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**TACIT KNOWLEDGE
TRANSFER
In Small Segment of Small Enterprises**

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**Pranisha Bajracharya & Natalia Roma Masdeu
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ABSTRACT

Background: Though small enterprises are regarded as engine for the modern economy, they are not pioneers when it comes to implementing new advances like tacit knowledge transfer procedures. Tacit knowledge is often referred as skill, know-how and expertise which are embedded in each individual in an organization. The critical skills and competences of employees are intangible assets and firms' intellectual resources. In this context, the tacit dimension of knowledge is potentially important to be transferred among individuals, either in tacit or explicit form, to build the core capabilities of small enterprises.

Problem Discussion: The existent Knowledge Management (KM) research has been mainly focused on big companies, providing little information for small enterprises. Authors believe the lack of attention that those small enterprises are putting on the strategic management of their knowledge is worrying. Tacit knowledge is one of the less explored areas within KM due to the difficulty to codify, formulate or express it. Despite this fact, it is perceived as *"some kind of Holy Grail that will enable magnificent things to happen as soon as the codes of tacit knowledge have been deciphered"*.

Purpose: The purpose of this study is to increase the understanding of the transference of tacit knowledge among individuals within small segment of small enterprises.

Method: To gather the information pertaining to tacit knowledge transfer in the small segment of small enterprises, authors have performed a qualitative and explanatory research by conducting several interviews with two small companies.

Result: Tacit to tacit knowledge transfer has been identified as more relevant than tacit to explicit conversion in the small segment of small enterprises. Therefore the main drivers of the transference of tacit knowledge are learning at personal level and common culture. Time, cost and distance have been recognized as major problems for small enterprises when transferring tacit knowledge.

Key Words: tacit knowledge, transfer, knowledge, share, tacit knowledge transfer, small enterprises, small small enterprises.

Preface

Many have given insightful contribution to this thesis, without their assistance it would not have been possible to accomplish this research work successfully. As authors of this thesis, we would like to express special gratitude towards them. First of all, we would like to acknowledge our supervisor, Peter Gustavsson, PhD of Linköping University, for providing valuable guidance and academic advices in carrying out this thesis. Secondly, we would like to acknowledge the representatives of Zenterio, Kent Lundberg, Jens Gabrielsson, and Hans Forsstrom and also the representatives of SysPartner, Mikael Eriksson and Thomas Karlsson for offering us their valued time and sharing valuable information for conducting this study. In addition, we would like to thank our course mates for their encouragement and support during seminars.

Pranisha Bajracharya & Natalia Roma Masdeu

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1. Introduction

This chapter acquaints the readers the background of the research topic. It also outlines the problem discussion, purpose, scope, delimitation and disposition of the thesis.

1.1 Background

“We know more than we can tell. This fact seems obvious enough; but it is not easy to say exactly what it means. Take an example. We know a person’s face, and can recognize it among a thousand, indeed among a million. Yet we usually can not tell how we recognize a face we know. So most of this knowledge cannot be put into words.” - Polanyi¹

Traditionally the organization has been observed as an information processing machine that takes data and process information to adapt to the environment based on organizational goals². However, due to the rapidly changing environment and increasing challenges and competition, information processing proved to be rather more static. In this respect, Knowledge Management (KM) manifested to be a dynamic competitive advantage which enables the firm to act proactively and reactively to the opportunities and the challenges. Not until 1990’s, the knowledge based view was introduced where management commence to study about the importance of KM³. Firms emerged to be knowledge intensive and basically acquire two types of knowledge: explicit and tacit⁴. Both are equally significant to transfer within an organization for sustainability and growth of the firm. Nevertheless, this thesis emphasizes the importance of tacit knowledge and the way it is transferred⁵ inside the organization. This research is

¹ Polanyi (1983) p. 4

² Nonaka & Teece (2001) p. 13

³ Hansen, Nohria & Tierney (1999) p. 106

⁴ Ibid, p. 107

⁵ Authors are aware with the fact that ‘share’ and ‘transfer’ are different terminology, however since they are complementary to each other, these words are used interchangeably in this thesis. In this thesis, readers have to take into account that the term share symbolizes transfer of tacit knowledge with uncertain absorption and the term transfer is defined as transmission and absorption.

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grounded on small segment of small enterprises to determine the tacit knowledge transfer procedure. Small companies are the driving force of Swedish economy as well as other countries' economy. Moreover, small companies are considered as organizationally effective. Although there is no universally accepted definition of small enterprises and differs in different countries, they are mainly categorized according to number of employees and/or turnover. According to European Union (EU), small enterprises are defined as enterprises with less than 50 employees and have a turnover of 5 million Euro.⁶ This thesis considers the small segment of small companies, included in the above definition, which comprises firms from 0 to 19 employees.

