some extent making excuses for not dealing with the knowledge sharing in a professional manner by elevating this problem to a higher level, whereby corrective action can be put in place. Whether this is a culture tacitly shared by managers is hard to prove, but these two examples could at least indicate a tendency towards this. Emails can be seen as undermining the tacit knowledge sharing culture, but on the other hand the experienced abuse of emails can interpreted as the strong willingness to share explicit knowledge existing in the company. Here again it can be seen as an conflict of whether a strong knowledge sharing culture should be promoted enabling the company competitive advantages in the future, or if an instant effectiveness improvement should be applied. In any of the cases a clearly communicated strategy concerning of which kind of knowledge sharing culture the company is applying would benefit the employees so a more unanimous behaviour and understanding can be reached.

4.3.1 Face to face meeting

Are there any signs of face-to-face meetings?

Face-to-face meetings are frequently referred to in the organization. The first example to be explored is in relation to new maintenance technicians acquiring the knowledge to service the wind turbines.

Which kind of effect does this have on knowledge sharing as such?

As Nonaka and Takeuchi states Face-to-face knowledge is essential when tacit knowledge has to be shared. When new hires are taken on board many initiatives are initiated in the organization to equip them with the right knowledge. If they do not have direct relevant knowledge from the wind turbine industry they would experience what is highlighted by Alvesson and Alvehus in chapter 2.1.1 to be an ambiguous situation. In ambiguous situations

there is no clear idea of how to interpret the information that is received, whereby means of communication must be establish to enable knowledge sharing.

Which kind of effect does this have on the organization?

In the maintenance there is a shared understanding between the maintenance planner and the maintenance manager in relation to the need of tacit knowledge. Both the manager and the planner argue that the employees which are actually servicing the turbines need a lot of experience in order to do a good job. It requires knowledge which can not only be taught through training programs and sessions.

The maintenance manager has established what he refers to as a "school". The school geographically located in an area with many different kinds of turbines and in an area with some very experienced technicians. In the school the newly hired maintenance technicians are put together with an experienced technician in order to secure the sharing of knowledge needed to service the turbines in the right way. In order to secure a basic level of knowledge the new technicians are sent to corporate training programs, where they are educated in safety and technical aspects of working with turbine maintenance.

The process can be seen in relation Nonaka and Takeuchi's SECI-Model. The process being established in the maintenance department is first focusing is on the internalization of explicit knowledge in the corporate training programs. Here the explicit knowledge of safety and technical training is being internalized through structured training. The second step is done through the socialization phase, where the new technician can mimic the work done by the experienced technician. Here the tacit knowledge of how the skills learned during the training program are actually applied and put into daily routines. The program or concept invented will have a very positive effect on sharing both the tacit and explicit knowledge and getting new employees operational in a fast and structured manner.

How is this kind of knowledge affected by the impact factors and does it increase the impact on the organization?

The maintenance manager estimates the department to grow with 26-36 new employees very soon. This can be seen as a result of the favorable organizational context which Wind Wind AB is a part of. Taking this into account it becomes very important to have a structured process established enabling on boarding these employees in a fast and reliable way.

If the initiative is seen in relation to the organizational structures and the matrix organization then it seams like there is no straight alignment. Neither the maintenance manager nor anyone form the HR department mention this initiative as part of the induction concept. This can be interpreted as the knowledge sharing on this specific initiative is quite low. An initiative like

this with such a heavy focus on competence development should be a natural part of the HR department, since they ought to be specialists in this area. It does not seem like this will course any serious quality problems with the initiative since the maintenance manager has a pedagogical background as a teacher. Initiatives like this could on the other hand benefit the global organization and should therefore be made explicit as fast as possible for other regional headquarter to evaluate and falsify whether this could add value to their part of the organization.

Are there any more signs of face-to-face meetings being used?

Knowledge sharing in relation to new processes and programs coming from the global headquarters HR department is facilitated through dynamic and interactive processes, such as workshops and seminars. In these workshops and seminars role play and real case problem solving is used in order to transfer the knowledge to the regional headquarters.

