Barriers and Enablers of Knowledge Sharing:
A qualitative Study of ABB, Bombardier, Ericsson and Siemens

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Abstract

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Research Question: What hinders or enables knowledge sharing in Swedish-based multi-national corporations from a cultural, motivational and trust perspective?

Purpose: The purpose of this thesis is to investigate the barriers and enablers of knowledge sharing within multi-national corporations.

Method: The research method chosen to fulfill the purpose of the thesis is a qualitative approach. In order to achieve the purpose both primary and secondary data was sought. In accordance with the qualitative approach, interviews have been carried out with senior managers in ABB, Bombardier, Ericsson and Siemens. Data collected from these interviews represents the primary data. Secondary data has been gathered from company websites.

Conclusion: The results from the studied multi-national organizations suggest that knowledge sharing culture is influenced by communication, rules, regulations and routines (sub-factors of culture). This study shows that communication, rules, regulations and routines are enablers of knowledge sharing in the organizations. However, language and technology (sub-factors of culture) as collaborative tools are proven to be problematic; consequently creating hindrances to knowledge sharing. When it comes to motivational factors (rewards, power and reciprocity), this thesis shows that none of the studied companies offer rewards for knowledge sharing. This confirms the controversy connected with rewards which can either enable or cause hindrance to knowledge sharing. Reciprocity seems to enable knowledge sharing in the studied organizations whereas power remains controversial. The existence of power can either be a barrier or an enabler for knowledge sharing depending on the individual’s perception of power. This thesis also shows that the existence of trust enables knowledge sharing between employees, but the difficulties of building this trust is a key problem for management.
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1. Introduction

This part of the thesis gives a background to the topic and problem area. The purpose and problem specification of the research are outlined. Relevant terms are also defined.

1.1 Background

Knowledge is “what people understand about things, concepts, ideas, theories, procedures, practices and the way things are done” (Armstrong, 2009:220). Knowledge is according to Wang and Noe (2010) a critical organizational resource that provides a sustainable competitive advantage in a dynamic economy. However, to gain this advantage the focus should not simply be on recruiting staff with specific knowledge, skills, or abilities, but also on sharing knowledge between experts and novices which are already part of the organization (Wang & Noe, 2010).

Previously, traditional economies and organizations relied upon assets such as capital and land having physical values. In the modern economy this trend has changed and knowledge is now the key factor to gaining competitive advantage (Beijerse, 1999). According to Hansen, Nohria and Tierney (1999:106), “for hundreds of years, owners of family business have passed on their commercial wisdom to children, master craftsmen have painstakingly taught their trades to apprentices and workers have exchanged ideas and know-how on the job”. However, in the contemporary business world, knowledge sharing fundamentally means that employees contribute to knowledge application, innovation and ultimately the competitive advantage of the organization (Wang & Noe, 2010).

Knowledge sharing has distinct advantages. It is positively related to reduction in production costs, faster completion of new product development projects, team performance, firm innovation capabilities and firm performance, including sales growth and revenue from new products and services (Wang & Noe, 2010).

In the business world, failing to share knowledge can bring huge financial losses. Fortune 500 companies lose at least $31.5 billion a year through deficiencies in knowledge sharing, according to International Data Corp, the US-based market intelligence and advisory firm (Babcock, 2004).

1.2. Problem Discussion

Due to the potential benefits of knowledge sharing many organizations have invested considerable money into knowledge management initiatives and systems which use the latest technology to collect, store and share knowledge (Wang & Noe, 2010). However, knowledge management is more about people than technology. A research by Davenport (1996) found that managers acquire two-thirds of their knowledge and information from face-to-face or telephone conversations. Management also spend considerable resources (money and time) on formal (i.e. conferences, seminars, meetings, magazines, brochures, etc.) and informal ways (i.e. relaxed atmospheres, coffee corners, coffee breaks, etc.) of sharing knowledge within organizations (Davenport & Prusak, 1998; Ipe, 2003; Riege, 2005). Despite these efforts, companies seem to be falling short in terms of capitalising on the benefits of knowledge sharing and this could be due to an under-estimation or lack of understanding of the barriers and enablers which affect it (Hendriks, 1999).

According to Babcock (2004), if the clues from past failure are taken and a different approach is developed the problem might be solved. The research by Babcock (2004) found two main factors – technology and barriers posed by human nature – which were behind the failure in knowledge
sharing. More specifically the complexity of technology and inadequate consideration of organizations to the barriers posed by human nature are considered the most important reasons behind the knowledge sharing failure (Babcock, 2004). Barriers posed by human nature such as trust are connected with culture and motivations to share knowledge. Furthermore, an organization’s cultural aspects such as communication may be affected by its norms and values (Ipe, 2003; Riege, 2005). However, it is unclear whether the main factors described in Babcock (2004) are applicable to all the organizations or not.

This thesis focuses on main factors – culture, motivations and trust – affecting knowledge sharing in organizations in Sweden. These factors could lead to both potential financial losses for the organizations, and losses related to knowledge – an important asset and competitive advantage of modern firms. Thus, researching the subject would not only question the reasons for failure in knowledge sharing raised by Babcock (2004) in Sweden-based organizations, but it will also pave the way for students and researchers to investigate different industries in Sweden deeper; and for organizations to control these factors in order to avoid potential knowledge losses.

1.3 Research Question
What hinders or enables knowledge sharing in Swedish-based multi-national corporations from a cultural, motivational and trust perspective?

1.4 Purpose of the research
The purpose of the thesis is to analyse main factors regarding culture, motivations and trust affecting knowledge sharing in Swedish-based multi-national organizations.

1.5 Definitions

Knowledge
Knowledge is “the fact or condition of knowing something with familiarity gained through experience or association” (Call, 2005:20).

Knowledge Management
Armstrong (2009:219) defines knowledge management as “any process or practice of creating, acquiring, capturing, sharing, and using knowledge, wherever it resides, to enhance learning and performance in organizations”.

Knowledge Sharing
Cummings (2004: 352) describes knowledge sharing as “the provision of receipt of task information, know-how, and feedback regarding a product or procedure”.

1.6 Disposition

Introduction
This chapter introduces the subject of the thesis by giving a background to the subject while discussing the problems and stating the purpose. Furthermore, in order to familiarize the reader it defines the key words used in the thesis.

Theoretical Framework
The theoretical chapter consists of the theories suitable for this thesis, which are compiled and collected from different literature and other sources analysing knowledge sharing within organizations.

Methodology
This chapter includes the methodological approach, reasons behind the data collection and a detailed description of the procedure used in the research.

Empirical Study
This chapter contains a brief introduction of the interviewed managers and background information of the chosen companies. The results from empirical studies are gathered here while summarizing the conducted and interpreted interviews.

Analysis
In this chapter, the findings in the empirical study in forms of primary and secondary data are analysed using the theories previously discussed.

Conclusions
A brief conclusion is drawn from the results of the analysis in an attempt to answer the research question of the thesis.
2. Theoretical Framework

The theoretical framework presents theories relevant to knowledge sharing. The theoretical part consists of the theories suitable for this thesis, which are compiled and collected from different literature and other sources analysing knowledge sharing within organizations. The factors – barriers and enablers – of knowledge sharing within organizations are also discussed.

2.1 Knowledge

Knowledge is “the fact or condition of knowing something with familiarity gained through experience or association” (Call, 2005:20). Smith and Bollinger (2001) define knowledge as the individual’s ability to interpret information according to one’s own experience, expertise and skills. Knowledge is a highly contentious concept and infinitely extensible (Spender, 1996). This means that the use of knowledge by an individual does not restrict another to take advantage of it. Among other characteristics of knowledge are its intangibility and its inherent difficulty to measure (Wiig, De Hoog & Van Der Spek, 1997).

Knowledge in organizations is the extent to which employees know about customers, techniques, products and success (Grayson & O’Dell, 1998; Smith & Bollinger, 2001). Knowledge provides organizations with an opportunity to gain the ability to innovate and compete with others in the market. In order to achieve competitive advantage, strategic assets are considered the most critical for a company and knowledge is one of the important parts of these strategic assets. Knowledge from within organizations can be gained from databases, by sharing experiences with co-workers or by other available means to the organization.

Scholars have divided knowledge into two forms – explicit and tacit – when it comes to the nature of the knowledge (Nonaka, 1994; Spender, 1996; Nonaka, Toyama and Nagata, 2000; Smith, 2001; Lindvall & Rus, 2002). Explicit knowledge is generally saved in codified form in databases and can be easily conveyed to the receiver without any misunderstanding (Smith, 2001). Furthermore, it is knowledge which can be presented in words and numbers and has the ability to be shared in manuals, specifications and scientific data (Nonaka et al., 2000). Thus, this type of knowledge can be understood as the information and individual expertise which can be stored in different types of media, thereby providing the opportunity to reuse it for different purposes within the organization (Lindvall & Rus, 2002). As explicit knowledge can be presented in a codified form, it is often referred to as ‘know-what’ rather than ‘know-how’ (Nonaka, 1994).

Tacit knowledge is ‘know-why and ‘know-how’ and can be referred to as experimental knowledge (Spender, 1996). Smith (2001) describes tacit knowledge as the unarticulated part of knowledge residing in an individual’s mind. This type of knowledge, unlike explicit knowledge, is hard to present in a written format thereby making it difficult to transfer to others or store (Smith, 2001). Grayson and O’Dell (1998) go further to describe its complication to record, by defining tacit knowledge as a lesson learned by individuals, know-how, judgment, rules of thumb and intuition (Smith, 2001). The tacit knowledge depends upon personal skills and expertise and develops through training and experience, therefore making it difficult to communicate with others (Nonaka, 1994).
2.2 Types of Knowledge

Based on the literature research there are two types of knowledge – organizational knowledge and individual knowledge – that organizations deal with today (Lindvall & Rus, 2002; Lowendahl, Revang & Fosstenlokken, 2001; Ipe, 2003). These two types of knowledge, which are either tacit or explicit in nature, have to be managed in today’s organisations in order to gain competitive advantage.

2.2.1 Organizational Knowledge

Organizational knowledge reflects organizational culture and defines organization (Smith, 2001). Organization knowledge consists of its current and past employee’s tacit and explicit knowledge and is considered to be a strategic, non-tangible asset (Cabrera, 2002). Given that knowledge is viewed as a key resource, companies invest considerable time and money ensuring they make the most of the potential competitive advantage. There are several other reasons behind implementing knowledge management strategies in organizations, the main being to gain core competencies. These competencies are dependent upon the expertise and skills of the employees working for the organization. To maintain and build upon core competencies it is necessary for organizations to develop systems whereby knowledge can be preserved. Demarest (1997) states that cumulative knowledge within organizations results when knowledge is shared by employees in an organization (Smith 2001).

Smith (2001) states that the intention with knowledge sharing should be to enhance organizational knowledge and suggests that effective communication and networking channels are essential ingredients. Organizational knowledge contains the following characteristics (Smith, 2001):

a) Inimitable: meaning that the organizations knowledge is unique.
b) Rare: due to its dependence on experience and knowledge of current and past employees.
c) Valuable: due to the ability to add value in products and gaining strategic advantage.
d) Non-substitutable: due to the synergy of employees which cannot be replicated.

2.2.2 Individual Knowledge

The individual knowledge held by employees, either explicit or tacit, can add value to the product, customer and in turn the organization (Ipe, 2003). The individual knowledge is one source of organizational knowledge. The knowledge sharing process among individuals provides even more knowledge not only to the organization but also to the employees themselves (Ipe, 2003). An individual’s inability to interact with others within a group or organization restricts the knowledge sharing (Ipe, 2003). For an organization to maximise the benefit of its knowledge asset it is reliant on knowledge being shared between employees. Without the involvement of employees sharing their individual knowledge the ability of the organization to maximise its key knowledge asset is greatly reduced (Cabrera 2001).

‘Know-how’, ‘know-what’ and dispositional knowledge are three kinds of individual knowledge which create value for an organization (Lowendahl et al., 2001). Dispositional knowledge is described as personal abilities, talents and aptitude (Ipe, 2003). Sharing of individual knowledge can occur in large settings through external training, education and publications or small settings through private face-to-face meetings (Liu & Lie 2008). Individuals are a part of organizations and the knowledge held by individuals represents an important source of knowledge for organizational knowledge.
2.3 Knowledge Management

Armstrong (2009:219) defines knowledge management as “any process or practice of creating, acquiring, capturing, sharing, and using knowledge, wherever it resides, to enhance learning and performance in organizations”. In addition, Tan (2000:10) describes knowledge management as “the process of systematically and actively managing and leveraging the stores of knowledge in an organization”. Blake (1998) supports this and adds that the process can provide great benefits.

The aim of knowledge management is to capture and distribute knowledge within an organization before it is forgotten or lost through employees leaving (Scarborough & Carter, 2000). This knowledge held by an organization’s employees is ultimately an asset, therefore knowledge management and in turn, knowledge sharing should be vitally important (Scarborough & Carter, 2000). In economic terms, knowledge management is a response of an organization’s need to intensify their creation and exploitation of knowledge (Scarborough & Carter, 2000).