Though small enterprises are regarded as the engine for the modern economy, they are not pioneers when it comes to the implementation of new advances like tacit knowledge transfer procedures. In this regards, it becomes crucial for them to recognize the importance of tacit knowledge transfer and to capitalize the knowledge of each individual within an organization that helps to foster the company. Tacit knowledge is often referred as skill, know-how and expertise which are embedded in each individual in an organization⁷. The critical skills and competences of employees are intangible assets, as well as firm's intellectual resources. In this context, the tacit dimension of knowledge is potentially important to be transferred among individuals, either formally or informally, to build the core capabilities of the company. Tacit knowledge can be transferred either to tacit or to explicit. Explicit knowledge is the type of knowledge that can be expressed in formal or systematic way in the form of data, report, manual, document, specific formula, and such⁸.

1.2 Problem Discussion

KM is a relevant concept in the current management literature. The theoretical development of this concept was done during the nineties, but several gaps in KM theory still need to be filled⁹. The existent KM research has been mainly focused on big

⁶ NUTEK (1994) pp. 15-16

⁷ Dixon (2000) p. 27

⁸ Nonaka & Teece (2001) p. 15

⁹ McAdam & Reid (2001) p. 231

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companies, providing little information for small enterprises despite they are a majority in Sweden as well as in many other countries. This fact is reasonable if it is considered that big companies have more resources and complexity that capture the attention of KM researchers.

On the other hand, most of the small enterprises approached for the empirical study of this thesis seem to have a lack of interest, knowledge or conscience about KM issues. Authors believe the lack of attention that those small enterprises are putting on the strategic management of their knowledge is worrying. It is this fact, and not the existent theoretical gap, that generates the problem discussion. Several researchers have stated that KM has “*much to offer in SME¹⁰ sector where scarce resources, market agility, closeness to the customer, fewer layers, etc*”¹¹ condition the performance of the firm. Authors share this perspective and believe that KM is a relevant issue for small companies. Since small firms’ resources are scarce, they need to maximise their efficiency by all possible means in order to maintain their competitive advantage and survive in the market; KM can offer them solutions to improve the management of their knowledge. For instance, authors believe that knowledge related concerns, like maximisation of the knowledge contribution of each employee to the company or the integration of the new employee’s knowledge, are also relevant KM issues for small companies.

This thesis deals with a narrow part of KM in small enterprises. It explores the transfer of tacit knowledge in small companies emphasizing the internal communication of knowledge among the different persons in the company. Tacit knowledge is one of the less explored areas within KM due to the difficulty to codify, formulate or express it. Despite this fact, it is perceived as “*some kind of Holy Grail that will enable magnificent things to happen as soon as the codes of tacit knowledge have been deciphered*”¹².

¹⁰ Abbreviation of small and medium sized enterprises

¹¹ Wiele & Brown, in McAdam & Reid (2001) p. 232

¹² Styhre (2003) p. 62

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1.3 Purpose

The purpose of this study is to increase the understanding of the transference of tacit knowledge among individuals within small segment of small enterprises.

1.3.1 Research Questions

- How is tacit knowledge communicated among the individuals within a company?
- Which are the critical points that make tacit knowledge transfer efficient?
- What are the possible similarities and/or differences between the existing literature about tacit knowledge transfer and the empirical findings of this thesis?

1.4 Scope

The objective of this study is to widen the currently existing understanding of tacit knowledge transfer. The contribution is based on the study of the tacit knowledge transfer process in small enterprises; issue that has been left behind until the present. Thus, this study aims to provide a basis for the further investigation of tacit knowledge transfer in the small firms' context; as well as supply those small enterprises with a tool to improve their internal tacit knowledge transfer by pointing at the processes and critical points in it.

1.5 Delimitation

The empirical findings of this thesis are delimited by the restricted number of companies that take part in the study, making the discoveries of this paper difficult to generalize. At the same time, the fact that the study takes place exclusively in Swedish firms may create certain influence of the Swedish culture and corporate culture in the process of transferring the tacit knowledge.

The companies targeted for this study are small enterprises, but the ones selected for empirical studies are IT consultancies. The selection of IT consultancies was unintentional and it can create possible difficulty in generalization. Authors believe that since the focus of the research is the process and not the content of transfer of tacit knowledge, certain features can be generalized for the group of small segment of small

companies. Readers should take into account that the study is based on small enterprises and the result can be applicable to those enterprises which have similar characteristics.

1.6 Disposition

This thesis comprises six chapters; the disposition provides the content of those chapters as a guideline for the readers.