Which kind of effect does this have on knowledge sharing as such?

It is by Schlegermilch argued in chapter 2.2.1 that knowledge sharing should be done in close corporation between global headquarters and subsidiaries. This would enhance the collaboration between the different units and thereby allowing a better integration of new initiatives. The willingness to share could in that way generate a common understanding of what the most important aspects of the new initiatives would be.

Which kind effect does this have on the organization?

The HR manager has a clear view on the importance of being physically present at meetings with the global headquarter: *"If possible, another colleague from my unit or me will join (workshop meeting,) so that we are quite well represented. We try to be as well represented as possible. If the head of HR or I cannot attend, we often send two to ensure we get all the info back and we get the best possibility of putting our fingerprint on the project."*. The workshop meeting indicates how knowledge is being shared from the global headquarters to subsidiary, but also how important it is for the regional headquarter to influence the global headquarter. The other process is that it does require extensive sharing of knowledge between the people substituting each other after coming back from the meeting.

Since the limited staff resources requires the employees to substitute each other, this could enhance the knowledge sharing culture, since debriefing and follow up from the meetings has to be done. How this kind of knowledge sharing took place and if there were processes or tools supporting this knowledge sharing would been of interest to study further in order to discuss the impact on the organization.

Another conclusion which can be draw from this is that the head of the HR department has a huge confidence in the co-workers regarding their knowledge of company goals and priorities. Since the persons substituting must have a clear picture of the direction the regional headquarter is heading towards in order to influence the decision of the global headquarter. The willingness to share is, as highlighted by Richtner in chapter 2.3, then enhanced by the trust shown by the manager.

4.4 Expatriates

Are there any signs of expatriation in the company?

The head of the HR department and the head of the sales department have been expatriated from other parts of the company earlier. This is highlighted by Nonaka and Takeuchi as a very good way to share tacit knowledge between different business units.

The Head of Sales states that he has started a special program to handle transnational customers. This was an idea that he had gotten at his last outplacement. He states two reasons for doing this, first of all because it is needed, but also in order to be ahead of the initiatives developed by the global headquarters. He states that it is easier to be ahead of the development instead of behind.

Which kind of effect does this have on knowledge sharing as such?

It is argued by both Kalling and Nonaka & Takeuchi in chapter 2.2.1 that expatriation has a positive impact on tacit knowledge sharing, since the expatriates will bring their justified beliefs and knowledge of best practices from one part of the organization to another.

Which kind of effect does this have on the organization?

The head of sales was unaware whether there were other regional headquarters where similar setup was created. This elevates that even though the head of sales states to have regular phone meetings with his old regional headquarter, this kind of knowledge is not shared.

As the head of sales argues it could be seen as an advantage to always be a little bit ahead of the other headquarter, to secure that the processes and structures being used in the regional headquarters are adapted globally and time is not lost on this behalf. Aligning efforts was on the other hand seen to be one of the key drivers for competitiveness for a MNC as stated in chapter 1.2 by Jonsson. It thereby indicates that more firm knowledge sharing processes on key initiatives should be put in place.

Schlegermilch elevates in chapter 2.2.1 the advantage of subsidiaries sharing knowledge directly between each other. It could be seen as wasting time having the global headquarters

directly involved. The global headquarter should on the other side not be left totally out of the knowledge sharing going on between the regional headquarters, and explicit knowledge should be provided in order to keep the much needed alignment as highlighted by highlighted by Jonsson in chapter 1.2.

To effectively make use of the resources in the global organization and the regional headquarters more firm knowledge sharing structures should be put in place. The random knowledge sharing and knowledge development could potentially be endangered by the internal competitiveness in the whole organization, by creating misalignment internally and also towards customers if there should be any of these operating in the areas of several of the regional head quarters. Moreover it would be likely that the SECI-model could provide the necessary structure for knowledge sharing between the different parts of the organization. This would have to be studied to a further extend in order to prove the validity of this statement.

5 Discussion

In this chapter a discussion of the research method and the theoretical frame of reference will be done in relation to verify the validity and the reliability of the study.