Managing knowledge gives organizations competitive advantages (Spender, 1996; Blake, 1998; Hansen et al., 1999; Scarborough and Carter, 2000; Tan, 2000; Smith, 2001; Smith & Bollinger, 2001; Babcock, 2004; Armstrong, 2009 and Wang & Noe, 2010). Any initiative, plan, program, system or change needs a clear strategy. According to Conley and Zheng (2009) a knowledge management strategy chosen by an organization should be in line or integrated with its overall strategy. Knowledge management usually follows two types of strategies – personalization and codifying (Hansen et al., 1999). In the personalization strategy, knowledge sharing depends on the person who develops it and mainly shares it through direct person-to-person contacts. In the codifying strategy, knowledge is codified and stored in databases and made available to individuals within the organization (Hansen et al., 1999). Hansen et al. (1999) suggest that companies should focus on one strategy predominantly, while using the other strategy to support the first – an 80-20 split – 80% follows the predominant strategy, 20% the other. Thus, firms where employees rely on explicit knowledge – documentation and codification – should use codification strategy, whereas, organizations that rely on tacit knowledge should follow the personalization strategy. Companies that focus on customized and innovative products should focus on personalization (Hansen et al., 1999).

Knowledge management is a broad concept comprised of various elements such as knowledge transfer, knowledge integration, knowledge sharing, knowledge creation (See Appendix 1.). This thesis focuses only on knowledge sharing in Sweden-based multinational companies and factors affecting it, which will be discussed below.

2.4 Knowledge Sharing

Knowledge sharing is an important aspect of Knowledge Management (Riege, 2005). Cummings (2004: 352) describes knowledge sharing as “the provision of receipt of task information, know-how, and feedback regarding a product or procedure”. It is also defined as “the process of developing trans-specialist understanding through creation of overlapping knowledge fields” (Berggren, Bergek, Bengtsson, Hobday and Söderlund, 2011:24). Knowledge sharing differs from knowledge transfers, which according to Berggren et al. (2011:24), is “unidirectional flow from unit A to unit B”.

The knowledge sharing in organizations is dependent on the nature of the knowledge being shared (tacit or explicit). Sharing, transferring and storing tacit and explicit knowledge differ from each other. Tacit knowledge is the unarticulated part of knowledge residing in individual’s mind (Smith, 2001). It is lessons learned by individuals, know-how, judgment, rule of thumb and intuition (Grayson
& O’Dell, 1998) and depends upon personal skills and expertise which develop through training and experience (Nonaka, 1994). Sharing it is a difficult task which involves only people-to-people. Explicit knowledge is shared through different technologies such as Intranets, Group Wise and Data Warehouses. These technologies may provide some advantages in knowledge sharing through storing and transferring information, time-saving and overcoming geographical boundaries (Davenport & Prusak, 1998). These can also be problematic and will be discussed under 2.5 ‘factors affecting knowledge sharing’.

An important element of the knowledge sharing process among individuals is that it can provide more knowledge, not only to the organization, but also to the employees themselves. This knowledge creation process starts from individual interactions at various organizational levels and relates to combination of knowledge from individuals within the organization. This is beyond the scope of this thesis, however for further information see Appendix 1.

2.5 Factors affecting Knowledge Sharing

Although knowledge sharing is considered to be of a vital importance to organizations, it will not be achieved if there is a lack of knowledge sharing culture, trust and motivations (Andrews & Delahaye, 2000; Gold, Malhotra & Segars, 2001; Stenmark, 2001; Smith, 2001; Levin, Huber, 2001; Abrams, Lesser & Cross, 2003; Bartol & Srivastava, 2002; Ipe, 2003; Hsiu-Fen & Gwo-Guang, 2004; Riege, 2005 and Wang & Noe, 2010). After analyzing these articles, three main factors – culture, motivations and trust – have been identified. Each group consists of sub-factors which are either enablers or barriers of knowledge sharing within organizations. Trust and sub-factors related to motivations are connected to an organization’s culture or culture within specific departments or units (Ipe, 2003). The sub-factors have been grouped so as to provide clarity to the reader and have only been included in one main group, even if they are potentially relevant to more than one. For example, technology could be considered under motivation and trust; however it is discussed only as a part of an organization’s culture.

2.5.1 Culture

Organizations are becoming increasingly interested in promoting knowledge sharing culture because it is seen as way of gaining competitive advantage (Gold et al., 2001). Organizational culture refers to an organization’s values, norms and expectations. According to De Long and Fahey (2000) culture is reflected in the values of an organization, where values are reflected in norms that influence specific practices. Management within an organization influence these cultural elements through the rules and regulations they instill and also the example managers personally set in the workplace e.g. praising certain behaviors such as knowledge sharing (Huber, 2001; Ipe, 2003). Organizational culture affects how individuals judge the importance of knowledge and determines the social interactions (formal/informal methods) through which it will be shared (De Long & Fahey, 2000). In addition, Ipe (2003) believes that culture also determines the norms regarding the sharing of knowledge between organization and employees. Furthermore, Ipe (2003) claims that culture shapes what individuals choose to do in regards to knowledge sharing and communication in organizations. Thus, different cultural aspects, namely norms and values, affect knowledge sharing within the organizations. Norms and values shape communication, language, formal and informal ways of communicating, rules, regulations, routines and the technology which directly impacts knowledge sharing.

The tendency for a knowledge sharing culture to exist within a company is largely dependent on the attitudes of its senior managers. This is supported by research carried out by Hsiu-Fen and Gwo-Guang (2004) who found that senior manager’s intentions to encourage knowledge sharing behavior
positively influences the knowledge sharing behavior of the organization. The willingness of the senior managers within an organization to promote knowledge sharing affects its overall knowledge sharing behavior because of the influence and status generally held by senior managers.

Organizational culture relating to communication is another important factor that can enable knowledge sharing within an organization. Communication in the broader sense affects knowledge sharing in that a lack of which can significantly hinder knowledge sharing or make it virtually impossible. According to Al-Alawi (1997) communication between individuals is a critical factor for knowledge sharing and is largely dependent on the opportunities employees have for face-to-face communication. Furthermore, from an organizational perspective, communication may flow vertically or horizontally within a company which may encourage or discourage individuals to share knowledge. Hierarchical companies tend to be highly competitive which often leads to impaired flows of communication or information being shared on a ‘need to know basis’ (Riege, 2005). Furthermore, a less hierarchical structure can lead to increased collaboration between employees. This can create an environment which is conducive to knowledge sharing. A company which is less hierarchical tends to positively influence knowledge sharing because individual advancement is less important and there are fewer reasons to withhold knowledge from co-workers (Wang & Noe 2010).

Another factor which affects the knowledge sharing process from a cultural aspect, particularly communication, is the corporate language. This plays a significant role in the process of sharing knowledge. According to Husted and Michailova (2002), the importance of language becomes even more critical when the company’s employees or partner’s native languages differ from each other – increasing ambiguity. The lack of fluency in corporate language is the greatest single possible obstacle for knowledge sharing and is the core of communication difficulties and misunderstandings in multicultural and multi-national settings. It also affects the process of learning and knowledge sharing heavily (Husted and Michailova, 2002). In addition, Riege (2005) believes that obstacles related to language have little relevance on a domestic scale but are certainly important factors that cannot be ignored by multi-national corporations when dealing with their international subsidiaries and partners.

Organizations and individuals need technology to communicate and share knowledge. This technology aspect can be understood from a cultural perspective, in this case connected to the norms and values in the organization. Furthermore, technology is central to knowledge sharing. The level of its usage is reflected in an organization’s norms and values related to knowledge management and the importance it places on it (Davenport, Beers & DeLong, 1998; Rowley, 1999; Armstrong, 2009). Technologies such as Intranets, Lotus Notes, Group Wise, data warehouses, video conferencing systems, document scanning and sharing tools, and telecommunications networks are considered vital to facilitate knowledge sharing (Davenport et al., 1998; Davenport and Prusak, 1998; Rowley, 1999; and Armstrong, 2009). Although, Davenport et al., (1998), Rowley, (1999) and Armstrong (2009) emphasize the importance of these technologies in knowledge management, Davenport and Prusak, (1998) downplay the role of technology without human support and warn that technology has its limitations. In other words, knowledge sharing requires support from the whole organization and should not only be based upon technological developments. Husted and Michailova (2002) believe that technology can increase the risk of the knowledge being spread to competitors. Also, it can be taken for granted that learning new technologies can increase knowledge sharing within organizations. Technology can also be introduced as a way to motivate and ease the process of sharing knowledge between employees. Moreover, Perry, Votta and Staudenmaye (1994) state that while solving a problem in the software development process a developer puts great effort into finding the person who
knows the best solution for the problem in the organization. Henninger (1997) agrees with Perry et al. (1994) and claims that employees may lose 3-4 days just finding the person with expertise to help them in the absence of knowledge.

Technology has its limitations and requires human support (Davenport & Prusak, 1998), however knowledge sharing in modern organizations also occurs through formal and informal ways and the availability of these can point to organizational values and norms. Formal ways include the regulation, routines and practices to archive knowledge in databases in an attempt to share it with others (Riege, 2005). Conferences, seminars, magazines, brochures, guidelines, training programs, structured group works and even the technical tools to share knowledge are also included in the formal ways of knowledge sharing (Davenport & Prusak, 1998; Riege, 2005; and Wang & Noe, 2010). Informal ways of sharing knowledge includes coffee breaks during conferences or seminars and relaxed physical environments in an organization such as coffee corners and couches in the corridors facilitate this (Riege, 2005; Davenport & Prusak, 1998). Informal ways are considered the most effective way to share knowledge among employees. Regarding the importance of informal tacit knowledge acquisition by an individual within an organization, Armstrong (2009:220) states “this individual knowledge may be crucial to the interests of the business and could be lost if it remains locked up in the minds of employees or taken elsewhere by them if they leave the organizations. This can be achieved in informal and relaxed atmospheres such as coffee rooms, where according to Davenport and Prusak (1998), people can talk informally about current problems, exchange ideas and give advice to each other. Informal ways of sharing knowledge help individuals develop respect and friendship leading to building of trust which in turn is critical for knowledge sharing (Wang & Noe, 2010). A culture which promotes knowledge sharing in these settings will tend to be less hierarchical and competitive as hoarding knowledge provides less benefit (Wang & Noe, 2010).

Rules, regulations and routines are an essential part of any organization which reflects an organization’s value and norms and play a major role in knowledge sharing (Michailova & Husted, 2003). In fact, a strong focus on hierarchies and internal regulation creates a business environment and workplace climate where employees are expected to rigorously perform according to organizational rules and procedures, thereby constraining knowledge sharing practices by, for example, punishing mistakes and failures (Michailova & Husted, 2003).

Norms and values of an organization in the form of rules, regulations and routines relating to knowledge sharing are an integral part of knowledge management and an organization’s lack of attention to knowledge sharing may be a result of its lack of awareness or interest in knowledge management. In order to exploit and facilitate the creation and sharing of organizational knowledge, processes related to the rules, regulations and routines should be implemented which support the organization’s knowledge management strategy. These processes could stipulate that a department must share certain knowledge with certain employees after the completion of a project. Without systematic processes such as this the outcomes of the knowledge management initiatives will be negative (Conley & Zheng, 2009). It is vital that the whole organization is familiar with these processes (Conley & Zheng, 2009). In addition, Davenport et al. (1998) argue that excessive emphasis on developing complex and detailed processes are not preferable. According to Conley and Zheng (2009) the best processes are those which clearly define the knowledge that is expected to be shared by employees of the organization.
2.5.2 Motivations

Organizations need to motivate employees in order to promote a knowledge sharing culture within the organization. Individuals are less interested to share their knowledge without strong motivation (Stenmark, 2001). To ensure the flow of knowledge across an organization is not an easy task and requires intensive efforts by management. Knowledge can be bound both inextricably and intimately connected to an individual’s ego and pre-occupations (Davenport et al., 1998).

In order to motivate individuals to share knowledge, organizations often use reward systems. Rewards can be monetary or non-monetary incentives to encourage employees. Non-monetary rewards could be a dinner gift or praising certificates to acknowledge services publically. Monetary rewards include cash bonuses. These rewards could either have intrinsic or extrinsic value. Organizations have different perceptions about the value of reward systems. Although reward systems are controversial they are still considered to be an effective tool for management to encourage knowledge sharing among employees (Bartol & Srivastava, 2003). However, an organisation which values individual advancement tends to have less knowledge sharing due to employees being driven by self-advancement rather the advancement of their co-workers (Wang & Noe, 2010).