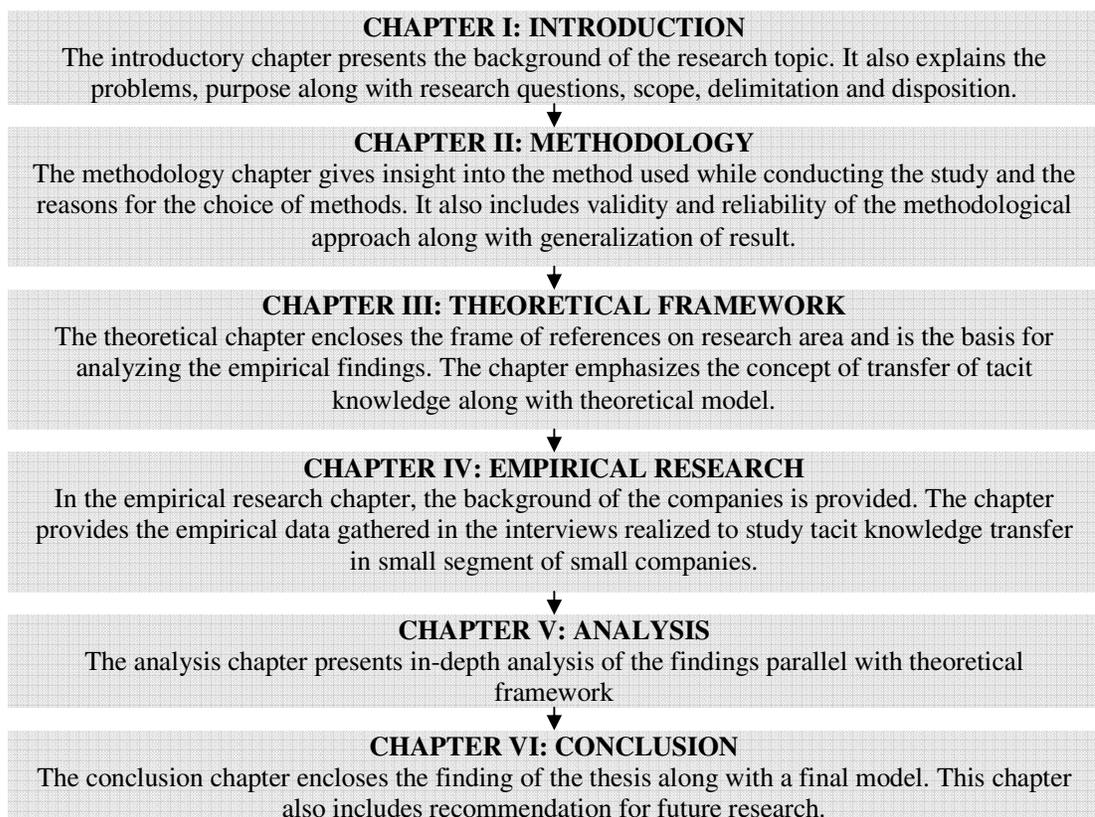


Figure 1 Project Process¹³

¹³ Source: own construction

2. Methodology

This section gives an insight to the methods used when conducting the thesis, as well as argues about the use of those concrete methods in the study.

Methodology is the science of research decisions. It provides rules and norms for the researchers to evaluate the decisions for chosen approach and implement them in the research¹⁴. The figure below describes the work process of this thesis where the scientific approach is a driving force of the method since it affects all the other choices. The first step defines the interpretative approach as the scientific approach chosen in this thesis since authors own pre-understandings influence their perspective on the researched issue. The classification of the study determines its basic methodological characteristics and the collection of data goes in depth in the types of data used. The final objective of this methodological discussion is to contribute to the credibility of this thesis through the discussion of its validity, reliability and generalizability of the result.

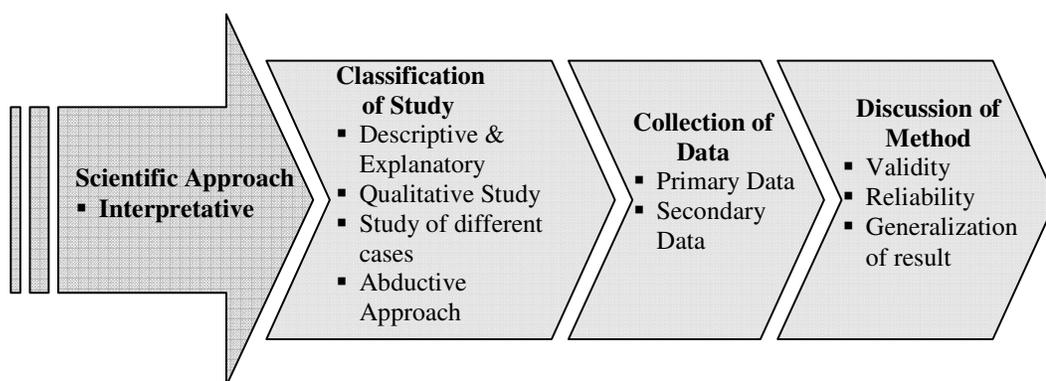


Figure 2 The Work Process of Method¹⁵

2.1 Scientific Approach

Social research, to be considered as such, has to follow a scientific approach. This entails that the conclusions of a determinate social research are achieved through a consistent method. Despite its consideration as science, social research is subcategorized as soft science, *“its subject matter, human social life, is fluid, formidable to observe, and hard to*

¹⁴ Hessler (1992) p. 65

¹⁵ Source: own construction

measure precisely with laboratory instruments".¹⁶ Two main scientific approaches exist in social research: positivist and interpretative.

