Tacit knowledge – the sharing of experiences in a CM-firm: A case study of Forsen Projekt AB

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Abstract
Knowledge is considered by many to be the last competitive advantage for companies today. The construction industry has always been bad at capturing knowledge and especially the kind of knowledge that is not easy to share and formulate, tacit knowledge. This has led to an increasing interest in how to capture and share tacit knowledge.

The methods and tools available to support tacit knowledge sharing are mostly concentrated on social interactions, face-to-face meetings and oral communication. Methods and tools mentioned in this thesis are Mentoring, Storytelling, Communities of Practice and Web 2.0 tools. In addition to them, the aim of this thesis has been to investigate which other tools and methods that are used to transfer tacit knowledge within a construction management company. As well as how to implement them in a successful way.

The findings indicate that there are several additional methods and tools used other than the ones described in the literature and that there are a lot of conditions regarding attitudes towards knowledge sharing and corporate culture that need to be fulfilled for a successful implementation of the tools and methods.
**Abstrakt**


De verktyg och metoder som stödjer delning av tyst kunskap är främst baserade på sociala interaktioner, fysiska möten och muntlig kommunikation. De metoder och verktyg som nämns i detta examensarbete är mentorskap, Storytelling, Communities of Practices och Web 2.0 verktyg. I tillägg till ovannämnda, har målet med detta examensarbete varit att identifiera vilka andra verktyg och metoder som används för att dela tyst kunskap i ett byggprojektledningsföretag. Ett av målen har också varit att ta reda på hur man implementerar dessa på ett framgångsrikt sätt.

Resultatet indikerar på att det finns några fler verktyg och metoder som delar tyst kunskap utöver de som beskrivs i litteraturen. Resultatet indikerar också på att det finns flertalet förutsättningar som måste vara uppfyllda för att verktygen och metoderna ska kunna implementeras på ett framgångsrikt sätt. Dessa förutsättningar berör t.ex. attityden till att dela med sig av sin kunskap och hur företagskulturen ser ut.
Acknowledgement

This master thesis has been conducted as a final examination from the master programme of Architectural Design and Construction Management at KTH, it is made in collaboration with the Swedish construction management company Forsen Projekt AB. The idea of the thesis was formulated by me and with some additional help from my supervisor at KTH, Tina Karrbom Gustavsson and my supervisor at Forsen Projekt AB, Johan Berg.

The journey of conducting research in the field of knowledge management has been an experience. I have so many new insights from the interviews, about what is important for a project manager to think about, what to demand when applying for a job and how the industry works in general.

I would like to start and thanking all the interviewees at Forsen Projekt AB for their kindness and time spent on the interviews. This thesis could not have been made without their useful input. I would also like to send a special thank you to Johan Berg at Forsen Projekt AB for letting me do my thesis in collaboration with Forsen Projekt AB and for your help in finding suitable people to interview.

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Fanny, thank you for coping with me during this process, I know that I have been troubled and hopeless from time to time but without your endless support, I would not have made it. I would also like to thank my family for their support during my years at KTH.

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1. Introduction

1.1. Background

Knowledge is usually seen as a key ingredient in an organization and its progress (Bhargav & Koskela 2009). Twenty years ago, companies and organizations were seen as entities who just processed big amounts of information. Seeing companies and organizations in that way, the only knowledge being processed is the hard and codified data and not the soft invisible knowledge (Nonaka 2007). This soft, invisible knowledge is called tacit knowledge and is probably best described by the famous quote “We know more than we can tell” (Polanyi 1966, p. 4). The problem with tacit knowledge is that it is very hard to express explicitly, tacit knowledge contains a person’s beliefs and values as well as their know-how on specific things. To be able to transfer tacit knowledge it is necessary to make it explicit (Nonaka 2007).

One problem in the construction industry is that a lot of the knowledge behind decisions is in the head of the decision maker. This makes the lessons learned from such a decision hard to interpret, as the intent of the decision maker is unknown as long as the knowledge is not made explicit (Rezgui 2001). Loforte Ribeiro (2009) states that in a highly project based industry, each individual and their knowledge is the key to improvements in performance and to the collective knowledge in the company. It is especially important for companies within the construction industry to have an efficient knowledge management (Loforte Ribeiro 2009). Many efforts have been done in capturing explicit knowledge but tacit knowledge sharing has been forgotten. Capturing the tacit knowledge in the construction industry is an area where more research and development is needed (Bhargav & Koskela 2009).

1.2. Research questions

This thesis aims to answer the following three research questions:

- How does a construction project management company share tacit knowledge?

- Which tools/methods are most suitable to achieve an effective sharing of tacit knowledge in a construction project management company?

- How can these tools/methods be implemented in a successful way?

1.3. Purpose and aim

The purpose with this thesis is to examine in which ways a project management company shares tacit knowledge. Furthermore, the purpose is also to investigate which potential methods or tools that exist to enhance and make the tacit knowledge sharing as efficient as possible. Finally, the aim is how these tools can be implemented in the best way possible and which prerequisites the company needs.


2. **Method**

The method chapter explains the method used to conduct the research. It touches upon the chosen research design, how the interviews were conducted and how the sampling of the interviewees was done. It will also cover the matter of limitations of the study as well as ethics regarding how to handle the collected material.

2.1. **Research method**

There are two methods used when carrying out research, qualitative and quantitative. A qualitative method is more focused on understanding certain things and on the process, whereas a quantitative method is more focused on testing and verifying for example hypotheses, it is also more result orientated. A qualitative method is often used when the research problem is focused on finding peoples experiences or in understanding a phenomena, it is also favorable when the aim is to get an in-depth insight of a problem. Based on that, this thesis will adopt a qualitative research method as the given research problem is about getting an in-depth insight and to uncover peoples experiences (Ghauri & Grønhaug 2010).

2.2. **Research design**

As the research problem is quite badly understood, it is appropriate to use an exploratory research design in this thesis. Helping in answering the research questions, in-depth interviews have been conducted, a case has been studied and a literature review has been performed on subjects related to the research questions (Ghauri & Grønhaug 2010).

2.3. **Case study**

One case study has been performed on Forsen Projekt AB, a Swedish construction management consulting company. The reason for doing a case study is to answer the first research question regarding how tacit knowledge is shared within a company of Forsen’s character. Case studies are often used when the research questions are of a “how/why” character and when the target is to observe a phenomenon in real life. In this case study several interviews have been conducted (Ghauri & Grønhaug 2010).

2.4. **Interviews**

Seven in-depth interviews have been conducted with people in the organization of Forsen Projekt AB to get an understanding on how they share tacit knowledge and their opinion on knowledge sharing in general. The interviews have been carried out in a semi-structured way; this enables getting answers of a personal character but also to have some kind of structure to be able to make some kind of comparison later in the analysis (Ghauri & Grønhaug 2010). A general interview guide was made and depending on the position of the interviewee, some alterations were made. All of the interviews were recorded digitally and the timeframe for the interviews have varied from 45 minutes to 75 minutes. Prior to the interviews, the interviewees got some general question from the interview guide but not the guide as a whole, to avoid rehearsed answers.

All of the interviewees have been offered to be anonymous. They have been offered to be anonymous as it could provide more honest and reliable answers. After each interview, the
Interviewees have been asked to submit a story about what they would tell a newly employed about what characterizes a successful project manager and what a successful project is. All of the interviews have been conducted in Swedish, as it is the language everyone involved masters best.

The sampling of the interviewees has been made by the author in collaboration with the supervisor at Forsen Projekt AB, as well with some support from the supervisor at KTH. The author came with references on different types of persons and got help in finding people matching those references at Forsen Projekt AB. The idea was to interview senior employees (at Forsen more than 10 years), junior employees (at Forsen less than 1 year) as well as employees in between those two. The aim with that wish was to be able to get the full picture throughout the entire company. The outcome resulted in one interview with a senior member/co-founder of Forsen Projekt AB, four interviews with junior employees, one interview with a member that have worked roughly 5 years at Forsen Projekt AB and one interview with the CEO of Forsen Projekt AB. Gender wise, six of the interviews was conducted with males and one with a female.

2.5. Literature review

As a source of secondary data, a literature review on the subject has been performed. This literature review was performed to make the general structure about knowledge management as well as finding suitable tools and methods for tacit knowledge sharing. The literature review is mostly based on English articles from mostly peer-reviewed journals as well as from some of the most prominent authors within the field of knowledge management.

2.6. Ethics

Prior to the interviews, the interviewees were informed that they will be recorded and asked if they had any objections towards it. They were also informed that the author would handle everything they said anonymously and that it is only the author and the supervisor at KTH who has access to the recordings. No one opposed against it and the CEO and the co-founder stated that they did not need to be anonymous as they are fronting the company. The interviewees were given the opportunity to receive their own interview recording but only one of them requested it. To protect the interviewees when the data is presented, all significant expressions and quotes that may lead the reader to a certain interviewee were removed, as well as information that could harm the interviewees.

2.7. Limitations

All the interviews and the case study has been performed within one single company, so therefore there is a risk that the results are not applicable to other project based companies within the construction industry. The data collected is also very dependent on the context of each project the interviewees are involved in and the result might not reflect the entire construction industry. As the number of interviews conducted is only seven, a limitation with this study is that it cannot conclude if there is a difference between how senior and junior employee’s shares tacit knowledge. The number of interviews is a limitation, as it reflects just some individuals in the company. Another limitation is that the thesis is only based on interviews and one case study, performing an observation study could if possible have given the study some more depth and credibility.
Another limitation to this thesis is that personal opinions from the author might be reflected in the analysis and conclusion, as some preconceptions might exist.

As the thesis is 30 credits and is done over a period of 6 months, there is a time constraint present and it has limited the scope and magnitude of the thesis.
3. Theory

The theory chapter starts with describing the concept of knowledge management. It will then move into different dimensions of knowledge and strategies. Next, the concept of knowledge creation is explained and last finally some different tools and methods for sharing tacit knowledge are presented.

3.1. Knowledge Management

“If HP knew what HP knows we would be three times more profitable” Lew Platt, CEO of Hewlett Packard

Knowledge does not exist single-handily; different knowledge is connected with each other. It is necessary to do a distinction between information and knowledge, knowledge needs an action to be knowledge otherwise is just pure information. Information turns into knowledge when it is used in a complex context that requires some sort of innovative solution (Frappaolo 2006). Sveiby (2001) states that people are the only source for both tangible and intangible assets, as those assets are the results of people’s knowledge. The most valuable knowledge is the knowledge that is hidden inside people and it is hard to share and can be a competitive advantage if it is shared (Simons & Sveiby 2002).

The term Knowledge Management (KM) where formed in the early 1990’s by Ikujiro Nonaka in his article, “The knowledge-creating company” (Nonaka 2007). Nonaka (2007) stresses in his article that the last competitive advantage for firms is knowledge. He continues stating that companies are having problems seeing knowledge as a competitive aspect and they cannot manage it because they do not understand the meaning of knowledge and how it can be used to make the company more innovative and more successful (Nonaka 2007). Three different definitions found in the literature regarding KM are:

“Knowledge management is leveraging of collective wisdom to increase responsiveness and innovations” (Frappaolo 2006, p. 8)

“Knowledge management represents a systematic and organized approach of using knowledge for storing and extending knowledge in order to increase companies’ output and performance ” (KPMG 1998) in (Bhargav & Koskela 2009, p. 895)

“Knowledge Management is equivalent to the strategies and processes for knowledge identification, documentation and influence with the aim of making companies competitive” (APQC (American Productivity and Quality Centre) 1996) in (Bhargav & Koskela 2009)

The first generation of KM systems focuses on the people and how they share knowledge with each other. These systems are supported with documentation handling software and document databases but also internal information portals and intranets. The next generation of KM systems is more focused on the collaboration between people and how to create knowledge out of it. This second-generation KM system is more focusing on the social processes and is supported by different tools like wikis, forums or blogs. These kinds of tools are in general called “Web 2.0” or “Social Web” (McElroy 2002) in (Bhargav & Koskela 2009).
3.2. Knowledge dimensions

3.2.1. Explicit knowledge

Polanyi (1966) divides knowledge into two categories, explicit and tacit knowledge. These two dimensions can be seen as a metaphor of an iceberg, where the explicit is the tip of the iceberg and the tacit knowledge is the hidden part underneath the water, see Figure 1.