In addition, mutual give-and-take of knowledge or reciprocity can be a motivating factor for an individual to share knowledge with a co-worker. Simply, individuals within an organization exchange knowledge with each other if the perceived value brings positive change to their status. If the resulting exchange adds value to their own knowledge, the individual will be motivated to share more knowledge in the future (Wang & Noe, 2010). This factor of motivation for knowledge sharing implies that individuals can improve their level of information and knowledge through mutual knowledge sharing (Ipe, 2003). Reciprocity as a motivator means that individuals must be able to anticipate that sharing will prove worthwhile, even if the exact outcome is uncertain (Wang & Noe, 2010). From the social exchange theory’s perspective, the knowledge sharing intention of individuals depends upon the post-exchange situation. This implies that individuals will be reluctant to share knowledge if the exchange is not favorable. A major element which can limit the reciprocity cycle is the fear of exploitation in the knowledge sharing process among individuals (Ipe, 2003). The main challenge for management here is to motivate employees to share knowledge even if the perceived return for individuals does not balance.

Knowledge holds a certain power and an individual’s desire to part with this knowledge and thus reduce its possible value can demotivate the individual to share the knowledge. Employees who hold unique knowledge are often favorably treated within organizations. Therefore, knowledge sharing is less motivating as individuals potentially lose their distinctiveness in relation to co-workers (Wang & Noe, 2010). Due to the increasing importance of knowledge in the new economy, an individual possessing required knowledge tends to create a notion of power around knowledge (Ipe, 2003). Individuals consider professional knowledge as a source of power. The uniqueness of certain types of knowledge held by individuals within organization provides special status. If an individual shares knowledge, his/her status may be reduced (Wang & Noe, 2010). Smith (2001) believes that this sense of power creates hurdles in knowledge sharing at an individual level and decreases the motivation of sharing knowledge. Employees value their knowledge power as an important factor for job security and position within the organization and avoid sharing it with others (Smith, 2001). This implies that in an organization where employees are hoarding knowledge, strong motivational efforts can promote knowledge sharing culture and reduce such tendencies.
2.5.3 Trust
Trust is an integral part of knowledge sharing due to the inherent value in knowledge. A person holding unique knowledge within a company can better be placed in relation to co-workers as they may be seen as more capable or experienced in the eyes of management. This may lead to financial rewards, promotions or salary increases for the individual.

The level of trust that exists between the individual and the recipient of the knowledge will influence whether or not the knowledge is shared and how it is received. According to Levin et al. (2003) benevolence-based and competence-based trust are two important types of trust which effect knowledge sharing. Benevolence-based trust relates to individuals trusting that each party intends good-will. Competence-based trust refers to the trust that the recipient of the knowledge has about the provider of the knowledge. Levin et al. (2003) found that benevolence and competence-based trust are based on the provider and the recipient sharing a common language, common vision and that the provider demonstrates discretion. A common language is vital for the recipient to understand the knowledge which is being shared with them. Similarly, a common vision is important as it builds an affinity between the co-workers which can in turn lead to trust. Also, if discretion is shown then it may demonstrate integrity and lead to the development of trust.

If knowledge is being shared by someone that the recipient regards as capable and trustworthy then they can be confident they are not being deliberately misled or simply being given erroneous information. In this sense, trust on the behalf of the recipient is required. It is important that the recipient is able to trust the source and know that it is credible. If the source of the knowledge has low credibility then the knowledge will not be accepted by the receiver (Andrews & Delahaye, 2000).

According to Andrews and Delahaye (2000) trust is one of the key determinants for the existence of knowledge sharing. Their study found that trust was crucial because employees were concerned about others claiming credit or plagiarizing ideas or knowledge which came through sharing. This is supported by Bakker et al. (2006) who found that knowledge is more likely to be shared to a co-worker who is considered honest rather than capable. It is therefore important that trust is present on both the recipient and provider’s behalf; otherwise it is difficult for knowledge sharing to occur. Furthermore, the level of trust that exists between the individuals knowledge sharing significantly influences whether the exchange will occur. Wang and Noe (2010) researched the influence of trust and found that individuals were less likely to share with those who were perceived as capable and more with those perceived to be honest and fair.
3. Methodology

The purpose of the methodology section is to outline methods and approaches to data collection and analysis.

3.1 Choice of companies to study

The companies selected for this research were large multi-national companies operating in Sweden. As the literature research (Riege, 2005) suggests, the knowledge sharing process within multinational corporations is quite complex and differs from the small and medium enterprises. Thus, choosing multinational corporations would provide a bigger picture of barriers and enablers of knowledge sharing within the companies. Initial research indicated that Fortune 500 companies were losing billions of dollars in knowledge loss, despite their investments in knowledge management. The companies selected all had knowledge management in place and therefore their views on knowledge sharing within the departments of their organizations are highly relevant. It was also important that the companies were involved in technological innovations and with products of a complex nature. The importance of knowledge sharing in these companies is more significant as they are dealing with explicit and tacit knowledge and the interviewees are working within large departments where knowledge sharing would be occurring formally or informally.

3.2 Approach to Research

Qualitative research is effective when the researcher’s aim is to gather data relating to attitudes, motivations and opinions (Yin, 2003). On the other hand, quantitative research is relevant when the aim is to test theories through statistical analysis. In this thesis it was decided that a qualitative approach would be undertaken as the type of responses sought were largely opinion-based that require some degree of explanation. Furthermore, face-to-face interviews were undertaken because it was considered more personal and conversational, which would not only help elicit more detailed responses but also attain in-depth understanding. As the research is qualitative case studies, generalization cannot be made.

According to Yin (2003) there are two types of research; inductive and deductive. An inductive approach involves developing a theoretical framework based on the primary data gathered for the research. A deductive approach, however, involves using theory to form the analysis and collection of the qualitative data. Therefore, the approach to this thesis is deductive as the literature review initially conducted has been used to shape the collection of primary data from the companies and form the analysis.

3.3 Case Study

A simple case study involves an in-depth analysis of a single event, organization, person or location. Case studies are however not limited to singular events and multiple case studies are widely used for the purpose of comparison (Bryman & Bell, 2007). A multiple case study is undertaken in this thesis so that knowledge sharing within ABB, Bombardier, Ericsson and Siemens can be compared and contrasted to analyze which factors enable or hinder knowledge sharing in the respective organizations. The similarities and differences between each company can be identified along with comparison with the theoretical framework. A distinguishing feature of a case study is that there is focus on deriving the unique elements of each case (Bryman & Bell, 2007). This was considered to be
important in this thesis where there was an aim to gain insight into each company through semi-structured interviews.

3.4 Literature Research

Literature research was conducted solely through the Mälardalen University library where the main databases used were Web of Science and Emerald. Literature research was also conducted through Google Scholar. Articles gathered in the preliminary stages of the thesis were about knowledge management, knowledge exchange, knowledge sharing, knowledge creation and factors which hinder or enable the sharing of knowledge within organizations. This stage of the research process provided a background to the broader aspects of knowledge management and gave context the narrower subject area of knowledge sharing.

The keyword searches used were knowledge sharing and organizations, knowledge sharing and challenges and factors effecting knowledge sharing. These searches resulted in between 26,000 and 39,000 search hits. From these results more refined searches were conducted using keywords such as knowledge sharing and organizations, knowledge sharing and individuals, knowledge sharing barriers, knowledge sharing enablers, motivations in knowledge sharing, trust in knowledge sharing and knowledge sharing culture. Literature found for the thesis are written and presented in accordance with Harvard Referencing.

3.5 Data Collection

Data consists of basic facts – the building blocks – for information and knowledge (Armstrong 2009). Data collection depends on the kind of the information needed for the research question (Ghuari & Grohaugh, 2005). According to Malhotra (2010), there are two types of empirical data; primary and secondary data.

3.5.1 Secondary Data

Secondary data consists of information which already exists after previous research has been conducted. Secondary data can show existing problems, however the information needed may be missing and more may be required (Malhotra, 2010; Kotler, et al., 2002). This sort of data can be either internal, which is acquired from within an organization, or external which comes from outside an organization (Malhotra, 2010). The secondary data for the thesis has mainly been taken from the company websites.

3.5.2 Primary Data

The source of data collection for this thesis has mainly been primary data. This data is exclusively collected to serve a particular purpose of a research (Kotler, et al., 2002). In this thesis primary data is collected through interviewing four managers – one from each – ABB, Bombardier, Ericsson and Siemens.

3.5.3 Interviews

Since the subject of this thesis deals mainly with human perception and knowledge, the interviews were needed to gain an understanding of chosen subject. In fact, the interviews had all the characteristics of the formal interview described by Holloway (1997). Accordingly, they were arranged in advance; the respondents were contacted via telephone and e-mail prior to the interview; and the interviews were recorded with the permission of respondents.

Since the topic of the thesis is dealing with the one of the competitive advantages in the organizations and it is difficult to attain straightforward answers, some questions needed follow up questions. The
interviews, therefore, were semi-structured. This means that questions can be flexible and adjusted according to flow of discussion, giving the respondent an opportunity to express thoughts and feelings (Holloway, 1997). This type of interview helped with pursuing and probing particular issues about the chosen subject.

The interviews were conducted face-to-face. This sort of interview was preferable from the beginning of the process of writing this thesis. According to Sekaran (2003), face-to-face interviews provide a higher level of understanding between interviewer and respondent. It is a controlled interview situation where the interviewer has the possibility to ask complicated and follow-up questions to gain the required information (Sekaran, 2003). In face-to-face interviews, it was thought that even if the questions were not answered clearly, the hand or facial gestures would help the interviewers to understand the matter clearer.

Four face-to-face interviews were conducted for this study. Since the subject of the thesis deals with sensitive issue of competitive advantage, it proved difficult to find respondents. The companies feared that they may reveal details of their important competitive advantage to their competitors if interviewed. However, professionalism in contacting the companies via formal e-mails and telephone conversations was maintained and interviewees were offered the opportunity to remain anonymous during the interviews to allay some of these concerns.

The interviews with Siemens and Ericsson were conducted in Stockholm, while interviews with ABB and Bombardier were held in Västerås, Sweden. Each interview lasted 30-45 minutes. The atmosphere where the interviews were conducted helped them to be conducted in a congenial way.

The interview with Siemens was conducted at the main office of the company in Kista, Stockholm on December 03, 2012. It started at 14:15 and lasted approximately 35 minutes. As it was stated the company ‘is very sensitive’ about knowledge and information security, the interview was conducted in a small conference room equipped with necessary tools for conferences up to 10 people. However, the flow of the conversation during the interview was rather friendly partly because of the way questions were put forward and partly because the respondent felt secure after discussing the topic face-to-face.

In order to get empirical data from Ericsson, the interview was conducted on December 05, 2012 at Ericsson head office in Telefonplan, Stockholm. The interview was done in a very pleasant environment where employees take coffee breaks and discuss issues related to their job. The interview started at 14:00 and lasted around 30 minutes. Since the respondent was very well aware of the topic there was a good understanding between parties due to the informal atmosphere and the knowledge about the topic.

The empirical data from Bombardier was collected during the interview at the main office of the company in Östra Ringvägen, Västerås on December 12, 2012. The 45 minute interview started at 15:30 and was conducted in a small group room close to one of the coffee corners in the building. There was a mutual understanding due the respondent’s awareness of the topic which led to a friendly and more open interview.

The interview with ABB was conducted on December 13, 2012 in one of the group rooms at Mälardalen University in Västerås. The interview which started at 16:30 (after working hours) and lasted about 40 minutes was conducted at the university building due to the closeness of respondent’s residence to the university. Although the respondent has been living very close to the university, she
has never been to the building. The overall atmosphere of the university, particularly the chosen room for interview with a big glass window on both sides of the room overlooking the main entry and library on the one side and the university’s yard on the other, helped the interview to be conducted openly and friendly.

The interviews were started with a short introduction of the topic and then by general questions about the overall knowledge management in the company. This was followed by specific questions about knowledge sharing and factors enabling or hindering knowledge sharing in the company. The respondents were challenged to give details or more explanation about the actual hindrances in the company and their responses to the hindrances. The interviewees were also challenged regarding their own efforts to share knowledge – how they shared and why they shared.

The interviewers were allowed to record the interview. The issue of recording interviews was not raised in any e-mail or telephone conversation prior to the actual interviews fearing rejection. The respondents were promised that the recordings would only be used for accuracy reasons of the empirical data usage and would be deleted after the transcriptions of the interviews were made. Thus, the interviews were deleted after transcribing them. (Main questions asked are attached in Appendix.2)

3.6 Choice of Respondents

The tendency for a knowledge sharing culture to exist within a company is largely dependent on the attitudes of its senior managers. This is supported by research carried out by Hsiu-Fen and Gwo-Guang (2004) which found that senior manager’s intentions to encourage knowledge sharing behavior positively influences the knowledge sharing behavior of the organization. Therefore, four managers were interviewed for this thesis.