Positivism claims that there is no scientific idea that can not be measured or observed. If a concept can not be measured, it is consequently not scientific and does not belong to the objective reality. Popper criticizes the positivist approach arguing that science is partly subjective due to the subjectivity of the researcher and that it is not possible to construct a theory relying solely on observations. On the other hand, the interpretative approach is denying the existence of one objective reality. Supporting the interpretative approach, Kuhn argues "*there is no way to observe reality independent from the values, beliefs and basic epistemological assumptions of the scientists*".¹⁷

The different studies dealing with tacit knowledge transfer have not reached a consensus since different perspectives on the research topic exist. Therefore unlike theories have been developed to explain the same phenomena and none of them have been proved as the only truth. Authors can not claim that one objective reality exists in this area of study, for that reason the positivist approach is not suitable for this research. For the same reason, interpretative approach is appropriate in this case. Authors have constructed their perspective of the study area based on their pre-understanding of the reality. In frame of references, their standpoint is defined and developed theoretically. As such, it is hard to believe that it is possible to reach objectivity in the sense strived for in the positivist movement. The consequence derived from selection of the interpretative approach is that the outcome of the thesis is determined by the perspective chosen.

2.2 Classification of Study

The study classified in this research is both descriptive and explanatory. The study is conducted by using different cases, qualitative study is chosen for social research and abductive approach is used for research investigation. The reasons for choosing above mentioned classification are explained in the following sections.

¹⁶ Neuman (2000) pp. 5-6

¹⁷ Hessler (1992) pp. 13-16

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2.2.1 Types of Study

A study can have diverse purposes; both description and explanation are basic. Following Malinowski's argumentation, in the description process "*the researcher needs to focus on the description of the qualitative observations, highlighting certain actions, summarizing what the researcher believes to be key events and actions, cautioning against possible misunderstandings, and ignoring others*". The explanation process starts from the outcome of the description process and tries to use theory to explain those facts. Two processes can take place at that moment: a deduction process by finding the most suitable explanation in the existent theory or the construction of a theory emerging from the regularities found in the description.¹⁸

This thesis is both descriptive and explanatory. The descriptive part is carried out when realizing the empirical research in the companies when authors have captured the key events concerning the tacit knowledge transfer process. While the explanatory part is located in the analysis. It is relevant to mention that despite existent theories are used to try to explain the phenomena observed, a new model is created when recognizing tacit knowledge transfer within small enterprises; issue which is not theoretically well developed.

2.2.2 Qualitative versus Quantitative

Measurement has an important role in social research since allows comparisons between different objects, processes or events, makes simpler to analyze things by splitting them in parts and permits to interrelate different variables after measuring their properties. Two different types of measurement exist: quantitative and qualitative.¹⁹

The quantitative method deals with numeric data and its analysis. It implies the equal application of standard measurements to the cases studied searching the objectivity of the result through the analysis of large number of observations. Qualitative methods rely on the assumption that data is not only numbers, if not "*data gives the researcher depth of*

¹⁸ Hessler (1992) pp. 254-256

¹⁹ Ibid p. 53

*understanding in terms of the inner workings of human organizations, the behind-the-scenes action that one can learn about only with time-consuming careful observation and interviewing away from the laboratory and fixed choice interview schedules”.*²⁰

The use of the qualitative method is dominant in this thesis. The election of two case studies is deliberate to permit a deep study of each of the firms based on the perception and interpretation of information extracted directly from them. Since tacit knowledge is difficult to put into words and to pass on to others, authors consider more appropriate the use of qualitative method to capture better the nuance studied.

2.2.3 Study of different cases

This thesis is considered to have qualitative approach since authors intend to obtain deep understanding of the research topic by studying two cases. It is said that the study of a case is often associated with qualitative methods²¹. Authors believe that to understand the process of tacit knowledge within an organization and its relevant problems, it is crucial to observe and understand if the individuals inside a company find the importance of tacit knowledge and to know how it is transferred within an organization. To achieve this, authors find the need of conducting study cases which permit to get a deep analysis of a specific problem. The performance of two study cases has been determined by the time limit of the thesis, as well as for the depth authors wanted to achieve in each of the cases.

According to EU, small enterprises are defined as a company with 0-50 employees. However in this thesis, both companies involved in this research have 0-19 employees²², as such, this thesis focuses on the small segment of small enterprises. Hence authors have categorized it as “*small small enterprises*” to differentiate from EU’s definition of small enterprises. Authors approached different companies falling under the categories of small sized enterprises. Authors choose to base their study on small small enterprises because responses were only received from small segment of small enterprises. The positive response to the research proposal was received from Zenterio and SysPartner which are

²⁰ Hessler (1992) pp. 252-253

²¹ Bryman (2004) p. 49

²² Refer to section 3.1.1 to see the category of small segment of small enterprises.