5.1 Validity and reliability of the study

There are some important issues which have to be lifted forth in relation to determine the validity of this study. Alvesson and Sköldberg argues in chapter 3.10 that the validity of a study should be based on the logic of the argumentation. The argumentation of why a hermeneutical method should be applied should then be discussed to secure the validity of the method.

Since it is a phenomenon being studied which in relation to tacit knowledge is hidden in the individuals in the organization, you have to choose a method which as Alvesson and Sköldberg mention can handle "interpreting interpretive beings". The hermeneutical approach is ment to handle this kind of phenomenon. Thereby I can claim the validity in the chosen method.

One challenge can be seen in relation to the data collection process. Due to a very large workload in the organization, access to the interviews was not allowed after the first interview. This could have enabled the interviewees to verify the interpretations done in the study. This is as argued by Alvesson and Sköldberg not the most import part of determining the validity of the study. They argue that it is the argumentation process that validates the study rather than a rigorous data collection process.

Categorization of descriptors – right or wrong

In chapter 1.2 it was brought forth that both Jonsson and Kalling recommended looking into characteristics and frameworks would be beneficial in relation to studying knowledge sharing. The study has been based of doing exactly this. It has though been difficult to actually keep the descriptors which were defined as being part of either tacit or explicit knowledge terms, separated.

Taking redundancy of knowledge as an example then redundancy in knowledge has to be present at an individual level for the explicit knowledge to be viewed as knowledge at all. Otherwise it is just data or information as pointed out by Davenport and Prusak. This can be illustrated in the case of sales worker 2 who had a hard time interpreting the technical information due to insufficient redundant knowledge.

The problem in the categorization of knowledge was on the other hand already highlighted by Alvesson in chapter 3.7. This author argued that the categorization of descriptors could

exaggerate their importance or claim the uniqueness of them around a subject already being thoroughly researched.

Taken the routines of the sales department into account this is not a very unique idea of prioritizing customers. It might be very relevant to a company that has not done this before. It is possible that studies relating to marketing and sales have covered aspects of this.

Several of the knowledge descriptors and indicators could just as well be covered in other contemporary litterateur and studies. The likelihood induction processes are covered pedagogical studies could been seen as quite large along side the mental models and mission statement, which most likely could have been thoroughly studied in relation to organizational development.

The data construction method has allowed reflective thinking and the use of intuition to a very high extend even if it has not been shown in detail in relation to the analysis. Showing the reflective thinking would have required changing pre-understand being the theoretical frame of reference constantly in order to substitute theories. This would have created a very complex structure in the study and would have made it had both for the author and the reader to follow.

It has on the other hand not been difficult to change perspective on either empirical data when more fruitful interpretations have occurred. This has enabled ideas and arguments to occur, which was far from the original intention of the study.

The reason why the study has not been as rich as eluted to in methodological chapter could be seen in relation to understanding of how semi structured interviews should be performed. The questions could have been seen as too open and a more firm structure might have provided a better clarity around the descriptors chosen. This could have enabled a deeper understanding of the specific explicit or tacit knowledge in the organization. If other studies are to be carried out in this area of indentifying knowledge types and relate it to the impact which they have on an organization it would be recommended to have several follow up interviews with the interviewees to make full use of the hermeneutical circle and really tapping into the understanding of the individual.

From this it seems reasonable to conclude that knowledge can, just as Alvesson (2004:229) argues, be everything and nothing, and it therefore needs to be firmly defined to be able to efficiently work with. It has been a challenge that through this study a clear and simple definition of knowledge has not been defined. This was fully intentional in order to create the

flexibility and mobility referred to by Alvesson and Sköldberg in chapter 3.2. This could be recommendable for very experienced researchers to have such an approach, but in this study a more low level approach could have generated a more specific understanding of certain part of knowledge.

5.1.1 Post script

This thesis was initiated in spring of 2008. At that time the financial crisis was not as deeply rooted in the world as it is at the time of May 2010, when the thesis was handed in. The thesis should be seen as a result of the special conditions which existed during this period of time from spring 2008 to summer 2008, where the market conditions was based on a higher demand than supply for wind turbine manufactures.