Explicit knowledge is characterized as knowledge that can be expressed with a formal language and as a knowledge that is easy to transmit and share among individuals, explicit knowledge is formulated in a systematic way (Frappaolo 2006), (Nonaka 2007). Examples of explicit knowledge can be manuals, protocols, break down structures etc. Many of the new information and communication technology (ICT) tools has made the explicit knowledge easier to share and companies have also put a lot of empathize on this kind of knowledge. They are shared in for example common databases and in companies’ intranets (Bhargav & Koskela 2009).

![The iceberg metaphor about explicit and tacit knowledge.](image)

3.2.2. Tacit Knowledge

Tacit knowledge is best described with the famous quote from Polanyi:

“We know more than we can tell” (Polanyi 1966, p. 4)

With the quote, Polanyi indicates that tacit knowledge is some kind of knowledge that every human being possess inside of himself or herself. It is characterized by being hard or almost impossible to formulate and share. An example of tacit knowledge is when an individual makes a decision that is obvious for that person to take, but for an outsider it can be hard to understand why that specific decision was taken and the decision maker might have a hard time explaining it (Ambrosini & Powell 2012). Nonaka (2007) states that the tacit knowledge is strongly linked together with actions and contexts and tacit knowledge mainly is about skills that are hard to pin-point, he mentions an example of a master craftsman’s accumulated knowledge over time and puts it in the term of “know-how”. Furthermore, tacit knowledge can contain organizational knowledge, processes and routines of a company and is transferable if the personnel are exchanged (Nonaka, Toyama & Nagata 2000). Tacit knowledge increases in value every time it is transferred as the creator still possess the knowledge transferred but the creator also adds it to someone else’s knowledge base (Sveiby 2001). Simons & Sveiby (2002) mentions internal knowledge and they define it as:
“[...] deeper level of basic values, beliefs and assumptions that are shared by an organization’s members.” (Simons & Sveiby 2002, p. 421)

It is evident that what they call internal knowledge is the same as the tacit knowledge described earlier.

As mentioned earlier, it is not easy to create and implement a system that is focusing on capturing the tacit knowledge. Bhargav & Koskela (2009) identified five key success factors for tacit knowledge sharing.

- The system needs to be simple and user-friendly
- Retrieval of information needs to be done in an effective way
- A trust among employees needs to exist
- Implementation of KM system should be highly prioritized in the organization
- Top management needs to align the KM work with their visions and strategies.

Bhargav & Koskela (2009) concludes that the solutions that empathize on social interaction, where knowledge can be shared in an informal and open, are the ones with the brightest future in capturing and catching the tacit knowledge. They give some final remarks that it is necessary to have a transparent organization and that some cultural changes might be necessary for some organizations within the construction industry (Bhargav & Koskela 2009).

### 3.3. Codification vs. Personalization

According to research performed by Hansen, Nohria & Tierney (1999), two types of knowledge management strategies exists, a codification strategy and a personalization strategy. In the former, knowledge is stored in easy accessible databases and in the codification strategy; the focus is on codifying, storing and reusing the knowledge. After a company has created a document or a process for a customer, they dismantle all the sensitive information and store a more general document in their database. All of the documents are made independent of the author, and this enables a wide use of the documents throughout the company. By using this strategy, companies can grow quite rapidly (Hansen, Nohria & Tierney 1999). Sveiby (2001) has some thoughts regarding information technology (IT) systems and states that they are:

“ [...] a waste of money if the organisation’s climate is highly competitive – only junk will be shared.” (Sveiby 2001, p. 348).

The personalization strategy emphasizes on the person-to-person contact and the knowledge is not made independent from the author. An important factor in the personalization strategy is that the knowledge is not stored for people to use but more to enable a communication with the source of the knowledge. The knowledge that cannot be codified is shared in brainstorming sessions and dialogues between employees. Companies using this strategy are often tackling unclear problems and the solutions are custom-made for the customer. A company following the personalization strategy empathizes on individuals; they cannot grow as rapidly as a company using the codification strategy (Hansen, Nohria & Tierney 1999).

A company cannot just single handily pick one strategy and stick to it to 100% or try to adopt both strategies, according to Hansen, Nohria & Tierney (1999) it is ideal to have a ratio of 80-
20. As companies are hiring different kinds of personnel depending on their strategy, they might end up in trouble if they are pursuing both strategies. When choosing strategy is important to have three questions in mind:

- Do you offer standardized or customized products?
- Do you have a mature or innovative product?
- Do you rely on explicit or tacit knowledge to solve problems?

If a company is relying on standardized and mature products and are using explicit knowledge to solve their problems, a major focus on a codification strategy is suitable and the other way around for the personalization strategy (Hansen, Nohria & Tierney 1999).

### 3.4. Knowledge Creation

According to Nonaka, Toyama & Konno (2000) knowledge is created in spiral way, see Figure 2. They argue that the most important aspect for a company is not what knowledge they already possess but their capability to create new knowledge. Knowledge is created when people interact or when people and their surroundings interact with each other, and it takes place on both micro and macro levels. Nonaka, Toyama & Konno (2000) created a model of knowledge creation containing three major parts, the SECI process, ba and knowledge assets. It is important to know that this process of creating knowledge cannot be done in the traditional way (i.e. the western way); the managers manage it by providing the right conditions. The top management needs to have a knowledge vision and that vision needs to be spread within the company but also outside of the company (Nonaka, Toyama & Konno 2000).

![Figure 2 Knowledge Spiral (Nonaka, Toyama & Konno 2000)](image)

### 3.4.1. SECI

The SECI process is about conversion between explicit and tacit knowledge. It consists of four phases, Socialization, Externalization, Combination and Internalization. If knowledge goes through the SECI process, the quality and quantity of both the tacit knowledge and the explicit knowledge will be enhanced. The process is an iterative process and it does not have a distinct starting point or an ending point, it is a spiral process and knowledge created within a spiral can start a new spiral, see Figure 3 for an overview of the SECI process (Nonaka, Toyama & Konno 2000).
Socialization: In the Socialization process, tacit knowledge is converted to new tacit knowledge. Sharing and acquiring this new tacit knowledge is done by sharing experiences face-to-face. A great example of socialization is how an apprentice learns from his master, the kind of knowledge he learns is tacit knowledge through the hands-on experiences he receives by seeing and experiencing what the more senior master does. It would be almost impossible to acquire that knowledge through reading a manual or a book. Nevertheless, socialization is not just about these hands-on experiences, it could be about gaining a mutual trust with a customer or a supplier. Managers can get new ideas on strategies etc. by socializing both on the outside of the company with competitors and customers and on the inside of the company with the employees. To have a successful conversion of tacit to tacit within the company, it is of the essence that there is an environment, which enables employees to gain expertise through practice (Nonaka, Toyama & Konno 2000).

Externalization: Converting tacit knowledge to explicit knowledge is done in the Externalization process. If the tacit knowledge is made explicit, it is easier to share that knowledge within a company. One example that Nonaka, Toyama & Konno (2000) brings up, is employees working on the floor in manufacturing industry can influence the entire manufacturing process with the tacit knowledge they have gained by working and experiencing that process (Nonaka, Toyama & Konno 2000).

Combination: The Combination process is about converting explicit knowledge to explicit knowledge, where the new explicit knowledge is more complex. This enables knowledge from many different sources to be combined into a suitable context. It is easy to share this new explicit knowledge within a company; it is preferably done by using some kind of ICT-tool (Nonaka, Toyama & Konno 2000).

Internalization: To convert the explicit knowledge into tacit knowledge, it has to go through the Internalization process. In this process the explicit knowledge in manuals or concepts are put in to practice and by that they get new tacit knowledge of how that concept worked in practice. Trainee is one way of doing this internalization, the trainees get a lot of explicit knowledge regarding procedures, values etc, and when reflecting upon that explicit knowledge they make it into their own tacit knowledge. When the explicit knowledge is converted to tacit knowledge it can be called, “know-how” (Nonaka, Toyama & Konno 2000).

As mentioned earlier, several spirals exist in an organization; knowledge created in one spiral can trigger the start of another spiral within the organization. Creation of knowledge is within
an organization a process without a definite ending. However, the process does not just take place within an organization, it can involve for example a manufacturer and their customers and their sharing of how the product works or what could be done better (Nonaka, Toyama & Konno 2000). Nonaka, Toyama & Konno (2000) states self-transcendence is of the essence to the knowledge creation process, where individuals stretch beyond their own mind and boundaries.

3.4.2. BA

As mentioned earlier knowledge needs a context to be created, otherwise it is just information. In Japan they created a concept called ba (place), this is very important to the knowledge creating process as the ba provides the place and energy to move between the different phases in the SECI process, ba is also where information is transformed into knowledge. Just because ba means place in Japanese, it does not mean it has to be a physical place, it can be a virtual space or a mental space as well, an example of a mental space is an individual’s social and cultural background (Nonaka, Toyama & Konno 2000). The definition of ba that Nonaka, Toyama & Konno (2000) uses is as following:

“[…] ba is here defined as a shared context in which knowledge is shared, created and utilized.” (Nonaka, Toyama & Konno 2000, p. 14)

Nonaka, Toyama & Konno (2000) states that interaction is the most important part of ba because knowledge is created when people interact with each other. In this interaction between people, ba is the context that they share, the people who are interacting cannot be passive spectators and they get involved and committed to the ba by actions and interaction. Ba is not a fixed context, the boundaries is set by the people involved and if there is a change of people, the boundaries changes as well. However, there are four different kinds of ba; originating, dialoguing, systemizing and exercising ba’s (Nonaka, Toyama & Konno 2000).

Origination ba: The definition of originating ba is set by the individual and face-to-face interactions and it is in the originating ba where people share past experiences and feelings. This is the only way to fully get emotions, senses and reactions from the involved individuals. These emotions, senses and reactions are an essential part of tacit knowledge sharing. It is from the originating ba that the foundation for knowledge sharing between individuals is formed; trust and commitment are examples of parts in that foundation (Nonaka, Toyama & Konno 2000).

Dialoguing ba: Where collective and face-to-face interactions take place and where mental pictures and skills are shared is a dialoguing ba. This ba offers the opportunity capture tacit knowledge and externalizes it by self-reflections from each involved individual. Nonaka, Toyama & Konno (2000) emphasizes that having the right mix of individuals is important to the knowledge creation (Nonaka, Toyama & Konno 2000).

Systemizing ba: In contrast to the two ba’s described earlier, the systemizing ba is interactions between many people in a virtual way. It is a way of offering a platform to share explicit knowledge to many people; tools that are used are emails, databases and similar tools (Nonaka, Toyama & Konno 2000).

Exercising ba: The exercising ba is similar to the systemizing one, the interactions are still virtual but they are also individual. In this ba, people can share explicit knowledge through for example manuals or other kinds of documentation (Nonaka, Toyama & Konno 2000).
3.4.3. **Knowledge assets**

The foundation of the knowledge-creating process presented, are the knowledge assets. A knowledge asset is:

” [...] the inputs, outputs and moderating factors of the knowledge-creating process.” (Nonaka, Toyama & Konno 2000, p. 20).