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corresponding to the research area that this thesis deals with. Zenterio has 18 employees and SysPartner has 5 employees and hence both are categorized as small enterprises which permit to find the situation of tacit knowledge transfer procedure in these companies.

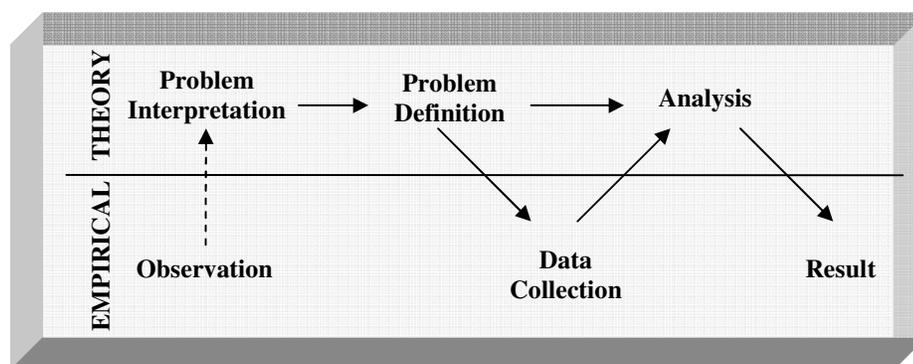
2.2.4 Research Approach

In the research process, the methods used for reasoning the investigation are usually inductive or deductive in nature. The inductive approach means going from particulars to generals, deriving knowledge from empirical experience based upon a system of handling sense data. The deductive approach means going from generals to particulars, deriving conclusion based on premises through the use of a system of logic.²³

The approach used in this study can not be considered pure inductive or deductive. In this thesis, authors intend to grasp the inner meaning of a phenomenon, tacit knowledge transfer within a company, based on pre-understanding of the problem. Authors also intend to confirm or reconfirm the initial model by analyzing the empirical data. In such case, this study appears to be combination of some form of both induction and deduction. This is because the study can not be measured without theory (form of deductive approach) or without empirical testing (form of inductive approach). The approach used in this study is rather abductive in nature because its point of departure is observations from the reality which persuade authors to get deeper understanding about tacit knowledge transfer theories. Authors realized about the existent theoretical gap for small enterprises in this study area which lead authors to perform empirical study. The conclusion of this research is resultant from analyzing empirical findings which is consistent to the theories used. Charles Sanders Pierce narrowly defines abduction as “*form of inference*” which he claims as the logical approach in the research process²⁴.

²³ Samuels (2000) p. 8

²⁴ Ibid

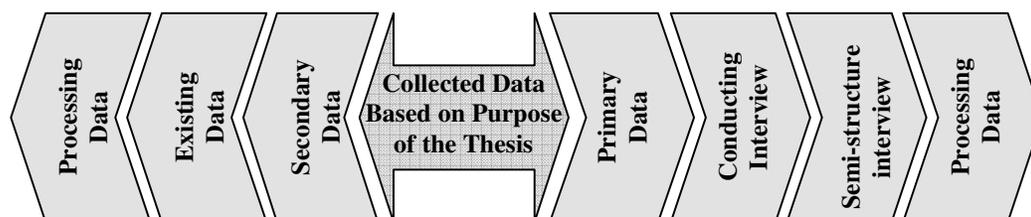
Figure 3 Abductive Approach²⁵

2.3 Collection of Data

All data sources are not created equal. Some reference material has more value than other. This does not mean that value equals a greater quantity of information. The actual value involves the quality of the information provided. Generally source of data is categorized into primary and secondary. In this section different types of collection of data is presented that enables to fulfill the purpose of the research area.

2.3.1 Types of Data

Data can be categorized into two types: primary and secondary. Primary data is the empirical material used for subsequent interpretation or studies by the researchers who have produced it. Secondary data is the information that already exists; it has been collected by others and has been used for a research interest which is distinct from that of the original work.²⁶

Figure 4 The work process of collection of data²⁷

The type of data used has subsequent influence when fulfilling the purpose of the thesis. Hence, the above work process is constructed to illustrate the collection of data according

²⁵ Source: Inspired by Peter Gustavsson

²⁶ Eriksson & Paul, in Josefina & Johanna (2002) pp. 65-66

²⁷ Source: own construction

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to the requirements of the purpose of the thesis. To accomplish the aim of the thesis, authors have relied mainly on primary but also on secondary data. Authors have made qualitative study in order to increase the understanding of transfer of tacit knowledge among the individuals inside a company that takes place in small enterprises. For this purpose, authors made personal interviews with two small companies in Sweden, namely Zenterio and SysPartner, to gather the primary data. In order to get information about the background of each company, authors have relied on secondary data by referring to internet sources. Secondary data is also used to construct the frame of references. Primary data has major contribution to this study and secondary data has played a minor role while conducting the study.