During the period of writing this thesis the author was in the summer of 2008 employed by the company which this study concerns. This has to be kept in mind when the validity of the study has to be assessed.

5.1.2 Studying a unique industry?

It was previously indicated in chapter 3.3 that the wind turbine manufacturing industry could bee seen as a unique industry. Taken into account the limited research and benchmarking in the literature on different industries this still will have to be seen as possibility rather than a fact. It is here urged that more research should be conducted in this branch to either prove or dismiss whether a new industry category can be added, or if wind turbine manufacturing companies should simply be seen as manufacturing companies experiencing hyper growth.

5.1.3 Researching something that can not be explained in words

Initiated by the hermeneutical method of questioning the pre-understanding of the concepts which the study is based on, a rhetorical challenge has occurred. Researching tacit knowledge would per definition be impossible, since tacit knowledge is defined as something that can not be explained in words. This study has tried through different kind of descriptor to capture certain parts of the tacit knowledge in the company studied. If new processes specific for knowledge sharing along the lines of the hermeneutical circle could be captured, this could hopefully remove some of the obstacles when working with tacit knowledge.

This will also be left to future research to develop and explore.

6 Conclusion

The purpose of the thesis was to increase the understanding of which types of knowledge is being shared; and further more to increase the understanding of what kind of impact the knowledge sharing has in a company in the wind turbine manufacturing industry.

The types of knowledge which was shared in the company were both explicit and tacit. The explicit knowledge was identified in relation to excel-sheets where customers were prioritized in relation to their importance to the company. This knowledge could quickly be shared ensuring alignment within the organization.

Explicit knowledge was also identified in relation to standardized documents in the maintenance department. These standardized documents were seen as beneficial for the organization, since it would allow the company to carry out a uniform service towards the customers. Some of these standardized documents could have been out of date or the employee might use them without enough experience, in either way it is suggested that once again principles from the SECI-Model should be applied in order to secure right standards or aligned way of working with the documents.

In the HR department a concept of how to induct new employees into the company is identified. The induction program is found to support the redundancy in knowledge needed to better engage in knowledge sharing in the company and thereby accelerate the productivity of the new hired employees.

The tacit knowledge which has been identified in the organization was routines of meetings. These meetings enabled the organization to understand the markets and compile reports to the top management in the company. It was also suggested here that these meetings could benefit from the principles of the SECI-model in order to question the internalized belief and thereby ensuring agility if the market where to change.

Routines were also found in relation to recruitments. Here the head of the HR department was seen as a bottleneck in relation to the long-term efficiency in sharing the knowledge enabling other HR employees to recruit new employees with the right cultural mindset.

Tacit knowledge in the form of mental models was identified in relation to the organizational mission statement. This was seen as enabling the employees to have a higher degree of autonomy and thereby supporting them as knowledge workers. It was also found that a risk of a hyper culture could easily emerge from the current mission statement.

Tacit knowledge is further identified through face-to-face interactions. In the maintenance department a special school has been established to ensure that tacit knowledge sharing

between the maintenance employees. This is very supportive both in relation to the tacit knowledge sharing and can be seen as an effective way of training this particular group of employees.
Another mental model which have been identified is tacit knowledge of knowledge sharing as a phenomena. There is a good understanding of the importance of knowledge sharing in the HR department.

It was indicated that the wind turbine manufacturing industry could be a special type of industry, this is still to be proven by more thorough research. Concerning the four factors of organizational context, organizational structure, willingness to share and knowledge sharing culture, they are all factors which by other authors is considered to have a significant impact on knowledge sharing. These factors have also in this study been seen a having a large impact on knowledge sharing. Hereby it can be argued in alignment with previous research that the uniqueness the industry wherein the company is located seems to play a minor role in relation to the basic factors of knowledge sharing.

One thing is clear, more acknowledgement of knowledge sharing is needed in relation to the facilitation of knowledge sharing within the organization to secure effectiveness and competitiveness in the future.

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