They mention that an example of an output is trust among the employees. Nonaka, Toyama & Konno (2000) empathizes that knowledge assets is not something an organization can buy or sell, but more a thing that needs to be constructed within the organization and also used within it. They continue by categorizing knowledge assets into four different types (Nonaka, Toyama & Konno 2000). See Figure 4 for a comparison of the different knowledge assets.

**Experiential knowledge assets**: It contains the tacit knowledge the members of the group have acquired through own experiences. The tacit knowledge in this asset can also consist of knowledge of emotional, physical, energetic and rhythmic character. The knowledge in these assets is hard to share and to understand, as that is the nature of tacit knowledge. It is important to notice that this kind of knowledge is bound to each company and cannot be transferred to another organization, as the experience is specific for each organization (Nonaka, Toyama & Konno 2000).

**Conceptual knowledge assets**: In contrary to the experiential knowledge assets, the conceptual consist of explicit knowledge. Examples on how the explicit knowledge can be articulated; is in the form of images, symbols and language. A concept within a company can be a conceptual knowledge asset and it is easier to understand than the experiential knowledge, however, it might still be hard to get opinions of that concept from people in the organization but also from the outside of the organization (Nonaka, Toyama & Konno 2000).

**Systematic knowledge assets**: Manuals, instructions and other documents of similar type, is what the systematical knowledge asset consists of. As it is very easy to see and grasp, they are also very easy to transfer within an organization (Nonaka, Toyama & Konno 2000).

**Routine knowledge asset**: The culture and values of organizations is a tacit knowledge that can be in a routine knowledge assets. This knowledge is hidden inside how people act and performs their duties on regular basis. It is shared by having exercises on a regular basis and by trying to share stories about the company that contains the values they want to spread (Nonaka, Toyama & Konno 2000).
3.4.4. Nine knowledge transfers

Sveiby (2001) lists nine different knowledge transfers that create value for an organization, in his view it is a transfer of knowledge and not sharing of knowledge. Some of them are similar to what Nonaka, Toyama & Konno (2000) presented in the SECI process. According to Sveiby (2001) the following nine transfers occur. When looking on these nine aspects and comparing them to what has been described above of SECI, Ba and knowledge assets, it is evident that they are somewhat similar even though they use a different name for them. Sveiby mentions that transfers can be considered to be a knowledge conversion as well (Sveiby 2001).

**Between individuals**: This transfer takes place between members within an organization and the most important aspect for a successful transfer is a mutual trust between employees. Therefore, to enhance the transfer between individuals, organizations should according to Sveiby (2001) put effort into activities that build trust, rotation of the staff, master/apprentice as well as teambuilding activities. He presents a small case; how the Danish company Oticon redesigned their office to create an open atmosphere that encouraged flexibility and sharing. Oticon wanted to have more meetings that are accidental and live interactions and did it by creating dialogue rooms and by locking the elevators, forcing employees to take the stairs instead. They do also prefer face-to-face communication as it is faster and more informal (Sveiby 2001).

**From individuals to external structure**: Is the transfer from individuals inside an organization to external structures such as customer or suppliers. This is done to raise the competence level of them and the consulting company McKinsey encourages their employees to publish research they have done and in that way educate external factors (Sveiby 2001).

**From external structure to individuals**: The transfer can go in opposite direction as mentioned above, from customers and suppliers to individuals in the organization. They give feedback on products or ideas. Sveiby (2001) states that organizations usually have system to capture this kind of knowledge but that they are not consistent and cannot measure the knowledge. To enhance this knowledge sharing, organizations need to maintain good relationships with suppliers and customers (Sveiby 2001).
From individual competence into internal structure: This concerns the transfer of especially tacit knowledge to explicit knowledge that can be stored in databases. Sveiby (2001) mentions that this is what a lot of managers think knowledge management is all about. To make this transfer successful, systems to share it needs to be easy and efficient (Sveiby 2001).

From internal structure to individual competence: This transfer is opposite to above mentioned. Important factors in this transfer are that the knowledge stored in databases will be used and will improve the employee’s knowledge. To make this successful, attention to make the systems interfaces in a way that makes the absorption of knowledge easier is necessary (Sveiby 2001).

Within the external structure: This transfer takes place outside of the organizations, between supplier A and supplier B as an example. Having alliances and a good image of the organizations helps this transfer in a positive way. (Sveiby 2001)

From external to internal structure: To transfer the explicit knowledge from external partners to the internal database, the organization needs to have an efficient way to get the feedback and a way to incorporate in their own system (Sveiby 2001).

From internal to external structure: This transfer concerns how the internal structures knowledge can be used to help external partners and their system (Sveiby 2001).

Within internal structure: The transfer within the internal is “[...] supporting the backbone of the organization” (Sveiby 2001, p. 352). Organizations needs to put effort in making the databases more efficient and ensuring that everyone uses them and are not storing their documents locally (Sveiby 2001).

Sveiby (2001) continues stating that they all occur in an organization but is not coordinated in a proper way and that many organizations have cultures and legacies that hinder the transfers to be value creating.

3.5. Success factors and obstacles in implementing knowledge sharing

To successfully share tacit knowledge, it is very important to have love, care and commitment. As some individuals might feel that they want to keep their knowledge for themselves, it is important for top managers to create an atmosphere where knowledge sharing is encouraged and where the employees feel safe to share their knowledge (Nonaka, Toyama & Konno 2000). Simons & Sveiby (2002) mentions that one of the biggest obstacles to share knowledge can be an organizations internal culture but they continue mentioning that there also exists problems of individuals hoarding knowledge for their own best and competitiveness. Nonaka, Toyama & Konno (2000) mentions some more important aspects for successful knowledge sharing: the employees need to be selfless and willing to help others and put their own interests aside.

Simons & Sveiby (2002) concludes in their article that a collaborative climate is one of the core solutions in having an efficient knowledge management work. They continue concluding that the collaborative climate tends to improve with the size of an organization or at least for
organizations up to a mid-size level. They have also concluded that gender has no impact on the collaborative climate and that the collaborative climate in general is better in private companies (Simons & Sveiby 2002).

Johannessen, Olaisen & Olsen (2001) states that tacit knowledge can be shared by thrust and relational building activities, as well as organizing in teams where a helping attitude towards each other exists and in teams based on apprenticeships. Having positive values and attitudes towards knowledge management is important for the employees desire to share their knowledge and in the trustworthiness of the knowledge shared (Lindner & Wald 2011).

Esmi & Ennals (2009) identifies two barriers for successful knowledge sharing, time and culture. In their study, they interviewed people in the UK construction industry and below is one example of a reply they received:

“Some people don’t share their stuff, they don’t want to take the risks associated with sharing too much information.” (Esmi & Ennals 2009, p. 201)

Two of the factors that were identified in improving the Swedish newspaper Affärsvärlden’s margin, was to have a collaborative climate and to have a flat organization. The collaborative climate is focusing on removing a competitive climate and also having a master/apprentice situation, this helped tacit knowledge transfer. In the Affärsvärlden case, having visible managers and a company owned by the employees also helped to create a shared vision (Sveiby 2001).

As mentioned earlier, it is accepted by many authors, that trust and collaboration are building an effective knowledge sharing. When examining Buckman Labs, Simons & Sveiby (2002) found that they successfully created a collaborative climate and by creating it, the employees worked towards a common goal. They argue that it is thanks to Bob Buckman and his belief in knowledge sharing, a quote from him is:

“The most powerful individuals in the future of Buckman labs will be those who do the best job of transferring knowledge to others” Bob Buckman in (Simons & Sveiby 2002, p. 430)

3.6. Mentorship

One way of transferring tacit knowledge within an organization is to use mentoring, where a mentor is mentoring an adept or as it sometimes is called, protégé. In the last years, this method has some attention and the use of it has increased (Swap et al. 2001). As an example, in law business, it is essential for a career development to have a mentor (Kay, Hagan & Parker 2009). To be an expert in a field, there is a need of expertise and the expertise is developed from a learning-by-doing process.

The mentor is a person who uses his or hers big knowledge base to teach or guide a less experienced adept. The adept, will with the help of the mentor, get access to information they were not able to get prior to the relation with the mentor. One more important aspect that a mentor conveys to the adept are values and basic principles of the company they are working in, as well as some norms on how to behave in certain situations (Swap et al. 2001). Billett (2003) identified three competences that are important for a mentor to have:

- They need to have previous experience
- They need to be confident in the subject they are going to be mentoring in
A mentor is also someone who the adept can turn to when the adept has some questions regarding failures and successes or other sensitive questions. The relationship between the mentor and the adept is important for the mentoring to work, they need to develop a close relationship and get a deep understanding of each other (Wanberg, Welsh & Kammeyer-Mueller 2007).

In their research, Swap et al. (2001) concludes that it is not possible to relate an organizations performance with a mentoring programme, they do however state that the mentoring is important for tacit knowledge sharing as it transfers values and basic principles. They do a comparison to two of the aspects in the SECI model, the socialization and internalization processes and states that mentoring contains both of them (Swap et al. 2001).

Swap et al. (2001) identifies that it is not believable to think that a novice can go from a novice straight to being an expert. They do also mention a concern about the gap in knowledge between the mentor and the adept. The larger the gap is the more effort is needed from both sides to narrow it down. It is important that the mentors and adepts share a common context; if they are not sharing it the knowledge sharing might be harmed. It is also important that the adepts are active in their relationship, if they are; they are more likely to remember what they have learnt. Another way the adept can learn from the mentor is by observing how the mentor performs their duties (Swap et al. 2001).

Swap et al. (2001) concludes that it is not just to create a mentoring programme and then think that everything will be fine. There might be a need of an incentive system for the mentors, they need to feel that they are contributing to the company and are making it stronger. Swap et al. (2001) also stress that the mentors and adepts should choose each other rather than be appointed and the mentors should be given the feedback they need (i.e. education in teaching) (Swap et al. 2001). Billett (2003) concluded in his research that a mentoring approach is effective in learning but he reports that the mentors he studied had some problems finding the appropriate time to do the mentoring. In his conclusions, he mentions some factors that are helping a mentor and some that act as obstacles. Three of the supportive factors are organizational support, mentor empowerment and comfortable working environment. As an obstacle he mentions that time and work demands is one, another is unclear expectations from top management (Billett 2003).

**3.7. Storytelling**

“We define an organizational story as a detailed narrative of past management actions, employee interactions or other intra- or extra-organizational events that are communicated informally within the organization” (Swap et al. 2001, p. 103)

As mentioned above storytelling is concerning stories that are told and created within an organization (Swap et al. 2001). Stories have been used for a very long time as a mean of passing on knowledge in generations (Sole & Gray Wilson 2002). They offer value to the organization and are a key for generation of new knowledge (Mitchell 2005). Stories can be seen as a tool that connects tacit and explicit knowledge as they tell more than just the event, they tell a moral story. Stories usually tell something about the moral compass of the organization and will reflect their values, norms and basic principles. Storytelling is a useful tool to transmit knowledge and involves the listeners to create knowledge (Fong 2003).
Stories are also important when having new employees joining the company, the stories tell the new employee a lot about the values and norms of the company, it could be both in a positive way and in a negative way (Linde 2001). Sole & Gray Wilson (2002) confirms that storytelling has been identified as sharing norms and values but also to develop trust and commitment in the organization. They do also mention that it can generate emotional connection (Sole & Gray Wilson 2002).