Initially the focus of the thesis was to interview a project team and investigate its knowledge sharing barriers and enablers. However, due to knowledge sharing being considered one of the most important competitive advantages, all the attempts to find and interview such teams was unsuccessful. Thus, the thesis focuses on enablers and barriers of knowledge sharing within a particular department in ABB, Bombardier, Ericsson and Siemens. Judgmental sampling approach is used in the study and accordingly the choice of respondents is based on the judgment of the researchers (Sekaran, 2003). Based on this, it was important to select managers who work within departments performing similar functions so that any conclusions drawn will have relevance. Accordingly, the chosen managers – four managers, one from each company – were either directly involved in the sales department or had experience working in the sales sector of the chosen companies. Since the sales sector involves much knowledge about customers it was reasonable to gain empirical data about factors affecting the knowledge sharing process within the chosen companies as the managers would be aware of knowledge management.

Furthermore, another criterion was to select managers who have a good knowledge of the company and significant work experience. Thus, the chosen respondents fulfilled this criterion and each is presented briefly below.

Marie-Louise has worked in ABB for 28 years. During the 28 years of her career in ABB she has worked in different positions in different divisions of ABB including Sales Operations. She has been working as a General Manager in Central Stock Nordic department of ABB for several years.
Peter Östman has worked in Bombardier for 12 years. He has been working as a Sales Manager in the Sales and Marketing department of the vehicle division in Västerås for about 2 years. His area of Sales Operations in the Sales Nordic sector of the Bombardier includes products related to mainline and metros.

Mattias Åhland has been in charge of different projects in Ericsson for several years. Apart from those projects he is also responsible for the coordination of different SCRUM teams, project teams and cross functional teams in different departments of Ericsson including sales. Organization learning and sharing knowledge is not only his area of interest, but he is also responsible to encourage, motivate and oversee the process of sharing knowledge and learning within the whole organization.

Per-Olof Bohlin works at Siemens as Operations Manager of the company’s Nordic Operation, particularly Nordic Sales and Services based in Stockholm, Sweden. He is also responsible for compliance of Siemens’ rules and regulations in different divisions of the company’s Swedish branch – Nordic Sales and Service and Product Lifecycle Management, in particular.

3.7 Data Analysis
As the research in the thesis is qualitative and the research strategy is a deductive approach, analysis is done by combining the theories and the empirical findings. The findings are then compared with the theoretical research of the thesis. More specifically, each factor affecting knowledge sharing which was discussed in the literature review was matched with the answers of respondents about that factor. Then, the factor was analyzed through finding contradictions and similarities both in literature review and interviews. Besides drawing comparisons, short comments based upon the literature review are also added on some occasions.

3.8 Validity
Validity relates to the integrity of the conclusions drawn from the research (Bryman & Bell, 2007). This can be improved by asking different types of questions. Lundahl and Skärvad (1999) divide validity into two parts; internal validity and external validity. Internal validity refers to the extent theories are in accordance to the operational definition. This means that the interviews and or questionnaires selected provide required information. In order to attain internal validity and to connect empirical findings with theory, an interview guide is formulated in accordance with theoretical framework in this thesis. This in turn ensures that relevant questions are covered during interviews. To do this, questions asked were in accordance with the operationalization which was developed to show the connection between the research question and the theoretical framework (Appendix.2). The interview questions therefore related to:

a. the types of knowledge the departments were involved with
b. the management systems they use
c. the formal or informal processes they have in place to share knowledge
d. perceived barriers to sharing knowledge

The external validity concerns the authenticity of results and their usefulness in different situations other than the researched one. Due to the fact that this research is based on only four companies in Sweden, it is reasonable to believe that the results of this study can be applied to other similar business entities.
3.9 Reliability

The reliability of qualitative research is assessed on its transferability, trustworthiness, credibility and dependability (Bryman & Bell, 2007). *Credibility* is based on the believability of the findings. The *transferability* of the findings is reflected in whether they are able to be applied to other contexts. The *dependability* of the findings relates to whether the findings would be likely to be found at different times. The *confirmability* of the findings is the level to which the researchers have allowed their own attitudes to influence the findings (Bryman & Bell, 2007).

In this thesis respondents were chosen on the basis of seniority and experience within the company. This enhanced the credibility of the findings as they were in a position to give relevant responses. The opportunity to remain anonymous was also provided which further encouraged trust and promoted honesty in the respondents’ answers. Similarly, the research was undertaken in a conscientious manner where there was a complete absence of vested interest and therefore no adverse effect on the confirmability. All reasonable attempts have been made to increase the transferability of the findings through conducting interviews with large international companies.
4. Empirical Findings

In this section, background information of the chosen companies is briefly presented. The results from empirical studies are gathered here while summarizing the conducted interviews. Each respondent’s views on culture, motivations and trust are separately written.

4.1 Interview with Marie-Louise Stridh – Manager at ABB

4.1.1 Introduction

ABB (ASEA Brown Boveri) is one of the key global leaders in power and automation technologies. It is based in Zurich, Switzerland and operates in about 100 countries around the world. ABB was named after the 1988 merger of the corporations Allmänna Svenska Elektriska Aktiebolaget (ASEA) and Brown, Boveri & Cie. It has more than 145,000 employees globally. With 120 years of experience and history, it is currently the largest supplier of motors and drives, the largest provider of generators to the wind industry and the biggest supplier of power grids worldwide. Innovation resulting from its research and development is considered to play an important role behind its success. In Sweden, ABB has around 8,800 employees in more than 30 cities in the country. Nearly half of its Swedish employees are based in Västerås (abb.com & abb.se).

4.1.2 Views on Culture

ABB does have a knowledge management system where the information and knowledge gained through different projects and product developments is stored. In some departments of ABB knowledge management systems are better than others. The general knowledge, which is stored on a central database, is standard and accessible for all employees, whereas, the knowledge or information gathered by different units and departments is managed and stored by individual units in the form of paper documents and files. However, there are certain departments which do not have any proper system to take care of knowledge learned through different activities. The database, intranet and several other tools, where the organizational knowledge is stored, is easier to use and extract information.

Apart from these technological tools, there are instructions and manuals which can be accessed to perform a particular job including knowledge sharing. These tools are well equipped with graphical user interface (GUI), which eases access to them. Commenting upon the sort of knowledge stored in ABB, Ms. Stridh, said, “For example, after the end of a project, there is usually a meeting where knowledge from the project is documented and stored in these systems. In the system, where we put the documents, is simple to use. It has headings and other stuff thought to be necessary. Reading and reaching the documents in the system is quite easy. Everybody has access to them.”

Despite all the facilities and convenience, there are very few people that share the knowledge or put the documents in it. A visible challenge with centralized organizational knowledge sharing is that, everybody cannot share knowledge or put documents there. Stridh said, “If they (employees) would like to add something then they have to contact the secretary or manager. This in turn, can take longer time”.

When it comes to communication, the main source is through face-to-face conversations, emails and via telephones which are used for internal and external communication in her department. The main
challenge which her department faced was the communication distortion. A great deal of information is exchanged through emails. She added, “Sometimes, it happens that a message is sent via email, but the receiver claims that he did not received that information. The possible reason is that, their mail box is overloaded and they simply just not noticed”.

The corporate language is English at ABB, but in Ms. Stridh’s department all employees are Swedish so in their routine work they communicate in Swedish. When it comes to external contacts with other divisions, such as communication with international office or the persons whose native language is not English, it creates difficulty to communicate with them. Ms. Stridh further elaborated that, “This challenge is visible for both sides. The language is problematic especially when you are having telephone conferences, where sometimes it is really hard to understand the other end”.

In order to clarify the issue further she added, “A few weeks ago, I got an email from another office outside Sweden, the language was so difficult to understand (...) I wrote back to him and he could not understand clearly what I meant. Similarly with telephone conversation, it is even hard to explain exactly what you want, because of different language”.

The knowledge sharing in Ms. Stridh’s department takes place both formally and informally. Employees sit very close to each other and have informal discussions constantly. The other informal ways of such exchange of views occur at coffee breaks and lunch breaks. Discussing formal ways of knowledge sharing, she mentioned that there are management meetings at different times occurring on a regular basis. The other typical ways of sharing information and knowledge is through seminars and conferences. Talking about the best way of sharing knowledge she said, “It was very nice that all of meetings and sharing knowledge (...). But, now I start to think it is not really good, because if we talk about things and do not document them, we forget them after a month”.

According to Ms. Stridh, another important aspect of organizational culture within ABB which can affect the knowledge sharing process is personal ties and finding the right person with the required knowledge. It was clear from the discussion that as far as her department was concerned, there was no issue. She said, “Employees know about each other and are well aware of each other’s expertise”. However, she added that “when it comes to ABB as a whole organization, there is a big challenge to find the right person with required expertise”.

**4.1.3 Views on Motivations**

There is no direct monetary reward in ABB for sharing the knowledge. “If an employee did a great job, which helped the organization to improve its productivity or efficiencies, he will be rewarded by appraisal on special annual day of ABB”, said Marie-Louise. She then spoke about how she motivated her staff to share knowledge: “What I like the most by being a manager to see my people, those who I manage, to grow and make them know more and more, and take more responsibilities. I don’t exactly know how I do it, but I want them to get much knowledge so they can be able to grow and develop themselves”.

When Ms. Stridh was asked whether she expected something in return when she shared knowledge and what that would be, she said after thinking for a while, “For people around me, the main thing is that I give (share) them knowledge. But, then there are other people, where it is opposite that they should give me knowledge, because they know more than me. It doesn’t have to be the same person”. When Ms. Stridh was asked if there was any tendency among her colleagues in this regard (reciprocity) she said, “I am pretty sure it might not exist in the Swedish ABB organization, it might because of the language or I believe Sweden is pretty open country. But, within the global
organization I can sometimes feel it. For example, when I ask question, how do you do this, sometimes it can be hard to get an answer”.

The power factor could be problematic in some cases but this is not a significant issue for ABB at the moment. Ms. Stridh thought that it is better to share knowledge with colleagues, so that one has alternatives. According to her, if the knowledge is limited to one individual then it gives some power to the individual but at the same time it brings certain difficulties, as well. For instance, the possibility to take leave from work becomes difficult. When asked if she felt threatened to share her knowledge because of the power issue, she said, “I don’t think so that when I am sharing knowledge, I might lose my power. I have been here for a long time, and I don’t have something to defend. If everyone in my department knows what I know, I am pretty sure that I won’t be kicked out of the company.”

4.1.4 Views on Trust

Trust is generally not an issue to share knowledge within Ms. Stridh’s department. She said, “The employees share knowledge with each other without thinking about the returns. They help each other to reach common goal”. However, within the global employees Ms. Stridh sometimes feels there is a tendency to not share knowledge due to a lack of trust. The employees working in Ms. Stridh’s department trust each other due to the personal ties which have developed over time. This facilitates pleasant knowledge sharing atmosphere among employees.

4.2 Interview with Peter Östman – Manager at Bombardier

4.2.1 Introduction

Bombardier is one of the leading international organizations in the transportation industry. It is the world’s only manufacturer of both planes and trains. Based in Montreal, Canada, it employs more than 70,000 people in more than 60 countries. High speed trains, business jets and commercial aircrafts are among its main products produced in its 76 sites around the world. With 2,500 employees in Sweden, Bombardier provides range of services from delivery of vehicles to drive and control systems and full maintenance service (bombardier.com & bombardier.se).

4.2.2 Views on Culture

Bombardier has very clear processes about what kind of documentation should be created in a project and how to store this documentation. Mr. Östman explained, “There are always lessons to learn from successful projects and unsuccessful projects. We use both PDM (product data management) and Intranet systems to store such information. They work well”.

The lessons learned from different projects are kinds of information that are not really the type of knowledge that fits in all projects related systems in PDM. PDM system includes all the data about specification, functional descriptions, drawing software solutions, etc. Confirming this, Mr. Östman said, “But the lessons learned (tacit knowledge) are not there”.

There are other quality tools as well such as the Engineering Book of Knowledge and Intranet, where much of the lessons learned are stored. Mr. Östman said that the Winter Expertise Center in Bombardier globally comprised of sharpest engineers in the field and they deliver and manufacture trains for harsh climate areas. They have developed the Engineering Book of Knowledge and also the Bombardier Transportation Winter Guidelines and this is accessible to all the employees. The same routine is followed in other departments of the company; the Lessons Learned is stored in Intranet.
At Bombardier technology is a main source of communication. A great deal of information and knowledge is shared and distributed through emails and telephone conversations. The challenge which they face with this type of exchange is that quite often the mailbox is overloaded with emails. Employees do not have enough time to go through all the emails thoroughly. This often leads to misunderstanding and misperception. Mr. Östman said, “Despite the several benefits of such fast modes of communication, sometimes I think it is better to prohibit the usage of emails in corporate sector”.

The other issues in Bombardier which are connected with technology are the lack of knowledge and awareness to use and take advantage of the available tools and data bases. They are very complicated due to their size, capacity and location, according to Mr. Östman.

As Bombardier is a large global company having its physical offices in different parts of the world, it naturally has employees from different countries and cultures. Particularly, employees at Västerås office work closely with their German colleagues. Due to this multicultural environment, communication in a perfect way is a significant challenge. Mr. Östman said, “We can see too often different cultural issues, especially how we manage things, there we have some challenges in communication, either it is misunderstood or the lack of communication”.