2.3.2 Practical Procedure

To make the methods of this thesis transparent for the readers, it is important to explain the practical procedure and to discuss the matters like why, how and where the data are collected. This section presents in detail the process of collecting primary and secondary data.

2.3.2.1 Types of Interview

The interviews can be characterized into standard, semi-structured and unstructured interviews used in social research. The standard interview relies upon a uniform structure of interview especially conducted with questionnaires while certain numbers of people are interviewed so that they represent the population. It includes the fixed responses option and the result is generalized. In semi-structured interview, the interviewers seek for clarification and elaboration on the answers given where the interview is balanced between free-flow and directed conversation. And as per unstructured interview, the interviewee is free to interpret questions, where the nature of interview is flexible, free-flowing and open flavour.²⁸

The approach used in this thesis can be described as semi-structured interview in which some of the interview questions were equal for all the respondents, but some adaptations

²⁸ May (1993) pp. 92-93

were made to each respondent due to the fact that they deal with different areas and also when interviewers wanted to get deeper information from certain individuals. While conducting interview, follow up questions were used to receive more detailed answers when necessary or to validate the interpretation. The order of the questions was influenced by the answers of the respondents and therefore the approach used is semi-structured. To obtain deep and extensive answers on the research topic, open-ended questions were asked. The respondents were encouraged to speak freely and spontaneously.

2.3.2.2 Conducting Interview

In total five personal interviews were conducted with two small enterprises to fulfill the purpose of the thesis. When it comes to transfer of knowledge, it is essential to consider the perspective of both sender and receiver in order to know the level of transference of knowledge among individuals within an organization. The intention of the study is to focus on transfer of tacit knowledge from both receivers' and senders' perspective and hence authors chose to interview more than one person from each company. Although each individual can be regarded as both receiver and sender of tacit knowledge, authors believe that to get deeper understanding of transference of tacit knowledge, the choice of interviewing more than one person influences the validity of the result.

Both Zenterio and SysPartner are located in Linköping, Sweden. The companies were approached via e-mail explaining briefly about the research topic. After their interest on the research topic, authors visited them personally to explain more in detail about the study. Initially appointment for interview was set with Managing Director or CEO of each company. Thereafter, other staff members of each company were selected for further interviews. The information about the research topic was sent beforehand to the interviewees giving them an opportunity to reflect on the study. However, interviewers deliberately avoided to send questionnaire in advance. This is to avoid the influence on the answers of the respondent, due to the type of study this thesis deals with. Authors wanted to prevent the risk that might cause to the answers if respondents were given longer time or the questionnaire to think over the answers. Since a semi-structured

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interview was used, it implies that simultaneous interaction between interviewee and interviewer leads the direction of the interview; it would be mislead in case the interviewee had the questions in advance when dealing with tacit knowledge transfer. Tacit knowledge transfer is an abstract phenomenon for the interviewees therefore authors preferred not to provide them the topics which would be dealt in the interview, but rather stimulate interviewees to bring those issues himself during the interview. Moreover, the interviewers did not experience any problems during interview since all were given introduction about the research topic in advance and hence their answers were meeting the requirement of the thesis.

The interviews were performed in English despite all respondents were Swedes. This may have adversely influence on interviews since individuals often express themselves best in their mother language. Being aware of this limitation, interviewers adapted to this fact by permitting the interviewees to communicate freely; it is also relevant to mention that all interviewees' English was proficient which allowed to get deeper information. All interviews lasted between 40 – 70 minutes. Authors believe that length of the interview is adequate to gather the information necessary to construct the empirical study and at the same get the necessary background of the company. In this study, authors realized that despite the differences on the length of interview, it did not cause any differences in the result of the interviews and hence can be regarded as reliable.

Both researchers were present while interviewing. One interviewer asked the main question while the other took the responsibility of asking relevant follow up questions. All interviews were taped after the consent of the interviewees. Recording the interview is necessary to get detailed information without missing important issues. At the end of the interview, interviewers assured from respondents if it is possible to contact them again to avoid misunderstanding / misinterpretation or if there are any supplementary questions. The permission for quoting their names and organization names were taken after each interviewee.

2.3.3 Sources of Secondary Data

The secondary data that has been used in this thesis consists of information that is officially posted on companies' homepage. The secondary data have served as a basis for describing the background of the two companies. The internet sources also served as a means for enriching authors understanding about the companies to get specific knowledge of the companies before conducting the interviews. Beside this, authors have relied on secondary data to construct theoretical framework in certain extend from internet source due to unavailability to sources for literature in books or articles.