Storytelling is not well suited to transfer deep knowledge; it is more of a tool to share values and tacit knowledge. The story can also be used to support official statements regarding values and norms in an organization. If the story is well aligned with those statements, it will strengthen them. However, if the story is not aligned with the statements, then the story might be more powerful and the official statements lose their credibility (Swap et al. 2001). Linde (2001) states that it is hard to share business processes and how to train new employees through storytelling. The reason to this is that these kinds of processes do not have a lot of moral content (Linde 2001). In their conclusions, Swap et al. (2001) suggests that most stories are told informally and that a manager cannot steer them, they also suggest that creating fictional stories is less effective than stories which are based on a true events.

Using different kinds of ICT-tools to share and capture stories is not the most effective way to do it, as oral stories are not well suited to be stored in databases. When a story is being told, the storyteller adapts the story slightly to the receiver and the receiver might start a conversation based on the story (Linde 2001). Linde (2001) states that artifacts can be useful when people want to remember stories. They can also be used to connect people. Linde (2001) mentions that having artifacts in a public place at the office can be the context needed for occasional stories.

According to Sole & Gray Wilson (2002) the following traps for storytelling exists: seductiveness, single point of view and staticness. A story might be so convincing that the receiver might have a hard time evaluating the trustworthiness of the story. Most stories are told by one single person and the person might tell the story in a different way than someone else would. They have also found that stories can be especially useful when a company wants to kick-start a new idea, welcome new members and in repairing relationships (Sole & Gray Wilson 2002).

### 3.8. Communities of practice

Communities of practice (CoP) are groups of people who have a strong connection based on their expertise and passion in a certain field. For example, the groups can consist of engineers working in bridge design or it can be managers in charge of marketing in a telecom company. A CoP can meet once a week during lunch or one day every month, it all depends on the participants. The participants in a CoP can meet in a virtual world as well through emails and other ICT tools. There is no need for a set agenda in a CoP; members share their own experiences and knowledge in an unstructured and free way (Snyder & Wenger 2000). The output from a CoP is knowledge and especially tacit knowledge or as Snyder & Wenger (2000) calls it, intangible. The number of participants in a CoP can vary from just a few to a couple of hundreds; however, there is usually a core of participants, those participants have an exceptional passion in the subject (Snyder & Wenger 2000). A CoP differs from other kinds of groups and gatherings in several ways, see Figure 5 for a comparison between them.
The only thing that is modern about CoPs’ is the term; different kinds of CoPs’ have existed for centuries. Snyder & Wenger (2000) mentions that in the antique Greece different kinds of artisans’ met in a similar way to the description of CoP above. They continue saying that the same phenomena existed in Europe during the middle ages, during that time they were called guilds. There is one more distinction between how they did it in Greece and in middle age Europe, nowadays the CoP mostly exists inside an organization but previously every member acted and worked on their own (Snyder & Wenger 2000).

Figure 5 Comparison of different groups and networks (Snyder & Wenger 2000, p. 142).

3.8.1. Improvement of organizational performance

It has been proven that the use of CoP can improve organizational performance in broad variety of industries; despite that, they are not as common as some might think (Snyder & Wenger 2000). Snyder & Wenger (2000) raises three reasons to why the CoPs’ are not more common today than they are:

- **Even though CoP is an old occurrence the term of Communities of Practice is still quite new**
- **Just a handful companies with a forward thinking drive have had the courage to us CoP**
- **As organizations are often very structured and formal it is hard to incorporate the CoPs’ in the organization as they of a nature are unstructured and informal.**

A CoP can add value to an organization in several different ways. Some examples of ways they add value are: help drive strategy, start new lines of business, solve problems quickly, transfer best practices, develop professional skills and help companies in keeping and recruiting new talents. Snyder & Wenger (2000) has some case examples on how the above-mentioned ways have helped different organizations. Below are three of them:

**Solve problems quickly**

The same Buckman Labs that has been mentioned earlier has employees all around the world. Members of their CoP respond in less than 24 hours to specific questions. They had an employee based in North America get responses to his question from Europe, South Africa and Australia. As they all were a part of a CoP, they knew who to ask regarding a certain issue and how to describe their problem in a manner and way so they would receive a quick response (Snyder & Wenger 2000).
Transfer best practices
A CoP is a very good place to share best practices as well as spread them in an organization. During a reorganization of the car company Chrysler, the top management feared that they would lose some expertise and lose their position in the market. Therefore, they formed some CoPs’, which they named “Tech Clubs”. They were formed several years ago but today they still exist and are an important part of Chrysler. In the CoP, which they formed, they discuss 11 points on different aspects concerning their product development and they have created a database called “Engineering Book of Knowledge”. In that database, they have stored best practices, manuals, standards and supplier specifications (Snyder & Wenger 2000).

Develop professional skills
Less experienced people learn a lot from more experienced but almost as much from people who possess just slightly more experience. It is more about the willingness to learn. At IBM, they have formed some CoPs’, these CoPs’ hosts their own conferences and those conferences are places for people to talk and exchange experiences and skills (Snyder & Wenger 2000).

Recruiting and keeping talent
CoP’s at American Management Systems has proven to be a factor to keep talented members of the organization. By letting a talented individual take part in a CoP with other from the organization they could find projects that was more suited for that individual (Snyder & Wenger 2000).

3.8.2. Implementing Communities of Practice
To have successful CoPs’ there is a need to put some attention to them from the top management even though they are very self-driven. First step for implementation of a CoP is that the managers need to be aware of what they are and how they work. Secondly, they need to realize that CoPs’ are potential treasures of knowledge waiting to be revealed and used to thrive the organization forward. Third and finally, they need to accept that CoP’s are informal but there is still a need of managing them. Snyder & Wenger (2000) identifies three matters that the managers need to be aware of and take care of when implementing CoPs’ in their organization.

Identifying potential communities
CoPs’ are for certain people within an organization that has the drive and passion to participate but it is up to the top management to identify and bring them together so that they can form a CoP. It is important that the people involved in the CoP are fully committed and they get committed if they feel a strong personal connection with the expertise of the group. Snyder & Wenger (2000) mentions an example from Shell regarding this matter. If an employee at Shell wants to create a CoP, they makes a number of interviews with potential members to see what they can contribute to the community, after the interviews are done they select the persons they feel are most suitable for that specific CoP (Snyder & Wenger 2000).

Providing the infrastructure
It is important to invest money and time into the CoP to get them successful. Obstacles such as unsuitable IT-tools or systems that does not reward a collaborative way of working, need to be avoided, and it is up to the leaders in the organization to do it (Snyder & Wenger 2000). According to Snyder & Wenger (2000) providing the CoP with sponsors is one way of providing the necessary infrastructure, the sponsor works with leader of the CoP with distributing resources needed to the community.
Using nontraditional methods to measure value

The value that CoP’s creates can be hard to identify, as the results from the work in CoP will not appear in the CoP but in the ordinary business and teams. It also hard to measure if a certain idea could have been emerged without CoP’s (Snyder & Wenger 2000). Snyder & Wenger (2000) states that to measure the value created from CoP’s, they need to have conversations with the member of the community and in that way track ideas and results. Nevertheless, it is important to keep in mind not only to track the stories that is best suited for the situation, it is also important to keep an eye on all stories told as they might be related to each other. Snyder and Wenger continues with mentioning that Shell collects stories from their CoP’s and distribute them in a newsletter to other employees.

3.9. Web 2.0

Basically, all companies have some kind if ITC-tool to help their communication. In recent years some new tools in capturing knowledge has emerged, such as Wikis, forums etc (McAfee 2006), (Bhargav & Koskela 2009). These new tools are different from the traditional tools such as emails in the way that the knowledge can be spread to more than just the recipients of the e-mail (McAfee 2006).

3.9.1. Wikis

A Wiki is a platform that starts with a blank page and where the users create the content together. The most famous wiki is probable the website Wikipedia. Wikis are used in different businesses to provide a platform for knowledge sharing (Bhargav & Koskela 2009). The model of a wiki is built to create a culture, which is nurturing collaboration and helping each other. Anyone can create a post on the wiki but if it is too out of view on that subject someone else can edit the post, which creates an incentive for high quality posts. A wiki consists of these user created posts, a post can contain several links to other posts (McAfee 2006). Bhargav & Koskela (2009) does however state that there is a need of training, dedication and resources for a wiki to be successfully implemented in an organization.

3.9.2. Internet Forums

An internet forum is a virtual platform on the web where discussions are held and where users contribute with their own content. The forum can be an entire community or a more specific one, which focuses on a certain topic. The earliest web based forums emerged around 1996. In a forum users create their own topics and the replies to the starting topic are usually presented in a chronological order. In contrary to the wikis, a forum is much easier to implement, as there is not the same need of training (Bhargav & Koskela 2009).

Bhargav & Koskela (2009) mentions a case study on a British construction company called Pochin. They have a business strategy that promotes innovation, employees can come with ideas and if that idea is accepted, they will be rewarded. Pochin is divided geographically in the UK and they identified a problem where knowledge between two locations was not shared, resulting in innovative solutions where only implemented at one location. They decided to create a forum to share ideas and knowledge. The results show that the newly started forum was used in the way it was intended to. It is worth noting that the employees sharing knowledge on this forum did not spend time in doing trust-building activities, instead an amount of trust was already built as the users had some previous relationships with each other (Bhargav & Koskela 2009).
4. Empirical data

This chapter introduces the reader to the case company, Forsen Projekt. It also presents the findings from the conducted interviews; everything that is presented is from the interviews, unless stated otherwise. All quotes are the author’s own translation from Swedish to English.

4.1. Forsen Projekt AB

Forsen Projekt AB is a Swedish consultancy company, which offers qualified project management services, design management services, construction management services and they are specialized in working with the contract form, construction management (CM). They have a broad variety of customers, ranging from being involved in infrastructure projects to hotel projects. They are currently present in the greater Stockholm region, in Uppsala and in Malmö, they have their headquarter in Stockholm and two smaller offices in Uppsala and Malmö (Forsen Projekt 2013a).

Forsen Projekt has three areas of operations: buildings, infrastructure and redevelopment. Where the first two are the bigger of them three (Forsen Projekt 2013a). Some of the more prominent projects they have and currently are involved in are (Forsen Projekt 2013b):

- `House of Sweden, Sweden's new embassy in Washington DC, USA`
- `The Vasamuseum in Stockholm`
- `The hotel, Scandic Grand Central in Stockholm`.

Forsen Projekt has approximately 130 employees; almost 30% of them are females. The average age at Forsen Projekt is 42 years (Forsen Projekt 2013a).

4.1.1. History

Forsen Projekt was created in 1997 when three men; Jan Ahlinder, Håkan Undin and Leif Hernborg decided to join forces and create a new company (Forsen Projekt 2013c). According to Håkan Undin they wanted to create a more modern project management company. All three of them had different backgrounds from the construction industry. Håkan had previous experience from both the consultancy side and from the contractor side, whereas Leif had experience as a consultant and Jan as a contractor. Håkan characterizes Forsen as a company, which is on the contractors’ side, and as a company that is positive towards working with shared contracts and construction management. He said that they had a plan when they started Forsen and that he thinks they have followed the plan pretty well so far. They should always be on the contractor’s side and make sure that they have a mix of employees i.e. both genders, different backgrounds and different ages (Interview, Undin).

They started as mentioned 1997 and when they where 10 employees they won a big contract from Sweden’s National Property Board and they managed to make into a success. This got them a good reputation and more contracts. In 2003 they had 50 employees and they have continued to grow organically by employing more people, in 2010 they where 124 employees (Forsen Projekt 2013c).
4.2. Views on knowledge, tacit knowledge and knowledge sharing

The interviewees were asked to give their view and definition on the key concepts of knowledge, tacit knowledge and knowledge sharing.

4.2.1. Knowledge

The following quotes are what the interviewees said during the interviews when they were asked to define knowledge.