Regarding the language, English is corporate business language but it is not the native language for most of the employees, which also provides a challenge. Mr. Östman said, “Due to different native languages, sometimes, it became very difficult to communicate with employees in different parts of the world”.

Employees at Bombardier share knowledge in both formal and informal ways. According to Mr. Östman, the formal knowledge sharing process takes place through several activities such as meetings, seminars and briefing about projects, where lessons learned are carried over from person to person in the form of conferences and seminars. The informal way of knowledge sharing occurs during lunch breaks, coffee breaks and even during working hours due to the physical environment of the work place. Mr. Östman said, “This daily contact over a cup of coffee or whatever is at least as important as the formal way of sharing knowledge. In fact, it is an area where we can do more or much better. In my opinion, we have developed this awareness that how important is to share knowledge”. However, he preferred the formal ways of sharing knowledge due to the possibility of referring to the shared knowledge when faced by a problem.

In the Marketing and Sales department within the vehicle division of Bombardier, knowledge sharing works well, according to Mr. Östman. He said, “We sit together and meet on daily basis to discuss task related things. But every two weeks, we have a half-day internal meeting, where we bring up highlights on what is going on in each person’s area”. Describing his own motives about knowledge sharing he said, “For me as an individual, what is good for the company is good for me too. If the company benefits and as an employee it is good for me”.

### 4.2.3 Views on Motivations

Generally there is no reward system for sharing knowledge at Bombardier. However, when a new individual is employed with required competences, skills and knowledge because of another employee’s recommendation, then there is a financial reward, which according to Mr. Östman is also a kind of reward for knowledge sharing.
Reciprocity is quite a natural phenomenon, but at Bombardier Mr. Östman said that individuals share information with others and seek information from colleagues when needed without thinking anything in return. He said they try to help each other as much as possible according to their knowledge. However, he believed, “In some cases there is still a tendency that some employees are not as open to share their particular expertise with counterparts as others”.

Mr. Östman felt positive about sharing his knowledge with colleagues and did not think that by sharing knowledge he loses his power within the organization. However, he believed, “There are some tendencies among employees to not share knowledge because of the power issue”. Sharing information with a newly employed person makes the working life “a little easier” both for employees and for the company, he said.

4.2.4 Views on Trust
Mr. Östman agreed when asked about personal ties leading to trust among colleagues and between managers and colleagues who share knowledge by saying, “This is absolutely true that personal ties which lead to trust can affect who to share knowledge with”.

In the marketing department of Bombardier it is focused on market knowledge, said Mr. Östman. He, in fact, acknowledged that sharing sensitive knowledge is challenging. He also believed that there is a high risk to share everything to everybody either formally or informally. However, Mr. Östman believed that the personal ties and relations within his department are strong enough to facilitate knowledge sharing with colleagues about different ongoing projects and issues related to them.

4.3 Interview with Mattias Åhland – Manager at Ericsson

4.3.1 Introduction
Ericsson is a world-leading provider of telecommunication equipment and services to mobile and fixed network operators. Its networks are being used in 180 countries and 40% of the world’s mobile traffic passes through its networks. Founded in 1876 and based in the capital Stockholm, it employs about 18,000 people in Sweden and 92,000 people around the world (ericsson.com).

4.3.2 Views on Culture
When Mr. Åhland was asked about sharing his views on knowledge sharing culture in Ericsson, he described certain central tools such as Ericsson academy, educational portal, internal web and courses where most of the knowledge is available for employees to take advantage of. He said these tools contain knowledge about products, technology, communication and time management. However, if employees want to add new information to these tools, they should go via the central organization system.

The most visible challenge is the bureaucratic system of Ericsson’s structure which creates difficulties when attempting to acquire help from an expert in another department, according to Mr. Åhland. He also acknowledged, “The structure of the organization today is the most important barrier to knowledge sharing in Ericsson. It is an invisible border. The challenge is that to give the people (employees) freedom to help people that ask for help. There is a weakness of knowing about right person with required competencies within the organization. In addition, it is really hard to get access to people with knowledge within organization due to the fact that “they are booked 120% of their time”. The reason behind that he said is, “managers are only concerned about their project deadlines or commitments and it makes them to say no to allow his team member to help another department”.
Describing the formal ways of knowledge sharing, he said that Ericsson offers internal courses to its employees provided by experts and specialists, not only to newcomers, but also to those who switch departments within Ericsson. Discussing informal ways, he mentioned that Ericsson focus too little on this area of knowledge sharing. He further elaborated by saying that there could be better places in the organization to sit, relax and talk about things and that conference rooms are mostly of the same design and layout which is not good for creativity, innovation and knowledge sharing. He, however, raised concern about informal and formal ways of sharing knowledge, “It is very ineffective that someone has found something great and interesting, he will describe it to others, they will appreciate it but they might not need that information right away. After six months they might need that information but then they forget about that”.

In addition, when Mr. Åhland was asked about language hindering knowledge sharing, he replied “Although the corporate language is English in Ericsson, sometimes understanding different dialect could be problematic”. He also said that the problem is somehow solved by communicating through e-mailing, however, it is still sometimes challenging partly because of the distortion and over-flow of the information through e-mails.

Explaining routines, rules and regulations relating to knowledge sharing Mr. Åhland said that they exist throughout the organization, but vary from unit to unit. Describing a particular routine, rule and regulation to share knowledge in Ericsson, Mr. Åhland said, “When it comes to adding new stuff (knowledge) in data bases employees need to contact the responsible person in central organization system”. He also talked about the existence of different sorts of routines and norms to share knowledge in Ericsson: “There are internal courses that are provided by people such as experts and specialists to newcomers and people who move to new job or internal job rotations. And there are innovation days and we have these days on regular basis for people to innovate and prototype and learn new stuff and so on. There are certain days for you (employees) that are not related to project jobs. You (employees) must be here at work and do something but not project work, something else”.

4.3.3 Views on Motivations

When Mr. Åhland was asked about the impact of reward systems on knowledge sharing in Ericsson, he replied, “The employees discuss with managers about their individual responsibility and developments, so, it is up to employees how they set their performance goals and connect them to learn and share knowledge and technology with others. In that way employees are measured on the basis of their performance goals. So, in a way it is up to individuals to take such role”.

Mr. Åhland’s beliefs about reciprocity are, “I also ask for help. Then in many cases, for example, I have this team, I want to help, and I see some needs there but I am not probably the best person to help them. So instead of getting the knowledge, I think who in this company could actually help them the best, then I ask that person. Then I observe and see that this guy did great so I can learn from that person as well. But I don’t see myself as a proxy there”.

Regarding the power factor of knowledge sharing motivations, Mr. Åhland acknowledged, “There might be some tendency in people at Ericsson to consider knowledge as power”. He further explained, “There might be a tendency to say no so that they keep the knowledge which is a symbol of power. For example, right now Ericsson is having layoffs so if you are an expert and if the part of the work cannot continue with your skills then it gives you some kind of power. So, there might be in some cases a reason for not sharing the knowledge, competence and skills”. Speaking about knowledge as power Mr. Åhland said, “In general there is a driving force that we should not have key roles, with
only a single person knowing a certain area. This is due to the risk that vast amounts of knowledge could be lost if that person leaves the organization”.

When he was asked about his personal perception of sharing knowledge, he replied that he feels positive about sharing his knowledge. Adding more he commented, “When I go for an outside course I already plan that when I will get back I will share this knowledge with my colleagues. The reason is that it is good for me and for others with whom I share. It is also good for Ericsson”. Answering to a follow up question he said that knowledge sharing for him was not about losing or gaining power, but was about his personal interest.

When questioned about whether there was any tendency for managers not to share knowledge with employees he said, “Today the managers at Ericsson ask for when will you deliver, why are you late? Instead they can ask what are you proud of by delivering this project and what did you learn from it?”

### 4.3.4 Views on Trust

In Mr. Åhland’s view trust is not a hurdle for knowledge sharing in Ericsson. Since most of the employees work in teams and projects for a long period of time to reach common goals, it helps them to build both personal ties and trust. However, he added that it also depends on the person who is asking for knowledge in a specific matter or some sort of help. He then explained, “It depends on the person being asked to help share his knowledge regarding a problem. If somebody asks for help, it feels great to help. So if there were no other reasons to say NO, I think, in the most cases the person asked would say YES to the help. So something makes them to say NO or I am not allowed or I don’t have time are the most common answers”.

### 4.4 Interview with Per-Olof Bohlin – Manager at Siemens

#### 4.4.1 Introduction

With the world’s largest environmental portfolio, Siemens offers innovative and high-tech solutions in the fields of infrastructure, industry, energy and healthcare. It is Europe’s largest electronics and electrical engineering company and is based in Munich, Germany. Siemens has 370,000 employees in 190 countries around the world. Siemens has been present in Sweden since 1893 and its headquarters are located in Upplands, Väsby. Siemens has around 4,700 employees in 40 locations in Sweden (siemens.se & siemens.com).

#### 4.4.2 Views on Culture

Mr. Bohlin described knowledge sharing in general within Siemens as an integral part of their daily business. Siemens has a knowledge management system both at central organizational and subsidiary level. These databases include knowledge about products, customers, employees, past history about specific products and projects, which are stored on databases and other technological tools. Stressing upon the Swedish subsidiary, Mr. Bohlin said that a great deal of our work is actually done through cooperation with each other both internally among individuals within our company and externally with other Siemens subsidiaries and central organization. Explaining further about the organizational role in knowledge sharing Mr. Bohlin said, “Three years ago we were the best company in Europe and we could not possibly be the best company if we did not share knowledge. So there are formal meetings and there are informal meetings.”

Talking about communication, Mr. Bohlin said that most of the communication takes place via mail and telephone with other units, but within the organization it is mostly done via face-to-face conversation. While explaining the potential challenge in knowledge sharing due to communication
failure, Mr. Bohlin said that it could be challenging sometimes. He explained, “Sometimes we just assume that the other employee knows about some particular issue and we do not communicate”. In this area Mr. Bohlin thinks that they need to work more so the information can flow and reach all intended employees.

Speaking about the language factor in knowledge sharing, Mr. Bohlin was sure that it is not a challenge for sharing knowledge within the whole organization. He added, “The language is not a problem at all when it comes to knowledge sharing in Siemens. Even though Siemens is a German company but traditionally our company is an American company. Because it was purchased by Siemens. But it has a long history of American ownership. Anyway, the corporate language is English and we don’t have any problem with that”.

Mr. Bohlin further described the formal and informal ways of sharing knowledge in their organization as they have continuous meetings within their organization among employees or among management where they exchange their views and information on a particular agenda. He further explained, “We have action lists. In today’s meeting we agree on actions and we appoint we responsible persons, and in the next meeting we go through the action list and see what we have done what we should do”.

Mr. Bohlin also mentioned that altogether they have eight big conference rooms where they arrange the formal meetings. All these conference rooms are fully equipped with technological device facilities such as conference telephones, projectors, DVD’s to assist the employees and management.

Describing informal meetings Mr. Bohlin said that they actually share more knowledge and experiences in informal meetings. These informal meetings usually take place during coffee breaks, lunch breaks and weekly “Swedish Fika” breaks. During these meeting they share their views and experiences and questions regarding routine work with each other. Usually the informal meetings are very important and they can happen at any time, according Mr. Bohlin. Furthermore, he described these informal meetings by saying, “We communicate things. We are not only talking about yesterday’s TV program, but we share knowledge, as well. That is why I did not invite you there, because we are very strict about information security. Since we have so many discussions out there between colleagues”.

Briefing on rules and norms in Siemens Mr. Bohlin said, “Siemens issue certain circulars directing employees to follow certain rules and regulations which have be followed by employees, whether employees like them or not”. Whenever a new employee joins Siemens, they have introduction programs both locally and centrally, through which individuals receive information about different rules and regulations, he added. These relate to how to perform their jobs and use central and local databases and other systems.

### 4.4.3 Views on Motivations

Siemens do have reward systems for employees as an acknowledgment for their hard work, but there is as such no specific reward system for sharing knowledge. He explained, “Everybody here has a commission. If the projects are successful, these people get high commission that is a reward. (...) Salesman and technical persons have different types of commissions. The sale man would have a commission on what he sells, but it does not matter if you do not share the information, because each salesman has his dedicated customers. If one salesman withholding the information, it would not benefit the other salesman.”
Commenting on a follow up question Mr. Bohlin said that performance rewards were not a hindrance for knowledge sharing in Siemens. “As everybody has their own dedicated clients and is not in competition with each other, it helps them enhance their own abilities by sharing knowledge”, added Mr. Bohlin.

Talking about reciprocity Mr. Bohlin said, “We work together towards the same organizational goal and we want our projects to be successful. This makes us to share our expertise and knowledge without thinking about any return”.

Responding to question regarding own experience about knowledge sharing, Mr. Bohlin felt positive about sharing knowledge with others in the organization, but he did perceive knowledge to be a source of power. Tacit knowledge in Siemens is shared through practicing. He further added, “I am involved in so many things. Very often people say that you can ask Peo (me). And it is like that I share my experiential knowledge. Also the meeting I had today with people from finance it was also knowledge sharing”.