2.3.4 Processing data

After finishing each interview, the taped interviews were uploaded in the computer and also stored in CDs for the safety of the collected data. Both interviewers had a copy of the recorded interview to clarify any confusion by referring to the record whenever needed. The entire interviews of respondents were noted down. The draft of each interview was made in order to select the information that is interest of this thesis. The draft of interview was send to respective interviewee in order to get their approval and also to avoid misinterpretation. Finally, the corrected version of primary data of each interview was processed and framed in the thesis. The secondary data was selected from the internet sources carefully as per the interest of the thesis and processed in the thesis.

2.4 Discussion of Method

Validity and reliability have a close association with quantitative research. However, both qualitative and quantitative studies require reliable and valid measurement but they are measured differently²⁹. Since this thesis is based on the qualitative approach, validity and reliability is focused from qualitative perspective. It is necessary to specify terms and ways of establishing and assessing the quality of qualitative research. The evaluation criterion for qualitative study is "*trustworthiness*" which has less influence on quantitative measurement³⁰. The credibility, dependability and confirmability which are associated with trustworthiness are explained below while presenting validity and

²⁹ Neuman (2000) p. 164

³⁰ Bryman (2004) p. 273

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reliability of qualitative research. Further the generalization of the result is addressed to discuss how the study of different cases affects the result.

2.4.1 Validity

Qualitative researchers should focus on the core principle of validity i.e., to be truthful³¹. It is necessary to avoid distortion in any kind of study. In this research, authors collected empirical information from primary data as well as secondary data.

Primary data was collected by conducting interviews which is hard to claim that it possesses certainty. But to reduce the level of risk, authors prepared questionnaires relevant to the purpose of the study and interviews were conducted in more free-flow where the respondents can freely interpret. This way of interviewing helped to get actual data from interviewees because that did not restrict or limit the responses of the interviewees. Moreover, authors noticed that situational factors such as tape-recorders, time pressure etc had less influence on respondent and the interviews were conducted in more relaxed form which has also avoided invalidity. To give more valid results, a copy of draft interview was sent to each respondent and received approval from them before processing in the thesis. As such, authors believe that there is no negative influence on the study. As mentioned earlier, authors have chosen to interview both receivers' and givers' perspective while studying about tacit knowledge transfer within a company; this strengthens the validity of the study since it allows the researchers to understand the actual situation of the company and not depend on the information of one individual only.

Regarding the secondary data used for composing the background of the company, authors have relied on the information available on companies' homepage. The caution concerns about the information from the homepages of the companies is that it is made for commercial purposes, there is a risk that the information is biased. Internet sources are also used for constructing theoretical framework. However, this thesis has relied on this type of information to a very limited extent and therefore considered to have a negligible effect on the study

³¹ Ibid p. 171

2.4.2 Reliability

Reliability consists in obtaining the same result when a research is performed over and over again. It can also be defined as “*consistency over repeated applications*”. There are several measures that a researcher can use in the study to increase its reliability. One is the repetition of the same item, for instance in a questionnaire or interview, with the intention of getting the same answer twice and confirm its reliability. The re-test is also used consisting in the repetition of the same experiment at two points in time. The study of two random separated groups representing the double number of observations needed bring reliability to the study if the results for both groups are similar. One last technique is the test theory consisting in the assumption of a random error and obtaining at least two different observations of the concept studied.³²

Authors believe to have achieved a good level of reliability in the present thesis. The reliability of the primary information from the interviews has been treated carefully. The design of the questionnaire includes repetition of the same issue from different angles to test the reliability of those. Additionally more than one person has been interviewed for each of the companies participating in the study which increases the reliability of the information extracted from them. When referring to the secondary information extracted from the homepages of the firms, it has initial reliability due to the legal obligation of publishing truthful information; despite this fact, the information used has been checked when performing the interviews. The extraction of secondary information from internet has been referred due to the lack of availability of a determinate author’s book or in case of generally accepted information. The reliability of the theories used is highly supported by the reputation, background of the authors and the relevance of their studies. But, due to the effect that the passing of the time has on the social world, the same study could generate different results in the future. When discussing the dependability or auditing approach in the thesis, constant supervision has been carried out during the research and writing process which assures high degree of reliability. Authors have given constant feedback to each other, seminars to get feedback from other groups have taken place

³² Hessler (1992) p. 65

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frequently and supervisor's feedback and evaluation of the research has contributed in great extend for reliability.

2.4.3 Generalization of result

Generalization is the process starting in particular cases and going towards the creation of a theory, law or model that incorporates those in a larger whole. It consists in the extension of the results obtained in a particular time, place and population to the entire time, place and population.³³

When applying this concept to the qualitative research, some difficulties need to be mentioned. Since qualitative studies are in many cases based on a limited number of interviews from a company or population, the generalizability of the results is complex. Williams argues that moderatum generalizations are possible because the results of the qualitative research “*can be seen as to be instances of a broader set of recognizable features*”. Despite this argumentation, moderatum generalizations “*will always be limited and somewhat more tentative than those associated with statistical generalizations of the kind associated with probability sampling*”.