“Knowledge is the sum of everything you have learned in life”

“When you can apply information without gathering more information, then it is knowledge”

“The things you learn from others and from school as well as all the impressions you get is knowledge”

“It is based on experiences and on things you have learned in life”

“Something you have done earlier in your life”

“It is divided into theory and practice. The theory is the key to deliver in practice”

“Knowledge is power”

4.2.2. Tacit knowledge

Not everyone could find a definition on tacit knowledge, as they were not aware of the concept. Nevertheless, some of the quotes from the interviews are presented below:

“Things you need to find out by yourself”

“It is something that is hard to express in words. It is like a gut feeling and it is hard to share.”

“It is hard to share and everyone has their own and it is built by experience”

“Self-confidence might be a tacit knowledge”

4.2.3. Knowledge sharing and knowledge management

These are some of the responses to the question regarding what knowledge sharing and knowledge management means for them.

“Knowledge management is for me, a system for lessons learned. [...] It is to document for future generations”

“Knowledge sharing is to teach something to someone”

“It is for me when I work together with someone”
“It is to have a mentor and to be an adept [...] it comes to asking questions and making mistakes”

4.3. Values and basic principles

4.3.1. Official statements

The official statements at Forsen’s webpage is regarding the quality policy, environmental policy and working environment policy. They state that Forsen should always deliver in time to the right costs and take responsibility; they should also strive to get more than satisfied customers. They should strive to reduce their projects environmental footprint and continually improve their environmental work. They state that they also should follow rules and legislations and work with the employees health in mind (Forsen Projekt 2013).

According to the CEO, Bengt Johansson, the founding members had an idea on how the company where supposed to be like and how to act among the employees (Interview, Johansson). One of the co-founders, Håkan Undin, said that they did not have any values or basic principles when they started the company in 1997, but they have always stood up for the idea that Forsen should be a company where an open discussion can take place and that the employees have freedom with responsibility. The first explicit statements regarding the values and basic principles were put to paper in 2008 (Interview, Undin). During 2009 when Bengt Johansson was appointed CEO, he made some changes to first explicit statements and used the maxims that Forsen already had. He formed some clusters of those maxims and ended up in the abbreviation, “EKO”, which stands for:

Engagemang (Commitment), Kvalitet (Quality) and Omtanke (Consideration).

The maxims are explained later on. They have been working on these three words and have tried to concretize them. They can also be found in Forsens future vision, “To be Sweden’s most leading project- and construction management company”. Bengt Johansson, states that being leading means for them to have E, K and O (Interview, Johansson).

4.3.2. Employees view

During the interviews, several suggestions regarding Forsen’s values and basic principles where brought up. Most of the interviewees identified them as “EKO”. However, some had different views on what the values and basic principles are. As an example:

“Simplicity, Commitment and Competence”

One interviewee described the values as not making it to complex for the customer, making sure that they have the right competence for the mission and commitment is about showing they have the right energy and sees the solutions rather than the problems. The same interviewee continues saying that, the employees are the image sent out to people outside of the company. Another interviewee, does not mention the “EKO” in the interview, but brings up that Forsen is a place where the employees get the opportunity to try new things and to be involved, their opinions matters.

Feedback from customers supports the commitment value and continues saying that if you show consideration, you most likely receive it back from customers and colleagues. Everything you do should be with a commitment and when as an example you are writing an
e-mail it should be with the right quality and it is important to show consideration to people you work with.

“You work together not individually”

**4.3.3. Maxims**

These are the maxims that can be found at Forsen Projects’ headquarter in Stockholm; they are located in areas where customers and visitors can see them, such as in the meeting rooms. They can also be seen as hidden values. They are the basic principles of Forsen (Interview, Undin)

- “The best results are built on a foundation of good relations.”
- “Welcome to Forsen – we are building the community.”
- “If everyone helps carrying, it will not be as heavy.”
- “Take as much place as you wish – as long as you do not step on someone else’s toes.”
- “Our clients are precautious with their money - so should we.”
- “Technology can never replace creativity.”
- “It is as important to build trust, as it is to build well.”
- “Whoever gets an opportunity tries to build their own experience.”
- “Here, we work with passion, commitment and some fighting spirit.”
- “Among us, you are the most important building block.”
- “The best way to get new customers is to do a good job for the old ones.”

According to Bengt Johansson, they will be used more in the future and will be seen on mugs, papers and on their webpage. He mentions that they can be seen as sub headings to the values and basic principles (Interview, Johansson). One of the interviewees mentioned two favorites of the maxims during the interview: “If everyone helps carrying, it will not be as heavy” and “Here we work with passion, commitment and some fighting spirit”. The maxims can be seen as a way to build Forsen’s brand.

**4.4. Methods and tools used at Forsen Projekt to share knowledge**

Several different methods and tools have been discovered during the interviews, they are presented below. One interviewee stated that the knowledge sharing methods that are used are highly dependent on the individual.

**4.4.1. Mentoring**

Forsen started a mentoring programme in early 2013 as a pilot project. It was started because there was a demand among the employees for such a programme (Interview, Undin). Bengt Johansson mentions that they have two reasons for starting it. They wanted to help the inexperienced employees getting better in their roles and being more comfortable in them. The other reason is that knowledge will be shared between the experienced mentor and the inexperienced adept, this will secure that the knowledge stays within the company (Interview, Johansson). People got the opportunity to apply to it, both adepts and mentors and there was a huge interest in doing so (Interview, Undin). The selected applicants where then matched
together with a mentor that had the same role and same spirit. There were no guidelines when the programme started but the mentors got education in how a mentor is supposed to act (Interview, Johansson). According to Håkan Undin, who is one of the mentors, the role as a mentor is a mix of giving advice and guidance to the adept.

Examples on what they discuss during a mentor-adept meeting are how they start a project and treat customers (Interview, Undin). One of the interviewees who is not a part of the mentor programme thinks that it is a good idea to have a mentor programme, it can be rather lonely as a project manager or construction manager, then it is good to have someone to share ideas with. The mentoring programme is a great opportunity for the future as the adepts get another contact to use. Nevertheless, it is important for the adept to dare to ask questions and to dare to take their own decisions. The responsibility is on both parts but it is mostly the adept’s responsibility to make it work.

4.4.2. E-mails

If an employee needs help of any kind, they can send a mass e-mail to everyone at the company asking for help, which is the typical way of asking for help and according to Bengt Johansson, they always get replies. It does not matter how complex or simple the questions are, someone will always reply with some kind of answer. He does not think that there is a risk of this taking too much time away from the employees. He admits that the thought is not to make a brand new template if someone asks for one, rather direct them in the right direction (Interview, Johansson). Håkan Undin agrees to this and says in the interview, that if someone needs help, it is just to send an e-mail to everyone.

All of the interviewees mention this method to get answers and new knowledge. However not all of them have used it, they mention that they heard that it works. One of the interviewees, has sent mass e-mails sometimes in the beginning of the career, and states that such an e-mail can receive up to 15 answers. This is a good tool to use in the beginning of the career, later on they know whom they can turn to regarding some specific topics. Sometimes they might not get an instant reply, but then it is just for them to be a bit more persistent. It is important to notice that the interviewees emphasized that the use of mass e-mailing needs to be restrictive.

“If you do not ask, no one will know that you have a problem”

However some drawbacks to this method has been presented, it is possible to get several contradictory answers. As one of the interviewees puts it:

“I sent an e-mail asking on a certain economic question, but received three answers telling me three different things. We solved it by meeting all three of us and discussing it and finding the true answer.”

They found the answer but it stayed between them and was not communicated to others in the company, even though it concerned an important matter. Bengt Johansson states that it is up to everyone to value the credibility of the answers themselves.

4.4.3. Working along a more experienced colleague

Håkan Undin believes that Forsen is very good in letting young people get prominent positions in the company. Contrary to that, one interviewee believed that they should be better in getting the young talents take part in the projects to get a better mix of ages in the projects.
A common remark is that everyone thinks that the best way of learning the trade is to be close and work next to a more experienced colleague. As some of the interviewees put it:

“The daily contact with colleagues is the biggest foundation for knowledge sharing”

“It is a golden opportunity for me to work close to someone and see how he acts and thinks”

They state that it is important whom they are as a person to make such a collaboration to work. The person needs to be open and ask plenty of questions to make it work. If they are open for it, they will receive a lot of knowledge in reward. One of the interviewees mentions that he/she is working in tight collaboration with a more experienced colleague, and that the colleagues gives her/him lots of own responsibilities but the more experienced does also give constant feedback on the work they have done.

4.4.4. Kick off and info meetings

Twice a year, one time in the spring and one time during the autumn, Forsen hosts kick offs for the entire company. They form different workgroups with people who normally do not work together (Interview, Johansson). If they have a project that is of a certain interest, the project manager is often invited to tell them about the project and for example, which technical difficulties they have encountered and how they solved them (Interview, Undin). In the workgroups they work with issues that Forsen has encountered and wants to spread in the company, it could be how to treat customers. During the kick offs, team building activities is a common element. It is a great way of getting to know the employees they normally do not meet.

In addition to the kick offs Forsen hosts four to six info meetings every year. In those meetings, they present the current situation of the company, new projects and new employees. The office in Malmö and Uppsala is joining them through a video link. One good thing with the info meetings is that they meet and discuss things and they can discuss around the topic in a way that would not possible over e-mails etc.

4.4.5. KNIX

“Kundnöjdhetsindex” (KNIX) is a tool Forsen use in the communication with their customers. KNIX is translated to customer satisfaction index. When doing a KNIX a survey is sent to the customer, the survey consists of questions on some areas and they rate on a scale from 1-7 how they think Forsen has performed. It is a responsibility of the project manager to perform a KNIX at least two times during a project. After the KNIX is done, Forsen and the customer have a meeting discussing the issues that might exist. The results of a KNIX are reported to the top management of Forsen and they can decide to take action if they see patterns in the results.

4.4.6. Storytelling

Storytelling is according to Bengt Johansson the best way to share knowledge in an informal way but also that the people with leading position transmit the values through their stories and in the way they act. He does not think that it is possible to put everything on a piece of paper and expect that everyone will understand it; it is easier to transmit it through stories. He wishes that the values and basic principles they have would be transmitted through every story that is told in the company. He thinks the key to managing it is to ignore the bad examples and enhance the good ones (Interview, Johansson).
The interviewees were asked if they know if Forsen has a company story they try to spread in the company, below are some of the answers:

“The remodeling of Stockholm Central station is the most prominent project today and is an evidence that Forsen has a community commitment”

“Forsen was created by three men […]. Since then it has been a success, they have grown and the customers confidence has always been strong. It is evident that they had drive and commitment when they started Forsen.”

“Forsen is all about the commitment and has always been a cocky challenger”

When they tell stories to others, it is done in different ways depending on the receiver but a common factor is that they try to tell them in an easy and simple way and with a commitment. They tell stories about projects that they are or have been involved in and tell what was good in the projects; most of them tell the stories without thinking about the values and basic principles.

4.4.7. Networks

At Forsen they have several occasions apart from the kick offs and info meeting, where employees can meet. One of them is a network for the young employees called “Frookies”. It is a network where the young employees can meet and discuss different matters and as they share a common attribute, being young, they have the same questions. Frookies was created on an initiative of three employees, independent of the top management. According to Bengt Johansson, they support these kinds of initiative from the employees. They have apart from Frookies also a sports association, which offers a platform for socialization. They do also have a network for old Forsen employees, called Forsen Alumni, where they can meet and create new relations. Forsen is also hosting after works for the employees.

4.4.8. Forums

They have a forum for the people involved in production works. They meet and discuss problems and positive examples. It is according to Bengt Johansson a good way to meet and share knowledge and experiences. It is however just the people in production who has this kind of forum. One of the interviewees stresses that this could be a good thing to have throughout the company, but does also mention that it requires that someone takes responsibility and operates it.