### 4.4.4 Views on Trust

According to Mr. Bohlin, trust is not an issue among employees and they share their knowledge and help each other whenever needed. “Most of us have worked together for a long time. So, whenever we need help from each other, we feel free to ask each other, and most of the time we get that help which we need. So, I do not think that trust is an issue among us for sharing our expertise with each other”. The only possible issue, which can prevent them from sharing knowledge, is the lack of time or competence concerning questioned issue. However, Mr. Bohlin pointed out that “I personally feel that it is difficult to trust a newly employed person when I have to share sensitive information concerning some projects with him/her”.

5. Analysis

In this chapter, the findings in the empirical study in the form of primary and secondary data are analysed using the theories previously discussed. The research question of the thesis is used as the guideline of the analysis. The result of the analysis would answer the purpose of the research. The interviews are first evaluated in relation to the theoretical framework. Then, the factors affecting the knowledge sharing in each company are evaluated.

5.1 ABB

5.1.1 Culture

Smith (2001) suggests that the intention with knowledge sharing should be to enhance organizational knowledge. From the empirical study of ABB it is shown that management is focusing more and more on enhancing organizational knowledge. The interesting fact about knowledge management and thereby knowledge sharing in ABB is that knowledge management is different within ABB at departmental levels – some units have not knowledge management at all. This could be problematic and hinder knowledge sharing when new employees are hired or when inter-departmental exchange of employees occurs.

The databases and other technological tools at ABB contain explicit knowledge gathered from different projects and employees working at different departments. This provides an opportunity for individuals to take advantage of not only organizational knowledge, but also to transfer and share their explicit knowledge in those databases and other supportive documents. This also means that technology enables knowledge sharing at ABB by providing opportunities to store knowledge in databases and other tech-related tools. This in turn provides consistency with literature review. Thus, ABB is focusing more on personalization strategy of knowledge management while using the codification strategy to support it, which is in accordance with the research by Hansen et al. (1999).

The empirical finding also highlighted the importance of senior management’s attitude to promote the knowledge sharing culture within the organization, which is in accordance with research carried out by Hsiu-Fen and Gwo-Guang (2004). This means that if there is system and opportunities available to support knowledge sharing culture, but the senior managers are not interested in motivating employees to follow them, then knowledge sharing will not occur. It was believed that knowledge sharing can be encouraged through the example set by managers. This is supported by Hsiu-Fen and Gwo-Guang (2004) who found that senior management attitudes can positively influence knowledge sharing within an organization. Furthermore, it is important that employees see management setting a positive example in regards to knowledge sharing and see that they have no misgivings about any implications. The empirical study shows the value in projecting positivity towards knowledge sharing as it will affect employee’s willingness to knowledge sharing. If employees see that sharing knowledge happens willingly without any hesitation, then this will help promote knowledge sharing within the organization. Certainly, it would be difficult for management to promote knowledge sharing among co-workers while hoarding knowledge or reluctantly sharing it themselves.

The empirical study at ABB also confirms the impact of hierarchal structure on knowledge sharing behavior within an organization. In the Swedish part of ABB the knowledge sharing is ongoing continuously, but when employees from the Swedish organization seek help from their counterparts in
other parts of ABB around the world it is not always forthcoming. In fact, there could be differences in the level of knowledge sharing between different departments of the same company, depending upon the geographical location and characteristics of senior managers.

The literature review suggests that communication is one of the important factors in the knowledge sharing process and this was confirmed in the empirical study. Face-to-face conversation at ABB provides more opportunities to employees working in the Sales and Marketing department in Västerås to share their experience and knowledge with each other. This confirms Al-Alawi (1997) views about communication’s role in knowledge sharing. The interview also confirms the different problems in the communication process when sharing knowledge, such as language barriers and e-mailing. Although the empirical study showed that there is a problem in communicating with people working in other countries, this is not the case at local offices where employees speak the same language. In regards to language and e-mailing, both sub-factors are proven to pose barriers in knowledge sharing. Language is a natural issue and might remain problematic at all stages of company’s life cycle, however knowledge sharing through e-mail can surely be improved by adopting proper measures and by improving the rules and regulations within the organization.

Literature review of various scholars such as Davenport et al. (1998), Rowley (1999) and Armstrong (2009) suggest that without technology the individual and organizational knowledge sharing is incomplete. The empirical study shows that although ABB has technological equipment to facilitate knowledge sharing and knowledge management, still the main part of knowledge sharing occurs through face-to-face conversation during informal and formal meetings. Technology (e-mail, video-conferencing and its tools) is used mostly for external communication when face-to-face knowledge sharing is not possible. However, the combination of human beings and technology is essential for the knowledge sharing process, which is consistent both with literature review of Davenport and Prusak (1998) and the empirical study. More efficient use of technological equipment and opportunities for proper training to use technological facilities could positively affect the knowledge sharing culture in ABB.

The empirical findings are consistent with various literature reviews (Armstrong, 2009; Scarborough & Carter, 2000) in regards to informal ways of knowledge sharing. It was insisted that coffee and lunch breaks are vitally important for exchanging views and sharing individual tacit knowledge. When it comes to the formal way of knowledge sharing, it is an important function of business and paves the way to boost organizational knowledge. The meetings, seminars and conferences at ABB are held on a routine basis to share individual experiences and knowledge concerning a particular project or issue. The literature review suggests that the main enabler for tacit and explicit knowledge sharing is informal but at ABB it is believed that formal procedures are the best facilitators for knowledge sharing and lead to better management of individual and organizational knowledge. However, from a managerial perspective it should be equally important to provide opportunities for both formal and informal ways of knowledge sharing. The knowledge shared through informal ways can however be utilized and managed in organizational systems when necessary.

When it comes to rules and regulations, there are similarities between the literature review of Michailova and Husted (2003) and the empirical findings. It was commented that ABB do have rules and regulations which should be followed while performing a task such as knowledge sharing, but sometimes people do not care about it. It may be worthwhile to review such rules and regulations from time to time so that knowledge sharing among employees could be improved and both the
organization and employees can benefit from it. This in turn will help enhance both the organizational and individual knowledge.

5.1.2 Motivations

Reward systems are not directly used by ABB to encourage individual knowledge sharing, due to their sensitivity. The employees however can have other performance-related, indirect non-monetary incentives to share their knowledge at ABB. This in turn enables knowledge sharing. The lack of rewards for sharing knowledge could be because senior management at ABB feels that knowledge is flowing across the organization at a satisfactory pace or level. Another possible reason could be the controversy of offering direct rewards for knowledge sharing, which is in accordance with the literature review of Bartol and Srivastava (2003).

Reciprocity is not considered to be an important factor that influences individual knowledge sharing at ABB as far as units based in Sweden are concerned. It could be a potential barrier when it comes to knowledge sharing among units located outside Sweden; however such issue is beyond the scope of the thesis. However, the studied literature (Ipe, 2003; Wang & Noe, 2010) stress that mutual interest of involved parties can affect individual knowledge sharing in either way (hinder or enable). Reciprocity does not directly affect the tendency to share knowledge at ABB, but if the reward system is visible to employees then it can be a barrier to knowledge sharing. Reciprocity mainly encourages the improvement of individual capabilities and therefore has less effect on organizational knowledge. The individual knowledge shared through reciprocity can still add value to the organizational knowledge and thereby products or services offered by ABB to its customers.

The literature study (Smith, 2001; Ipe, 2003; Wang and Noe, 2010) suggests that knowledge as a source of power can either be a barrier or an enabler of individual knowledge sharing. Since the empirical findings show that there is no visible trend of using individual knowledge power either as a source of distinction among employees or as a source of job security, it seems that knowledge power has no negative effects on knowledge sharing at ABB. Job security and the power that comes with holding knowledge influences whether knowledge sharing will occur. If an employee feels safe in their position then they will tend to share knowledge more freely. However the feeling of superiority by sharing individual tacit and explicit knowledge can lead to a sense of power. This in turn enables knowledge sharing at ABB.

5.1.3 Trust

The reason that benevolence-based trust is well developed among employees at ABB is they have personal ties with each other. This enables individual knowledge sharing at ABB. Furthermore, in some cases management feels that due to the power of knowledge there may be a lack of competence-based trust among employees which testifies the Levin et al. (2003) argument. Thus, trust can either be an enabler for individual knowledge sharing, as in the case of ABB, or a barrier if employees are unable to trust upon their colleagues or management. The lack of trust from the employee’s side upon management can also potentially affect the accumulation of organizational knowledge and its value. However, as earlier mentioned in the analysis, the absence of common language sometimes hinders knowledge sharing. As Levin et al. (2003) suggests, this issue can further affect the trust among employees and whether they share their individual knowledge.

From the above discussion, the relationship between power, reward systems, reciprocity, personal ties and trust seems to have emerged. All these factors are apparently interlinked. The extensive literature review of different scientific articles and the empirical findings for this particular study generates an
opinion that a minor change in any of these connected factors will affect knowledge sharing in the organization.

5.2 Bombardier

5.2.1 Culture

At Bombardier, management is well aware of the importance of knowledge management, which affects the individual knowledge sharing and organizational knowledge. Knowledge management is possible without the use of technology to some extent, but for a multi-national company like Bombardier, knowledge management without the use of technological tools such as databases and intranet is incomplete. This also validates the literature review of Armstrong (2009). The organizational knowledge at Bombardier is stored in databases, intranet and in different manuals. This means that organizational knowledge is saved and managed in different ways to facilitate individuals in order to perform their tasks. This also implies that individuals share their knowledge with organizations by submitting their learning from different projects to the central database or intranet. In short, managing knowledge in the organization not only enhances organizational knowledge but also enhances individual knowledge. Knowledge management systems at Bombardier only provides facilities to share explicit knowledge, whereas, the tacit knowledge in the company is shared through communication. This in turn testifies literature review of Nonaka (1994). This is also related to the study by Hansen et al. (1999) where the personalization strategy is dominant in Bombardier and supported by the codification strategy.

The organizational structure of the Bombardier is very flat. This enables knowledge sharing among employees. This factor is consistent in both the literature review (Wang & Noe, 2010) and empirical study; however the interview at Bombardier highlighted that occasionally senior management limit sharing their knowledge with employees if the knowledge is sensitive or valuable. Senior management’s attitude can be justified as it is not necessary to share the same type of knowledge with all the employees as it may be irrelevant for them. However, employees feel satisfied to share their individual knowledge with each other and management. In short, the flat organizational structure at Bombardier enables knowledge sharing.

There are two main aspects of communication which are discussed in this thesis: language and technology. Findings about the language aspect in the empirical study and in literature review (Husted & Michailova, 2002) reveal that use of a different language is problematic. This restricts both individual and organizational knowledge sharing because of miscommunication through lack of clarity in verbal and written communication. In short, language is not a barrier for individual knowledge sharing locally; however it becomes a barrier when communicating and sharing knowledge with fellow employees abroad. The second aspect connected with communication is technology. It was stated that technology can be a good enabler for communication and sharing knowledge. However, the mode (such as email or telephone) and overuse of technology can be a potential barrier to knowledge sharing. It also validates the point raised by Davenport and Prusak (1998). The empirical study also confirms that face-to-face communication is the best way to share both tacit and explicit knowledge. Communication can be improved through providing better technological tools and solutions for the issues connected with them. Knowledge sharing without communication is not possible.

The technological facilities are available at Bombardier, containing extensive amounts of data and information, but still there is a difficulty to interact with these technological tools to find required
knowledge. Another limitation with technology at Bombardier was the inability to store the tacit knowledge. This also validates the thoughts of Nonaka (1994) in the literature review.

When it comes to informal ways of knowledge sharing at Bombardier, it correlates with the literature review (Davenport & Prusak, 1998; Scarborough & Carter, 2000; Husted & Michailova, 2002; Armstrong, 2009). Based upon this and empirical findings, the informal ways are the best solution to share not only tacit but also explicit knowledge. This implies that it is of immense importance to provide facilities in the workplace, where employees can sit together during coffee breaks and lunch breaks in a relaxed atmosphere. This will provide an opportunity to discuss and share individual knowledge even with employees from other departments.

Rules, regulations and procedures are considered very important in an organizational culture to facilitate knowledge sharing as it will facilitate knowledge management and also enhance the organizational knowledge. This is clear both from the empirical findings and the literature review (Michailova & Husted, 2003; Conley & Zheng, 2009). However, it was stated that there is no formal concept of punishment for not following those rules and regulations in ABB. It could be possible that no such incident has occurred previously or the employees are extremely responsible. Furthermore, the impact of culture is very important in the formation of such rules and regulations and thereby the concept of punishment. This could in turn affect the knowledge sharing and knowledge management in an organization.