4.4.9. Management system

At Forsen they have a management system called “Partituret”; it is considered as a support tool to the daily operation of projects. In “Partituret”, employees can find templates, checklists, minutes, routines. It is supposed to describe “best in practice”. The top management has some requirements on how to use “Partituret” in the project process, the requirements depends on the compensation Forsen receives. One of the requirements that need to be done, independent of the compensation, is lessons learned from the project. The purpose of doing lessons learned is to enable a constant improvement by capturing positive and negative experiences (Forsen Projekt 2010).

Most of the interviewees admit that they do not use it that often. One example of when “Partituret” is useful is if someone is supposed to host a construction meeting for the first
time, then it can be useful to get a template of meeting minutes to ensure that they do not miss out on anything important. Everyone using the system can suggest improvements, a working group responsible for valuing these improvements. Good improvements might be rewarded. Some criticisms to “Partituret” are that some of the templates are too general and that people tend to not use it and store their own documents locally.

4.4.10. Suggested Improvements

One of the suggestions of improvements of the knowledge sharing is to create more routines and guidelines when helping younger and inexperienced employees. Having guidelines on phases they should pass, would help to sell an inexperienced employee to customers. The interviewees have also mentioned that the lessons learned after each project needs to be improved, today they perform a lessons learned after each project. The lessons learned are noted in minutes and stored in the database. Several of the interviewees criticize this, as they are hard to find and they believe it is easier to contact the author of the minutes and ask them face-to-face instead.

4.4.11. Future tools

Bengt Johansson states that his wish for the future is to have a system, like a Frequently Asked Questions (FAQ). In this system, employees are supposed to search if they have question. He compares it with the help system that exists in some of Microsoft’s software. He thinks that tools, which are focusing on interaction, will be more important in the future. He also states that he thinks that a codifications strategy is necessary to have if they want to be more successful (Interview, Johansson). In contrast to that, one of the interviewed person’s states, that Forsen is working with a more personalization strategy. Häkan Undin has almost the same dream, to have a huge database where people store their projects and where the user can search for a project or a specific technical solution (Interview, Undin).

4.4.12. Acquired knowledge

Most of the interviewees stresses that the most important knowledge for their professional life is how to handle people and relation based issues, or as one interviewee calls them; social interactions. That kind of knowledge is important, as they tend to end up in negotiations and discussions. Another important knowledge that one of the interviewees has acquired is to have control and not to speak without a cause. It is also important to think with a business mind and to behave in a good manner.

4.5. Corporate culture and working environment

The working environment is described by both Bengt Johansson and Håkan Undin as an environment where employees have freedom with responsibilities, open discussions and a general pleasant environment. The employee surveys show that they actually have it as it is described. Evidence that those statements are true is the fact that at least seven former employees have returned to Forsen. Everyone is helpful and takes time to help colleagues. Bengt Johansson says that it is important to have a working environment where everyone is pleased, as the industry is in desperate need of competent personnel. He says that he as a CEO always takes time if an employee wants to discuss something. They do not have strict hierarchical organization; it is more of a flat organization.
The other interviewees say that the climate is open and friendly; they are helping each other and are balancing the easy and serious sides in a good way. One of the interviewees concretizes what the open discussion is:

“The open discussion means that there is no prestige among employees, they help each other”

Another interviewee states that it is like being in a family and they may ask anyone for help, if needed. One of the interviewees where told about the working environment described in the first paragraph, during the employment interview. He/she was a bit skeptic if it really was like described but got it confirmed when starting the employment.

“You can ask the founders or the CEO for help”

Forsen is generous to the employees and they get a feeling that they really invest in the employees and try to get all of them together at different occasions. No one of the persons interviewed has described Forsen as place where the employee it highly competitive rather the opposite.

**4.5.1. Newly employed**

A newly employed, will receive a sponsor who helps with routines, systems, social parts and presenting the newly employed to the rest of the company. They will also meet the responsible persons in different fields of the company, such as Human Resources, IT and their boss. As newly employed, other employees will not tell you how you are supposed to work and act at Forsen, it comes naturally and can be said to be in the walls.

Bengt Johansson’s answer to the question what he would like a newly employed to hear is:

“I do not think that the first thing they should hear is what the values and basic principles Forsen has. I believe it is more important that they hear that Forsen is company that is stable; they have good margins and interesting projects. We dare to do mistakes, we have fun and we have good customers”

He believes that the values and basic principles are shown in that description.

**4.6. Attitudes towards knowledge sharing**

“It should be fully open throttles when it comes to sharing knowledge”

This is a quote from Håkan Undin regarding what his attitude towards knowledge sharing is.

One of the interviewees says the following about hers/his attitude to share knowledge:

“If I share knowledge, I will get some back in return and you can only gain in sharing knowledge. Hoarding of knowledge is not a good thing, as we together form the image and brand of the company”
During another interview, the interviewee said that he/she is a 100% open when it comes to sharing knowledge and that sharing is a kind of ego boost for him/her. Several of the interviewed persons state that it is a matter of giving and in return receiving.

**4.6.1. Factors for successful knowledge sharing according to the employees**

When asked what the most important factors for a successful knowledge sharing, the interviewees gave several suggestions to what are important to consider when sharing knowledge.

According to some of the interviewees, it is important that individuals get an opportunity to act by themselves and to reflect upon their own actions. As it is important to be in sharp situations no matter what their theoretic background is or how rich it is, they need to experience it by themselves to create knowledge. Another important aspect is to dare to ask question no matter how stupid they might feel.

Communication was another important aspect that was brought up during the interviews. Communication is considered to be the most important thing in successful knowledge sharing. The importance of communication is to know who to share the knowledge with and how to address it to the person in the most efficient way. The knowledge shared needs to be expressed in a simple and an easy accessible way as well as the receiver needs to be open to the knowledge shared. As a support to this, employees at Forsen receive education in Human Dynamics.
5. Analysis and discussion

In this chapter, the empirical data is connected with the presented theory. A continuous discussion is also presented along the analysis.

5.1. Tools and methods for tacit knowledge sharing

Tacit knowledge is defined as knowledge that is hard to formulate and express, examples of tacit knowledge are; values, know-how and beliefs (Ambrosini & Powell 2012), (Nonaka 2007), (Nonaka, Toyama & Nagata 2000). Nonaka, Toyama & Konno (2000) describes that the tacit knowledge sharing done in the socialization and internalization phase of the SECI process. The characteristics of the socialization phase are that the tacit knowledge is transferred by hands-on-experiences and sharing experiences face-to-face. Internalization is characterized by a conversion of explicit knowledge to tacit knowledge and it is done by reflecting upon explicit knowledge. An example of the explicit knowledge that is converted during this phase is procedures and values (Nonaka, Toyama & Konno 2000). Mentoring is according to Swap et al. (2001) a tool to transfer tacit knowledge, as it transfers values and basic principles. Storytelling is a useful tool to transfer tacit knowledge, values and basic principles (Swap et al. 2001). Codifying documents is a way of making them general and it removes the personal touch on the documents.

Some of the methods and tools presented in chapter 4 are easy to identify as a method or a tool for tacit knowledge sharing, such as mentoring and storytelling. They both share values and principles, two aspects that are considered tacit knowledge. However, it is important to have in mind that storytelling is something the top management wishes to use and sees as an important mean of sharing values and principles. It is a bit unclear to what extent it is implemented. The interviewees do not mention storytelling as a method they use at Forsen to share knowledge.

In the collected empirical data, e-mails are considered to one of the most important means of knowledge sharing and a tool for asking questions and receiving answers. It can however not be seen as a mean of sharing tacit knowledge as it does not fit in the descriptions of neither socialization nor internalization. Sending an e-mail is neither a face-to-face interaction nor a way of expressing values and later reflecting upon them. The kick offs and info meetings are a platform where a lot of social interaction take place and is therefore considered as a tool for tacit knowledge sharing. The different networks can also be considered as a way of sharing tacit knowledge, as they are all about informal social interactions and sharing experiences face-to-face with colleagues.

The KNIX is firstly done in a written way by the customer, then it is discussed face-to-face with the customer, and later reported in a written way to the top management, so it contains both tacit knowledge and explicit knowledge. However, it cannot be considered as a tool for sharing tacit knowledge within Forsen as the tacit knowledge sharing is between Forsen and the customer.

The documents in the management system are codified and general; therefore, the personal touch on them is removed (Hansen, Nohria & Tierney 1999). Therefore, a management system is considered to share explicit knowledge.
The forum that was presented in chapter 4 can be compared to a CoP. A CoP is characterized as a group of people who has a strong passion and expertise in a specific field (Snyder & Wenger 2000). At Forsen members involved in the production meet and discuss common problems, and share their experiences with each other. One could state that it is very close to description of a CoP; however, there is not enough information about details to tell for sure. To be sure that it can be seen as a CoP it is important to know if they have set agendas and if they share knowledge in an informal way. Nevertheless, it is a tool for tacit knowledge sharing, as members share their experiences face-to-face with each other.

In Table 1 the compiled result is shown. The table has been done by analyzing the text above and has defined the different methods and tools to share tacit knowledge or explicit. In general, if a tool or a method consists of mostly social interaction, it is regarded as a way of sharing tacit knowledge.

<table>
<thead>
<tr>
<th>Tools or Method</th>
<th>Characteristics</th>
<th>Tacit knowledge</th>
<th>Explicit knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mentoring</td>
<td>Social interaction,</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>E-Mails</td>
<td>Written, questions, answers</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Working along a more experienced colleague</td>
<td>Social interaction, personal experiences, feedback and reflections</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Kick offs and info meetings</td>
<td>Social interaction, face-to-face meetings</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>KNIX</td>
<td>Written text, face-to-face meetings</td>
<td>(X)</td>
<td>X</td>
</tr>
<tr>
<td>Storytelling</td>
<td>Both oral and written, values, basic principles</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Networks</td>
<td>Informal meetings, social interaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forums</td>
<td>CoP, Members with same expertise</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Management system</td>
<td>Database, written, manuals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Identified tacit knowledge sharing methods and tools used in Forsen Projekt

### 5.2. Tools and methods supporting tacit knowledge sharing

In chapter 3, four tools are identified to share tacit knowledge:

- Mentorship
- Storytelling
- Communities of practice
- Web 2.0

In chapter 4, at least two of them are mentioned as methods currently used to share knowledge. If they are using CoP’s is up for a discussion as what is identified as a possible CoP is not entirely matching the description of a CoP.
Mentorship and storytelling is discussed in 5.1 and will therefore not be analyzed or discussed here. CoP’s is ideal as a tool to share tacit knowledge, as the purpose is to improve competences and share knowledge by sharing experiences face-to-face. They do also have a strong commitment to the group as all members share the same expertise and passion. They are ideal in helping driving strategies and solving problems quickly (Snyder & Wenger 2000). Web 2.0 tools are considered the future of knowledge sharing. Two of the tools described as Web 2.0 tools are wikis and internet forums (McAfee 2006), (Bhargav & Koskela 2009). Even though they are characterized by written communication, it is obvious that they are more personal than a management system. Both a wiki and an internet forum are based on the users; this gives them both a personal character and the possibility to capture some tacit knowledge.

5.2.1. Future tools for Forsen

In chapter 4, some tools were listed as tools Forsen and the employees want to have in the future. One was the production forum they have; suggestions were made that this should be expanded to cover more areas in the company. As already been discussed, CoP’s seems like a suitable tool to use to cover that demand.