5.2.2 Motivations

Empirical findings concerning rewards show that Bombardier do not offer any predetermined rewards and incentives to its employees on account of individual knowledge sharing. This attests the literature review (Bartol & Srivastava, 2003; Wang & Noe, 2010) to some extent. However, the employees working in the marketing department, having their own dedicated customers and projects can share their expertise with each other to assist themselves in order to reach organizational and individual goals. The resulting reward for them could be the appreciation they receive from fellow employees by sharing their knowledge. This in turn will also enhance the organizational capabilities and knowledge as well.

Empirical findings suggest that reciprocity does not affect knowledge sharing directly, which contradicts the literature review. The reason why reciprocity is not affecting knowledge sharing could be to achieve and concentrate on organizational goals due to the directions given by management. Another aspect of disregarding the give and take or reciprocity factor could be due to working in small teams and relationships among group members who have worked together for a long time.

The empirical findings suggest that power may hinder knowledge sharing within Bombardier as employees tend to view knowledge as a source of power. According to the literature review (Wang & Noe, 2010) power can be a barrier and an enabler of knowledge sharing. Employees may believe that hoarding knowledge will increase their status and job security within Bombardier and place them in a better position in relation to their fellow employees. This will clearly hinder the sharing of knowledge within the company. However, if job security was not deemed to be an issue within Bombardier then the improved status that comes with holding knowledge may encourage sharing knowledge as the employees may want to show colleagues the extent of their knowledge.

The above mentioned comparison and analysis of literature review and findings at Bombardier suggest that motivational factors actually have no or very little impact on knowledge sharing. The reason could be that employees are cooperative and are well aware of the importance of sharing their
expertise and knowledge with each other. Furthermore, they could be aware that it provides them with a certain degree of freedom in performing their duties and having opportunities to enhance each other’s knowledge and organizational knowledge.

5.2.3 Trust
The empirical findings show that the trust issue at Bombardier is equally as important as the literature review shows. The reason behind competence-based trust among employees at Bombardier seems to be partly because of job security and partly due to common interests to reach the same organizational goals. The other factors which could affect trust, such as power and personal ties do seem to exist among the employees. However the tendency among some employees, who do not contribute in knowledge sharing as much as others, could be due to personal characteristics. Furthermore, it is difficult to maintain trust in today’s uneven and uncertain economic situations. This in turn can affect knowledge sharing among employees. In this perspective, employees can be reluctant to trust each other and distribute their expertise among colleagues. However, despite all these changing tendencies the personal ties developed among individuals could build benevolence-based trust. This confirms the findings by Levin et al. (2003) about the trust.

5.3 Ericsson
5.3.1 Culture
Organizational and individual knowledge in Ericsson is shared both via Knowledge Management systems and in formal and informal ways. This means the company is following both personalization and codification strategy to share knowledge. Since it is not clear which strategy Ericsson focus on more, it is difficult to elaborate upon. However, according to Hansen et al. (1999) companies should focus predominantly on one strategy and use the other strategy to support the first – 80-20 split – 80% follows the predominant strategy, 20% the other. Thus, focusing more on informal ways of sharing knowledge depends on the predominant strategy in Ericsson. In fact, for a company focusing on innovation such as Ericsson, the personalization strategy is recommended by Hansen et al. (1999). However, when it comes to identifying a particular knowledge it is important ‘to find the right person with the knowledge’, which is a normal problem in tech-related industries (Perry, et al., 1994).

There is knowledge sharing culture supported by management in Ericsson, however, there seems to be obvious problems when it comes to the particular issue of communication in knowledge sharing. The empirical studies at Ericsson shows that there are certain issues connected with knowledge sharing when it comes to communication. These issues are more visible when corporate language is different to the native language of employees. This also testifies the argument raised by Husted and Michailova (2002) and Reige (2005). However, according to the respondent the language barrier is controllable to some extent through the use of technology such as e-mail. The e-mailing solution implemented by Ericsson in turn highlights the importance of technology as collaborative tool for communication; as an enabler for knowledge sharing and as a facilitator for organizational knowledge and individual knowledge.

The empirical study also shows the existence of formal and informal ways of sharing knowledge throughout Ericsson, however, the respondent was concerned about the shortage of informal physical environments for the employees to share their tacit knowledge. The importance of this is stressed in the study of Davenport and Prusak (1998), Riege (2005) and Armstrong (2009). Improving or increasing the physical environment which paves the way for sharing individual tacit and explicit knowledge could eventually increase the organization’s tacit and explicit knowledge.
Furthermore, the empirical studies at Ericsson show that bureaucratic and hierarchical organizational structure poses a potential hindrance to knowledge sharing. This testifies the literature review of Riege (2005) and Wang and Noe (2010). In order to promote knowledge sharing culture within an organization, the role of hierarchical organizational structure is considered to be critical. Thus, the flatter the organizational structure, the more the knowledge sharing is enabled in Ericsson. The structure of a company affects the rules, regulations and routines about knowledge sharing put forward by a firm (Michailova & Husted, 2003). The empirical data shows that Ericsson applies different rules, regulations and routines (a formal way of knowledge sharing) to share knowledge which differ in each unit. This is consistent with the study of Conley and Zheng (2009); however, it sometimes poses a barrier to put individual explicit knowledge in knowledge management system due to the hierarchical structure, which in turn limits the organizational knowledge.

5.3.2 Motivations

One perception of the empirical data was the lack of rewards offering both in intrinsic and extrinsic forms to share knowledge. However, individuals can show their intentions for knowledge sharing to the management in order to gain certain benefits in terms of promotion or their future goals in the organization. This in turn confirms the study by Bartol and Srivastava (2002). A reward in this form seems to enable knowledge sharing in Ericsson.

The empirical data shows that reciprocity enables knowledge sharing at Ericsson. The respondent claims that the intention behind sharing knowledge among employees is not necessarily due to reciprocity. However, close analysis of his statement gives a very clear message that when employees share knowledge, they seek return from their counterparts in terms of knowledge, which can improve their own abilities. This is in accordance with the reviewed literature of Ipe (2003) and Wang and Noe (2010). The main challenge for management here is to motivate employees to share knowledge even if the perceived return for individuals does not balance.

The literature review (Smith, 2001; Ipe, 2003; Wang & Noe, 2010) suggests that knowledge is power. The tendency to not share knowledge due to potentially losing power, status or position could be a big hurdle when sharing knowledge. Tendencies exist among some of the employees at Ericsson to not share their knowledge because of a fear of losing power, status or position. Strong motivational efforts by management are needed to minimize and finally end such a critical barrier for knowledge sharing in Ericsson.

5.3.3 Trust

The empirical findings suggest that trust enables knowledge sharing in Ericsson. Empirical findings suggest that this is due to the presence of both benevolence-based and competence-based trust among employees in the organization. This in turn validates the argument regarding the trust factor by Levin et al. (2003). However, the degree of trust among employees when sharing knowledge can differ depending upon benevolence-based trust. This could be due to the fact that employees measure what they gain or lose through sharing their knowledge. Language presents a hindrance in knowledge sharing within Ericsson and literature review of Levin et al. (2003) shows that language is an important element which can affect the level of trust among individuals when sharing knowledge. Therefore, there may be some invisible hindrance in knowledge sharing tendencies due to trust and it being affected by language of employees at Ericsson.
5.4 Siemens

5.4.1 Culture
The general impression from the interviews is that there is knowledge sharing culture in Siemens, but the company lacks motivations to share knowledge. Trust seems to be not an important issue in knowledge sharing at Siemens.

The organizational knowledge at Siemens lies in databases, intranet and other technical tools. The lessons learned from different problems in their products are stored on these databases, which can be retrieved and used by different employees when needed. These technological facilities also include individual knowledge and expertise which they gain through performing their tasks. As mentioned in the literature review (Nonaka, 1994; Nonaka et al., 2000; Smith, 2001; Rus & Lindvall, 2002), this stored knowledge is in the form of explicit knowledge. The tacit knowledge at Siemens lies in individuals and is shared through communication and practices. It also confirms that the personalization strategy is focused more in Siemens while using the codification strategy to support it, which is in accordance with the literature review (Hansen, et al., 1999).

Communication is a critical factor for knowledge sharing and the empirical study shows that it apparently enables knowledge sharing at Siemens. However, communication through e-mail caused some problems when sharing explicit knowledge within organization. This was due to the assumption that the receiver might have misunderstood what was shared. Siemens can use this challenge with knowledge sharing as an opportunity to improve their internal communication by stressing upon the employees to use technology properly in order to enable knowledge sharing.

The empirical findings at Siemens suggests that the corporate language at the company is English and is not considered to be a problem as Siemens is traditionally an American company. This contradicts the literature review of Husted and Michailova (2002) and Riege (2005). However, all other researched companies agreed that language is a problematic while sharing tacit and even sometimes explicit knowledge as well. Language may not be a hindrance for knowledge sharing at the Swedish subsidiary of Siemens due to Swedish being the common language of employees. However, the language hindrance may have been shown in the company if more extensive research was carried out and interviews were conducted with other employees.

Formal and informal ways of knowledge sharing in Siemens seems to be working and enabling knowledge sharing. However, the empirical study shows that the informal knowledge sharing is more crucial, since it is seen more effective than formal knowledge sharing. This testifies the literature review of Armstrong (2009) and Davenport and Prusak (1998). The importance of informal ways of tacit knowledge sharing was stressed by the respondent as it provides opportunities for face-to-face conversation. However, Siemens prioritize the formal ways of knowledge sharing as it not only provides record of failures and achievements but also provides an opportunity to enhance organizational knowledge.

Since rules, regulation, routines and norms to use data bases and other tools to share knowledge exist in Siemens, this in turn enhances both individual and organizational knowledge depending upon the nature of knowledge. Siemens also have internal circulations directing employees to perform tasks and behave in a certain manner even if employees do not like those rules; this in turn provides validity to the literature review of Michailova and Husted (2003). These directives, rules, regulations and
norms are mainly enablers of explicit knowledge sharing but it may also hinder the informal tacit knowledge sharing due to the strictness to follow such rules, regulations and norms.

5.4.2 Motivations
Employees are less interested to share their individual knowledge without strong motivation (Stemark, 2011). To ensure the flow of knowledge across Siemens requires intensive effort by management to motivate employees to share knowledge. One solution is to use reward systems – monetary or non-monetary incentives to encourage employees. Reward systems are an effective management tool to encourage knowledge sharing among employees (Bartol & Srivastava, 2003). However, since Siemens uses bonuses to reward an employee for strong performances, the managers should make sure that this does not affect the trust, reciprocity and power factors. Literature reviews (Bartol and Srivastava, 2003; Wang & Noe, 2010) also suggest that rewards system could also be a barrier when the system is not consistent with management initiatives to build trust in the company.

Similarly, when it comes to reciprocity as another motivational factor for knowledge sharing, the empirical study shows that the common organizational goals motivate employees to share their individual knowledge with fellow employees without thinking about mutual give and take. Hence it seems that reciprocity actually does not affect the knowledge sharing in either way at Siemens.

The knowledge power is considered as an enabler within Siemens as the respondent is positive about sharing his individual knowledge with other employees. Management perceives knowledge as a source of power which provides them with an opportunity to be prominent in the organization, which is consistent with the literature review of Wang and Noe (2010). This sense of power from possessing individual tacit knowledge enables knowledge sharing in Siemens.

5.4.3 Trust
The reasons why trust was not an issue in Siemens is in accordance with the literature review. This is due to trust developing where there are personal ties, honesty, fairness, capability and trustworthiness between parties sharing knowledge (Levin et al., 2002; Wang & Noe, 2010; Bakker et al., 2006; and Andrews & Delahaye, 2000). Employees do not expect anything in return when these factors exist. Apart from above mentioned benevolence-based and competence-based trust factors, the common language as mentioned in empirical findings may be another reason for trust being an enabler for knowledge sharing.

5.5 Comparison of the Companies

5.5.1 Culture
All the studied companies have rules, regulations and norms to perform tasks and manage their routine work. However none of them impose any particular punishment for not following those rules, regulations and norms. One aspect particularly special about Ericsson was the arrangement of compulsory innovation days. This provides an initiative for employees to share their views and ideas with each other. Siemens also had an initiative called action lists to control and check what has been followed or achieved since the last formal meeting.

All organizations have knowledge management system where they store organizational knowledge, but due to the bureaucratic systems employees are reluctant to add more knowledge in those databases. Another common issue is the difficulty to use those databases.
ABB, Ericsson and Bombardier consider language as a barrier to knowledge sharing, whereas, Siemens is the only studied company which claims that language is not a barrier for knowledge sharing at all. This claim by the Siemens manager gives an impression that he is trapped into self-criterion and most probably his views about language proficiency reflects solely his own personality. The other possibility which can justify his claim could be due to his post in the company as Operations Manager. The kind of communication and contact due to his extra role as auditor for ISO certifications in other subsidiaries within Europe may mean that he deals largely with technical language. However, it would be interesting to listen to the views of other employees working at Siemens regarding the role of language factor in the company when it comes to knowledge sharing, but that is beyond the scope of the thesis.