Both Bengt Johansson and Håkan Undin want to have a tool where you can search after answers and technical solutions. Creating a wiki could be the solution, it is easy accessible and is created by the users, so the personal and tacit touch still exists.

5.3. Important implementation aspects

5.3.1. Ba

An important factor in the knowledge creating process is the ba, the shared context that is needed for knowledge to be created. A ba can be both a physical space and a virtual space. The important ba’s for tacit knowledge sharing is originating ba and dialoguing ba (Nonaka, Toyama & Konno 2000).

Forsen has both of those ba’s. Mentoring and working along an experienced colleague are all about the face-to-face interactions and are examples of originating ba’s. According to Nonaka, Toyama & Konno (2000), the characteristics of an originating ba is where people meet individually and have face-to-face interactions. The dialoguing is where many people meet and have face-to-face interactions. At Forsen, the different networks and kick offs are examples of dialoguing ba’s.

5.3.2. Storytelling

It is important the stories being told are well aligned with the official statements of values and basic principles to reach the full effect of storytelling (Fong 2003). The stories told need to be true stories and not fictional stories, as fictional stories have proven to be less effective (Swap et al. 2001).

Bengt Johansson mentions that every story being told in Forsen needs to align with their values and basic principles. He mentions that he uses good examples as stories and states that storytelling is one of the best tools to informally share knowledge.

The empirical findings and theory suggests that Forsen has a good base to successfully implement storytelling as a tool. The findings are somewhat exactly coherent with the mentioned theory.
5.3.3. Communities of Practice

In the implementation of CoP’s, it is important that the managers are aware of what CoP’s are and how they work. They need to realize the value of CoP’s and to accept that the nature of them is informal. It is important for the top management to identify potential communities, to provide the necessary infrastructure and to measure it in a nontraditional way (Snyder & Wenger 2000).

Based on the suggestion to create groups similar to a CoP were raised from one of the interviewees and not from the CEO, tells that the top management is not aware of what a CoP is and cannot identify new communities. However, as they are providing and encouraging other employee initiatives, they seem to be able to provide the necessary infrastructure for a CoP. Forsen seems to have some parts of a foundation to create CoP’s but they need to be more aware of what it is.

5.3.4. Web 2.0

To successfully implement a wiki, there is a need to provide training and resources as well as having a dedication to it. An internet forum is easier to implement, as there is not the same need of training (Bhargav & Koskela 2009).

Based on the findings, stating that some of the interviewees do not use the management system or think that the management system is not good enough, a great deal of dedication and training is necessary to implement a wiki. However, as Bengt Johansson states that he wants a tool that can be translated to a wiki; there is probably no problem to find the necessary resources to implement a wiki.

5.3.5. KM strategies

Bhargav & Koskela (2009) identifies five key success factor for implementing tacit knowledge sharing:

- The system needs to be simple and user friendly
- Retrieval of information needs to be done in an effective way
- A trust among employees needs to exist
- Implementation of KM system should be highly prioritized in the organization
- Top management needs to align the KM work with their visions and strategies.

They also state a transparent organization is necessary for a successful implementation of tacit knowledge sharing.

Some more factors that are important to consider when implementing tacit knowledge sharing are:

- Atmosphere where knowledge sharing is encouraged (Nonaka, Toyama & Konno 2000).
- Love, care and commitment needs to exist (Nonaka, Toyama & Konno 2000).
- Employees need to be selfless (Nonaka, Toyama & Konno 2000).
- A collaborative climate needs to exist (Simons & Sveiby 2002).
- Positive values and attitudes towards knowledge sharing (Lindner & Wald 2011).
- Flat organization (Sveiby 2001).
In chapter 4, the attitude among the interviewees towards knowledge sharing is perhaps best described as totally open and the empirical data tells that a highly competitive climate does not exist at Forsen. They describe it as a very helpful and open climate. The working climate is also described as open for discussions and having a flat organization helps the openness. No one of the interviewees says that they feel a need to hoard their knowledge. However, some of the interviewees mean that the system they have today is not always user friendly and some complaints about the retrieval of knowledge have been raised.

Out of the eleven factors mentioned earlier, Forsen seems to fulfill at least eight of them, see Table 2. As some have reported issues with the user friendliness of the system, Forsen does not fulfill this factor. In the same way as mentioned before, some issues regarding the effectiveness of information retrieval have been raised, so the factor can be regarded as fulfilled. That the employees trust each is coherent in all interviews. There are no findings about how the top management prioritizes the implementation.

It is doubtful if the KM work really is aligned with the visions and strategies. When looking at Forsens values, basic principles, and the KM work they do today, and then they have fulfilled it. However, they state they wish to store knowledge in databases and believe it is very important for the future. It does not relate well to some of their basic principles, they suggest that the most important asset in the company is the employees rather than the stored knowledge. Therefore, it is doubtful if they have fulfilled this factor.

When comparing the rest of the factors with the empirical findings it is quite evident that they fulfill all six of them.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Fulfilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy and user friendly</td>
<td>No</td>
</tr>
<tr>
<td>Retrieval of information in an effective way</td>
<td>No</td>
</tr>
<tr>
<td>Trust among employees</td>
<td>Yes</td>
</tr>
<tr>
<td>Implementation is highly prioritized</td>
<td>Unknown</td>
</tr>
<tr>
<td>KM work is aligned with visions and strategies</td>
<td>Doubtful</td>
</tr>
<tr>
<td>Encouraging atmosphere</td>
<td>Yes</td>
</tr>
<tr>
<td>Love, care and commitment</td>
<td>Yes</td>
</tr>
<tr>
<td>Selfless employees</td>
<td>Yes</td>
</tr>
<tr>
<td>Collaborative climate</td>
<td>Yes</td>
</tr>
<tr>
<td>Positive values towards knowledge sharing</td>
<td>Yes</td>
</tr>
<tr>
<td>Flat organization</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 2 Fulfillment of the success factors

When comparing these factors to the ones stated by the interviewees in chapter 4, it is evident that some connections can be made. They are shown in Table 3.

The factors identified by the interviewees as important for successful knowledge sharing are:

- Act by yourself and reflect on your actions
- Dare to ask questions
- Know who to share the knowledge with and how to address it
- Simple and easy accessible knowledge.
Receiver needs to be open for knowledge

<table>
<thead>
<tr>
<th>Factors from the empirical data</th>
<th>Comparable factor from theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Act by yourself and reflect on your actions</td>
<td>Trust</td>
</tr>
<tr>
<td>Dare to ask questions</td>
<td>Atmosphere, Collaborative climate</td>
</tr>
<tr>
<td>Know who to share knowledge with and how to address it</td>
<td>-</td>
</tr>
<tr>
<td>Simple and easy accessible knowledge</td>
<td>Easy and user friendly,</td>
</tr>
<tr>
<td>Open to receive knowledge</td>
<td>Atmosphere, Collaborative climate</td>
</tr>
</tbody>
</table>

Table 3 Comparison of factors from empirical findings and theory

This suggests that the interviewees’ factors are in some way the same as the factors described in the theory.

5.4. Other interesting findings

One evidence on how important the tacit knowledge is, is the fact that the findings in chapter 4 suggests that the knowledge they consider to be of highest importance for their professional life is how to handle people and social interactions, as this is knowledge which could be considered to be tacit knowledge.

Bengt Johansson stresses that a codification strategy is an important thing to have to be successful. In contrast to it, the tools he suggests as important ones, are tools that are of a highly personalization character. One of the interviewees, identified personalization as the strategy Forsen is working with. Hansen, Nohria & Tierney (1999) states that a balance of 80-20 between the two strategies is to prefer. The findings might suggest that Forsen are pursuing both of the strategies or they striving towards codification but are working with a personalization strategy.

Another reflection is even though Forsen is described as very open and helpful, I have had some troubles getting in touch with some employees. This contradicts the picture of the open and helpful Forsen. It might however be that they are keener to be open to people within the organization and it might be dependent on specific persons and their position.
6. Conclusion

This chapter concludes what have been presented, analyzed and discussed in previous chapters and answers to the research questions. Some future research areas are also presented.

6.1. Question 1

- How does the transfer of tacit knowledge take place in a construction management company?

The tools and methods that Forsen uses and can be identified as supportive for tacit knowledge sharing is:

- Mentoring
- Working along an experience colleague
- Kick offs and info meetings
- Storytelling
- Networks
- Forums.

These tools and methods have one thing in common; they all rely on social interactions in some way.

6.2. Question 2

- Which tools/methods are most suitable to achieve an effective sharing of tacit knowledge in a construction project management company?

Four different tools were identified in the literature review as suitable to support tacit knowledge sharing. Two of them are already in use at Forsen: mentoring and storytelling.

It is questionable if Communities of Practices (CoP) are existing as a method at Forsen but it is identified to be a method that supports tacit knowledge sharing. The final tool, Web 2.0 is actually two tools, wikis and internet forums. Based on the suggestions derived from the interviews conducted at Forsen, a wiki seems to be a suitable tool to support tacit knowledge sharing.

6.3. Question 3

- How can these tools/methods be implemented in a successful way?

To implement tools or methods as a part of KM strategy some factors needs to be met for a successful implementation. The factors are concerning corporate culture and attitudes towards knowledge sharing, both from the top management and from the employees. Forsen seems to fulfill a lot of the important factors and seems well prepared to implement different tools and
methods. More specifically, they fulfill all the conditions to successfully implement storytelling. They have the ba's that are necessary for successful sharing of tacit knowledge.

They are not ready yet to implement Communities of Practice (CoP), they are lacking the knowledge on what it is and what it is useful for but they have the necessary infrastructure to implement it.

They seem to have a lot of work to do if they want to implement wikis as a tool of tacit knowledge sharing. They are lacking the employees dedication and knowledge to be able to implement it. They do however have the resources to do it.

6.4. Future research areas

During this thesis, plenty of questions have been raised that did not fit in the thesis, some of the future research areas identified are:

- Do a study of the knowledge sharing between a company of Forsens character and their customers, as this thesis is just considering Forsen without considerations to their customers
- Do deeper studies of the mentoring programme and evaluate it, as it is newly started and is a pilot project, such study evaluate the benefit of it.
- Concentrate on the stories that are being told and how they move within the company, as storytelling is growing as a mean of sharing knowledge. During the interviews, they were asked about stories but it was not sufficient enough to draw any conclusions on them.
- Study the same research questions but use another research design.
- Dig deeper into which specific knowledge's and experiences that are shared in the different tools and methods.
7. References


Sole, D & Gray Wilson, D 2002, 'Storytelling in Organizations: The Power and traps of using stories to share knowledge in organizations', LILA Harvard University.


### 7.1. Oral references

Johansson, Bengt, CEO of Forsen Projekt, Interviewed: 2013-04-12

Undin, Håkan, Co-Founder of Forsen Projekt, Interviewed: 2013-03-26

Interviewee 1, Forsen Projekt, Interviewed: 2013-03-27

Interviewee 2, Forsen Projekt, Interviewed: 2013-04-02
Interviewee 3, Forsen Projekt, Interviewed: 2013-04-09
Interviewee 4, Forsen Projekt, Interviewed: 2013-04-10
Interviewee 5, Forsen Projekt, Interviewed: 2013-05-03
Appendix A Interview Guides

Intervjuguide Projektledare– Interview guide Project Manager

Definitioner/Definitions
1. Hur definierar du kunskap?/How do you define knowledge?
2. Hur definierar du kunskapsöverföring/erfarenhetsåterföring, vad är det för dig?/How do you define knowledge management, what does it mean for you?
3. Hur skulle du definiera begreppet tyst/ osynlig kunskap?/ How would you define tacit knowledge?