In the communication process, e-mailing is also considered a challenge by all studied companies. However, at Bombardier this problem is considered to be a major barrier to knowledge sharing. However, it would be a great misunderstanding to blame technology for being a barrier or hindrance to knowledge sharing, rather the studied companies should focus more on efficient solutions to use technology as an enabler for knowledge sharing.

Ericsson and Siemens stress informal ways of knowledge sharing whereas ABB and Bombardier acknowledge the importance of informal way of knowledge sharing, but prefer the formal way of knowledge sharing.

5.5.2 Motivations

None of the studied companies offer any intrinsic or extrinsic rewards for knowledge sharing. However, at ABB if management feels that due to the particular expertise of an employee others are benefitting, that individual will receive good remarks in his/her service book. This in turn could give the individual a chance to receive acknowledgement at the annual day of ABB in a ceremony.

Reciprocity is a natural phenomenon. Although all the studied companies denied that they share knowledge with their colleagues because of reciprocity intentionally, close analysis of the interviews shows that when they share knowledge they expect to receive something in return. Sometimes they look for return for their own part and sometimes as in case of Ericsson they look for indirect return from other colleagues in the form of knowledge, expertise and skills.

When it comes to power, managers at all the studied companies are positive about sharing their knowledge. However, the management at Ericsson feels that there might be some tendencies among employees to avoid sharing their knowledge. That is because they perceive their knowledge as a power to secure their jobs. In Bombardier, senior management considers knowledge as their source of superiority and therefore sometimes hides information from their employees. Management at Siemens believes that it is necessary to share their knowledge with employees, and when they share knowledge, they feel a sense of superiority. The manager at ABB also feels positive about sharing knowledge but she also felt that sometimes there might be some tendencies among employees to not share their knowledge because of the sense of power that comes with holding knowledge.

In short, there is a sense of power both as superiority and as a job security among employees and management at all studied companies. However, from the management side, knowledge is considered to be power and an opportunity to gain superiority and pride. This can enable knowledge sharing.
5.5.3 Trust

Trust is considered one of the most critical factors for sharing knowledge in all studied companies. Sometimes employees are reluctant to share their expertise because they perceive their expertise, skills and knowledge as their source of power to survive in the organization. This hinders knowledge sharing. If employees have worked for a reasonable time together it helps them to trust each other and management as well. The driving force behind building trust among employees at the studied companies is their desire and mission to reach organizational goals. Thus, in order to successfully reach assigned targets and goals, employees should be instructed and encouraged to share their expertise with their counterparts.

The analysis of the empirical study at all four studied companies also shows that in the absence of trust among employees within a company, it is hard to achieve knowledge sharing. This in turn means that the degree of trust among employees within an organization determines whether it enables knowledge sharing or poses a barrier to knowledge sharing. The respondents from studied companies firmly believe that trust is well developed among their employees at their respective departments, which in turn enables knowledge sharing. However, when it comes to interdepartmental matters the level of trust is weaker. Similarly, when it comes to knowledge sharing with other subsidiaries in different parts of the world trust is also considered to be weak.
6. Conclusion

A brief conclusion is drawn from the results of the analysis in attempt to answer the research question of the thesis.

The research was started with the aim to investigate about the influence of various mentioned factors such as culture, motivations and trust on knowledge sharing within multi-national organizations. This study reveals that apart from knowledge sharing, the above mentioned factors also greatly influence individual knowledge, capabilities and organizational knowledge. Furthermore, this research also shows the impact of the discussed factors upon knowledge management within the studied organizations. In short, if any of the studied factors pose a barrier to knowledge sharing within organizations it will also limit the opportunities to enhance both individual and organizational knowledge and, in some cases, knowledge management opportunities. This was evident in the empirical findings.

A more in-depth conclusion concerning the studied factors affecting knowledge sharing is presented below.

6.1 Culture

The culture of the organization and its hierarchal structure affects the knowledge sharing within an organization. This study shows that communication being part of culture is one of the key elements that enable knowledge sharing, but if the organizational culture and structure is too bureaucratic and hierarchal, the communication procedure will take longer time. This in turn will affect the knowledge sharing and in some cases (as in Ericsson) hinder knowledge sharing. Besides hierarchy, technology also plays an important role to make communication process occur quickly in order to enable knowledge sharing among employees. The study results shows that the usage of technology for e-mailing purposes causes hindrances to knowledge sharing in all the studied companies. This study also highlights language being part of culture as another factor which affects the communication process and cause hindrance to knowledge sharing. Study results show that difficulties in communicating in foreign or second language causes hindrance to knowledge sharing. This hindrance for knowledge sharing is even more significant when communicating internationally.

It is also clear from the study that both informal and formal ways to communicate enables knowledge sharing. Indeed, the employees gain and share more knowledge from informal ways, but the formal ways of sharing knowledge enhance organizational knowledge and are appropriate for knowledge management. Rules, regulations and routines enable knowledge sharing to a certain extent in studied companies and are good for knowledge management within an organization but with a disadvantage of limiting the informal individual knowledge sharing among employees.

The use of technology not only enables faster knowledge sharing among individuals within an organization but also enables knowledge sharing between individuals and organizational knowledge residing in knowledge management systems. The results from studied companies shows that technology, seemingly causes hindrance to knowledge sharing when retrieving information from databases and intranet. Technology is also proven to be a hindrance while adding more knowledge into knowledge management systems of the organizations. The results from studied companies suggest that, it is partly due to rules, regulations, and routines and partly due to lack of awareness with the usage of technological equipment. In fact, the technical difficulties with the use of technology for
knowledge sharing are not impossible to deal with in the studied companies. The management at the respective case companies need to boost their training programs to make employees familiar with the organization’s technological data warehouses, otherwise the use of technology will not enable knowledge sharing.

6.2 Motivations
Motivational tools used by an organization can greatly affect the knowledge sharing within it, as argued in literature review. However, the findings suggest that none of the organizations use rewards to encourage employees to share knowledge. The attitude of the studied companies towards rewards proves that rewards can either be an enabler or barrier to knowledge sharing. There is no evidence about the influence of rewards on knowledge sharing from the studied companies; however, non-monetary invisible rewards as in the case of ABB or Ericsson seems to enable knowledge sharing. Furthermore, the introduction of rewards will also affect the other factors such as power, trust and reciprocity negatively. This in turn will have an overall impact on knowledge sharing culture within an organization. Reciprocity being another motivation more or less enables knowledge sharing within all studied organizations. However, this study also shows that it seems to create hindrances to knowledge sharing if management fails to provide an environment within organization where employees do not feel job security or if they feel they are being exploited by fellow employees or management, as in case of Ericsson.

Power is more complicated motivation to encourage knowledge sharing within organization. Power can either be an enabler or barrier to knowledge sharing. The degree of knowledge as power also differs from organization to organization and person to person. This research shows that knowledge power is connected with job security. This means that if an employee does not feel secure about his job or position within organization, there are great chances that knowledge power will be greater and consequently will pose barriers to knowledge sharing. However, it depends upon the manager’s skills in motivating their employees and gaining their trust to use knowledge power as an enabler to promote knowledge sharing. However, the results from all studied companies suggest that a sense of knowledge as power partly enables knowledge sharing and partly causes hindrance to knowledge sharing again specially in case of Ericsson.

6.3 Trust
It is concluded that the existence of trust is a definite enabler for knowledge sharing. The reason behind trust is well developed among employees and thereby enabling knowledge sharing is due to relationships and ties among employees working at respective companies. This means that both benevolence-based and competence-based trust is dependent upon the duration of time employees have worked with each other. They develop relationships with each other which in turn can build trust. However, the challenging issue with trust from a managerial perspective is how to build trust among newly employed individuals. If the management fails to build trust among employees, it will be difficult to imagine the occurrence of knowledge sharing. As previously mentioned, the level of trust can be influenced by reward systems within an organization. This study also shows apart from reward systems, the job market and economic position of the organization, as in case of Ericsson, will also affect the level of trust and thereby causes barriers to knowledge sharing.

6.4 Further Studies
The conclusion has been reached based on the interviews conducted with the managers of the four companies – ABB, Bombardier, Ericsson and Siemens. However, the topic could be studied from both manager and employees perspectives within departments and units. Furthermore, another
important finding in empirical study of case companies, except Siemens, is the lack of awareness among employees about the competencies of fellow employees working in other departments of the same organization. Thus, finding the right knowledge and right person in the organizations studied was a common problem for ABB, Bombardier and Ericsson, which could be studied further.

Another important issue which arose during the analysis of the thesis was the impact of rewards (financial and non-financial) on trust, reciprocity and power factors of knowledge sharing. These could also be further investigated.
Barriers and enablers of Knowledge Sharing: A qualitative study of ABB, Bombardier, Ericsson and Siemens.

Reference List


Barriers and enablers of Knowledge Sharing: A qualitative study of ABB, Bombardier, Ericsson and Siemens.


Barriers and enablers of Knowledge Sharing: A qualitative study of ABB, Bombardier, Ericsson and Siemens.


The four knowledge conversion modes:

Knowledge can be shared in different ways depending on whether it is tacit or explicit. For knowledge to be created it must be externalised by the holder then internalised by the recipient. Tacit and explicit knowledge are typically shared in different settings and these are discussed below.

**Tacit Knowledge to Tacit Knowledge/ Socialization**

This type of knowledge can be gained through training, observations, practice and imitation. The unique attribute of this knowledge is that it can be gained without language. The only essential element to acquiring this knowledge is that it is gained through personal interaction with mentors. Typically, these types of procedures create tacit knowledge through shared experience and are referred to as socialization. Usually this mode of knowledge sharing is said to have direct links with organizational culture (Nonak, 1994).

**Explicit Knowledge to Explicit Knowledge/ Combination**

This occurs through the sharing and interaction of explicit knowledge of one individual with another. This type of interaction and sharing arises from different mechanisms such as meetings, conversations, casual meetings etc. The knowledge created through such sharing and editing, developing and re-contextualizing by individuals is known as combination. This mode of knowledge enhancement has its roots in the organization’s information processing (Nonak, 1994).

**Tacit Knowledge to Explicit Knowledge/ Externalization**

This mode of knowledge building occurs when an individual with experiential knowledge shares his experience, techniques or skills with other individual possessing “know-what” knowledge. The fundamental rule behind this conversion and sharing of knowledge between two different types of personality is that “know-what” and “know-how” complement each other. Such interaction results in higher competencies for both participants. The externalization concepts find its way back to the organization’s information creation process, an area still needing more attention by the companies (Nonak, 1994).

**Explicit Knowledge to Tacit Knowledge/ Internalization**

Knowledge sharing between explicit knowledge and tacit knowledge occurs when two individuals with different attributes of knowledge interact. The internalization mode of sharing knowledge is rooted in organizational learning behaviour (Nonak, 1994).
## Appendix 2. Interview Questions

<table>
<thead>
<tr>
<th>Question No</th>
<th>Theory</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Culture</strong></td>
<td>Tacit and explicit knowledge in their org - what are they dealing with?</td>
<td>How is knowledge shared within your department?</td>
</tr>
<tr>
<td>Motivation: Reciprocity</td>
<td>Do you expect anything in return when sharing knowledge?</td>
<td></td>
</tr>
<tr>
<td>Culture: Communication</td>
<td>Does the knowledge sharing differ from person to person in your department? Which one is easier to share, with someone speaking the same language or different language than your mother tongue?</td>
<td></td>
</tr>
<tr>
<td>Motivations:</td>
<td>Do they encourage knowledge sharing? How?</td>
<td>Why? Why not?</td>
</tr>
<tr>
<td>Culture:</td>
<td>Is the work environment competitive? Does this impact on knowledge sharing? How, Why not?</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>Do you feel threatened by sharing knowledge, which is the symbol of power in many individuals? If yes, why? If no, why not?</td>
<td></td>
</tr>
<tr>
<td>Trust: Culture</td>
<td>Manager's perception of their employees sharing knowledge?</td>
<td></td>
</tr>
<tr>
<td>Culture:</td>
<td>What are the biggest challenges from managers perspective in knowledge sharing among employees in your organization?</td>
<td></td>
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<tr>
<td></td>
<td>If they say any factor, then how do you plan to overcome them?</td>
<td></td>
</tr>
<tr>
<td>Culture</td>
<td>Do they have any knowledge management systems?</td>
<td></td>
</tr>
<tr>
<td>Culture</td>
<td>Are they providing informal physical environment? If yes, how and if no, why?</td>
<td></td>
</tr>
<tr>
<td>Culture: Processes</td>
<td>Are there any formal processes for sharing knowledge? Describe.</td>
<td></td>
</tr>
<tr>
<td>Culture: Processes</td>
<td>Informal processes? What’s more beneficial?</td>
<td></td>
</tr>
<tr>
<td>Culture: Processes</td>
<td>Do you have routines, rules, guidelines to share knowledge? If yes, can we get an example of it?</td>
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<tr>
<td></td>
<td>Describe a situation where they feel knowledge was 'lost'. What happened and why?</td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>Which way of communicating do you prefer to share your knowledge in a better way? Why?</td>
<td></td>
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</table>