Bakgrund/Background
4. Vad har du för bakgrund med utbildning och yrkesliv mm? / What is your academic and professional background?
5. Beskriv hur en vanlig arbetsdag ser ut för dig. / Describe a normal working day.
6. Vilka värderingar och värdegrunder har Forsen Projekt? / Which values and basic principles exist in Forsen Projekt?

Forsen Projekt
7. Beskriv arbetsklimatet på Forsen Projekt? / Please, describe the working climate at Forsen Projekt.
8. Hur sker kunskapsöverföringen på Forsen Projekt / How does the knowledge sharing/transfer take place at Forsen Projekt?
   a. Vilka metoder och verktyg används? / Which methods and tools are used?
   b. Mellan vilka medarbetare? / Between whom?
9. Hur tycker du att kunskapsöverföringen fungerar på Forsen Projekt? / How do you think that the knowledge sharing is working at Forsen Projekt?
   a. Vad är bra? / What is good?
   b. Vad kan förbättras? / What can be improved?
10. Finns det någon strategi för att dela med sig av den sk. tysta kunskapen? / Does it exist a strategy for sharing the tacit knowledge?
11. Finns det en företagsberättelse som ni försöker sprida i företaget? Sprida värderingar mm. / Is there a company story that you are trying to spread in the company?
12. Hur tar ni hand om era nyanställda? Fadder / How do you take care of newly employed?

Kunskapsöverföring/Knowledge Sharing
13. Vilka kunskaper/erfarenheter anser du vara betydelsefulla för ditt yrkesutövande? / Which knowledge/experiences, do you consider to be most valuable for your professional life?
14. Delar du med dig av de kunskaperna/erfarenheterna till andra medarbetare? / Do you share these knowledge/experiences to colleagues?
   a. Om ja, på vilket sätt? / If, yes, in which way?
   b. I vilken kontext? / In which context?
15. Vilka verktyg/metoder känner du till för att överföra tyst kunskap? / Which tools/methods for tacit knowledge sharing do you know?
16. Vad är din inställning till att dela med dig av dina kunskaper? / What is your attitude towards sharing your knowledge?
   a. Vad krävs för att du ska dela med dig? / What is required for you to share?
17. Vad anser du är viktigt för att kunskapsöverföring skall vara framgångsrik? / What do you consider important for a successful knowledge sharing?
18. Vilka berättelser brukar du berätta? / What kinds of stories do you tell?
   a. Till vem/vilka? / To whom?
   b. I vilka sammanhang? / In which context?
19. Vilka berättelser får du höra av andra medarbetare? / What stories do you hear from other employees?
Intervjuguide Junior Projektledare – Interview guide Junior Project Manager

Definitioner/Definitions
1. Hur definierar du kunskap? / How do you define knowledge?
2. Hur definierar du kunskapsöverföring/erfarenhetsåterföring, vad är det för dig? / How do you define knowledge management, what does it mean for you?
3. Hur skulle du definiera begreppet tyst/osynlig kunskap? / How would you define tacit knowledge?

Bakgrund/Background
4. Vad har du för bakgrund med utbildning och yrkesliv mm? / What is your academic and professional background?
5. Beskriv hur en vanlig arbetsdag ser ut för dig. / Describe a normal working day.
6. Vilka värderingar och värdegrunder har Forsen Projekt? / Which values and basic principles exist in Forsen Projekt?

Forsen Projekt
7. Beskriv arbetsklimatet på Forsen Projekt? / Please, describe the working climate at Forsen Projekt.
8. Hur sker kunskapsöverföringen på Forsen Projekt? / How does the knowledge sharing/transfer take place at Forsen Projekt?
   c. Vilka metoder och verktyg används? / Which methods and tools are used?
   d. Mellan vilka medarbetare? / Between whom?
9. Hur tycker du att kunskapsöverföringen fungerar på Forsen Projekt? / How do you think that the knowledge sharing is working at Forsen Projekt?
   c. Vad är bra? / What is good?
   d. Vad kan förbättras? / What can be improved?
10. Finns det någon strategi för att dela med sig av den sk. tysta kunskapen? / Does it exist a strategy for sharing the tacit knowledge?
11. Finns det en företagsberättelse som ni försöker sprida i företaget? / Sprida värderingar mm. / Is there a company story that you are trying to spread in the company?
12. Hur känner du att du blivit omhändertagen som nyanställd? / Fadder, rutiner, Har nån sagt till dig hur man jobbar på Forsen? / How do you feel that you have been taking care of, as a newly employed? Sponsor, routines.. Has anyone told you how you are supposed to be, when working at Forsen?

Kunskapsöverföring/Knowledge sharing
13. Vilka kunskaper/erfarenheter anser du vara betydelsefulla för ditt yrkesutövande? / Which knowledge/experiences, do you consider to be most valuable for your professional life?
14. Delar du med dig av de kunskaperna/erfarenheterna till andra medarbetare? / Do you share these knowledges/experiences to colleagues?
   c. Om ja, på vilket sätt? / If, yes, in which way?
   d. I vilken kontext? / In which context?
15. Vilka verktyg/metoder känner du till för att överföra tyst kunskap? / Which tools/methods for tacit knowledge sharing do you know?
16. Vad är din inställning till att dela med dig av dina kunskaper? / What is your attitude towards sharing your knowledge?
   b. Vad krävs för att du ska dela med dig? / What is required for you to share?
17. Vad anser du är viktigt för att kunskapsöverföring skall vara framgångsrik? / What do you consider important for a successful knowledge sharing?
18. Vilka berättelser brukar du berätta? / What kinds of stories do you tell?
   c. Till vem/vilka? / To who?
   d. I vilka sammanhang? / In which context?
19. Vilka berättelser får du höra från mer seniora medarbetare? / What stories are you being told from more senior colleagues
Intervjuguide VD – Interview guide CEO

Definitioner/Definitions
1. Hur definierar du kunskap? / How do you define knowledge?
2. Hur definierar du kunskapsöverföring/erfarenhetsåterföring, vad är det för dig? / How do you define knowledge management, what does it mean for you?
3. Hur skulle du definiera begreppet tyst/osynlig kunskap? / How would you define tacit knowledge?

Forsen Projekt
4. Vilka värderingar och värdegrunder har Forsen Projekt? / Which values and basic principles does Forsen Projekt have?
5. Beskriv arbetsklimatet på Forsen Projekt? / Please, describe the working environment at Forsen Projekt.
6. Hur sker kunskapsöverföringen på Forsen Projekt / How does the knowledge sharing/transfer take place at Forsen Projekt?
   e. Vilka metoder och verktyg används? / Which methods and tools are used?
   f. Mellan vilka medarbetare? / Between whom?
7. Hur tycker du att kunskapsöverföringen fungerar på Forsen Projekt? / How do you think that the knowledge sharing is working at Forsen Projekt?
   e. Vad är bra? / What is good?
   f. Vad kan förbättras? / What can be improved?
8. Hur hanterar man att många av medarbetarna är geografiskt utspridda? / How do you cope with the fact the many of the employees are geographically scattered?
   a. Hur ser man till att den kunskapen sprids inom hela företaget och inte bara inom projekten? / How do you make sure that the knowledge is shared throughout the company and not just in the projects?
9. Hur ser man till att öppenheten hos medarbetarna inom Forsen inte gör företag mindre produktivt? / How do make sure that openness among the employees does not harm the productivity?
10. Finns det någon strategi för att dela med sig av den sk. tysta kunskapen? / Does it exist a strategy for sharing the tacit knowledge?
11. Har Forsen har en företagsberättelse som man försöker sprida inom företaget? / Is there a company story that you are trying to spread in the company?
12. Hur blir nyanställda omhändertagna? Fadder, rutiner, Säger nån till hur man jobbar på Forsen? / How do you take care of newly employed? Does anyone tell them how you are supposed to work at Forsen?
13. Berätta om Mentorsprogrammet / Tell me more about the mentoring programme.
   b. Syftet med att starta ett sådant program? / What is the purpose with starting such a programme?
   c. Målet med det? / What is the aim with it?
   d. Hur har det fungerat hittills? / How has it worked out so far?
   e. Hur väljs mentor och adept? / How do the mentor and adept get choosen?
   f. Hur matchar man ihop mentor med adept? / How do you match mentor with adept?
g. Vilka riktlinjer finns det? / Which guidelines are there?

Kunskapsöverföring
14. Vad anser du är viktigt för att kunskapsöverföring skall vara framgångsrik? / What do you consider important for a successful knowledge sharing?
15. Vilka berättelser brukar du berätta? / What kind of stories do you tell?
16. Vilken typ av berättelser vill du att en nyanställd ska få höra när den börjar jobba på Forsen? / What kind of stories do you want a new employee being told when start working at Forsen?
Intervjuguide Senior Projektledare / Grundare – Interview guide Senior Project Manager / Founder

Definitioner
1. Hur definierar du kunskap?/How do you define knowledge?
2. Hur definierar du kunskapsöverföring/erfarenhetsåterföring, vad är det för dig?/How do you define knowledge management, what does it mean for you?
3. Hur skulle du definiera begreppet tyst/osynlig kunskap?/ How would you define tacit knowledge?

Bakgrund
4. Vad har du för bakgrund med utbildning och yrkesliv mm? / What is your academic and professional background?
5. Beskriv hur en vanlig arbetsdag ser ut för dig. / Describe a normal working day.
   a. Vilka värderingar och värdegrunder fanns då? / Which values and basic principles did you havet then?
   b. Finns de kvar idag? Om nej vilka är de idag? / Do they still exist? If, no, what are they today?
   c. Vad vill ni förmedla utåt? / What do you want to convey to companies and people outside Forsen Projekt?

Forsen Projekt
7. Beskriv arbetsklimatet på Forsen Projekt? / Please, describe the working climate at Forsen Projekt.
8. Hur sker kunskapsöverföringen på Forsen Projekt / How does the knowledge sharing/transfer take place at Forsen Projekt?
   g. Vilka metoder och verktyg används? / Which methods and tools are used?
   h. Mellan vilka medarbetare? / Between whom?
9. Hur tycker du att kunskapsöverföringen fungerar på Forsen Projekt? / How do you think that the knowledge sharing is working at Forsen Projekt?
   g. Vad är bra? / What is good?
   h. Vad kan förbättras? / What can be improved?
10. Finns det någon strategi för att dela med sig av den sk. tysta kunskapen? / Does it exist a strategy for sharing the tacit knowledge?
11. Finns det en företagsberättelse som ni försöker sprida i företaget? Sprida värderingar mm. / Is there a company story that you are trying to spread in the company?
12. Hur tar ni hand om era nyanställda? Fadder / How do you take care of newly employed?

Kunskapsöverföring
13. Vilka kunskaper/erfarenheter anser du vara betydelsefulla för ditt yrkesutövande? / Which knowledge/experiences, do you consider to be most valuable for your professional life?
14. Delar du med dig av de kunskaperna/erfarenheterna till andra medarbetare? / Do you share these knowledges/experiences to colleagues?
   e. Om ja, på vilket sätt? / If, yes, in which way?
   f. I vilken kontext? / In which context?
15. Vilka verktyg/metoder känner du till för att överföra tyst kunskap? / Which tools/methods for tacit knowledge sharing do you know?
16. Vad är din inställning till att dela med dig av dina kunskaper? / What is your attitude towards sharing your knowledge?
   e. Vad krävs för att du ska dela med dig? / What is required for you to share?
17. Vad anser du är viktigt för att kunskapsöverföring skall vara framgångsrik? / What do you consider important for a successful knowledge sharing?
18. Vilka berättelser brukar du berätta? / What kinds of stories do you tell?
   e. Till vem/vilka? / To whom?
   f. I vilka sammanhang? / In which context?
19. Vilka berättelser får du höra av andra medarbetare? / What stories do you hear from other employees?