Authors are aware of the limitations for the generalizability in the qualitative research, but agree with the argumentations above and believe that in certain extend generalizability is possible. Some recognizable features can be identified in the tacit knowledge transfer research which makes it possible to describe a trend within the group of small enterprises. The research has been focused on achieving deep understanding about tacit knowledge transfer procedure, and not looking for superficial observations. Since common characteristics have been identified in the group of small small enterprises (differential from other types of companies) affecting the results of the research, authors believe that it is possible to moderately generalize the results to the small small firms' population given the condition that other small enterprises also have the same characteristics and considering the delimitations already mentioned (section 1.5).

³³ Ibid pp. 21-22

3. Theoretical Framework

This chapter provides for the reader an insight into the frame of references on research areas. It constructs the background of KM, the concept of tacit knowledge and transfer of tacit knowledge. The final part of this chapter presents the theoretical model.

3.1 Knowledge Management in Small Enterprises

The knowledge management has driven special attention in today's business. To know the concept of KM in small enterprises, it is important to give insight into the background of small enterprises and KM which further leads to define the KM in small enterprises.

3.1.1 Defining Small Enterprises

There is no precise or common definition about small enterprises. The small firms can be classified as *“one that is independently owned and operated and which is not dominant in its field of operation”*³⁴. When defining what constitute in small business, it varies between different industries or different countries. However, the definition outlined by European Union is a largely applicable one. As per EU definition, *‘an enterprise has to satisfy the criteria for the number of employees and the financial criteria’*³⁵. According to the European Union, small enterprises are frequently defined as enterprises with less than 50 employees with a turnover less than Euro 5 million. In Sweden, more than 99% of all the enterprises are classified as Small and Medium Size Enterprises in the year 2005³⁶.

Small Firms 2005	Number of enterprises	Number of employees
0-4 employees	829501	282810
5-9 employees	35156	228061
10-19 employees	18417	245698
Ratio of the total	99%	28%

Figure 5 Swedish Small Firms 2005

³⁴ <http://www.sba.gov>

³⁵ <http://www.unece.org>

³⁶ Statistika Centralbyrån, <http://scb.se>

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The above figure illustrates the proportion of Swedish small small enterprises with 0-19 employees. As mentioned in methodology chapter, this research is based on small segment of small enterprises. In Sweden, most of the enterprises in the private sector are small enterprises which have driven the attention in this thesis.

3.1.2 Knowledge Management

“Increasingly, there is less and less return on the traditional resources, labour, land and (money) capital. The only –at least the main– producers of wealth are information and knowledge”³⁷ Drucker, 1993

The proportion of employees in the industrialized countries whose work consists in making *things* is currently 20%, while it was 50% few decades ago³⁸. Companies have an increasing need to manage knowledge since their performance is more and more dependent on it. This growing necessity for managing knowledge is the reason why KM has had much more relevance in the management literature as well as in the business world during the last decade.³⁹ KM has been simply defined as *“the process of applying a systematic approach to the capture, structure, management, and dissemination of knowledge throughout an organization in order to work faster, reuse best practices, and reduce costly rework from project to project”⁴⁰*.

A basic differentiation between data, information and knowledge has to be done before starting any analysis of KM. Following Davenport and Prusak argumentation, data can be defined as structured records of transactions which lack relevance, purpose, judgment or interpretation. It can be considered the raw material for the creation of information which is a message that adds meaning to the data. Finally knowledge is something that exists between people and mixes experience, values, expertise and therefore is difficult to capture in words.⁴¹

³⁷ Drucker, in Kreiner (2002) p. 112

³⁸ Drucker, in Dalkir (2005) p. 2

³⁹ Ibid

⁴⁰ Nonaka & Ruggles, in Dalkir (2005) p. 3

⁴¹ Davenport & Prusak (1998) pp. 2-6

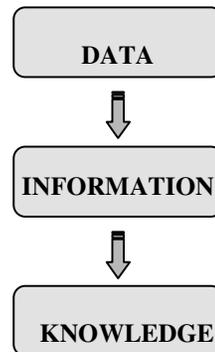


Figure 6 Data, Information and Knowledge

Since KM is a multidisciplinary science which includes several theoretical fields such as Information Technology, Anthropology, etc., many definitions have been created from each of those perspectives. A more hands-on definition of KM from the business perspective would be more adequate in this study: *“Treating the knowledge component of business activities as an explicit concern of business reflected in strategy, policy, and practice at all levels of the organization; and, making a direct connection between an organization’s intellectual assets –both explicit (recorded) and tacit (personal know-how) – and positive business results”*⁴².

KM can be separated in different activities or knowledge core processes: generation, codification and transfer of knowledge. Many authors have created different versions of the KM cycle by extending or naming its elements in distinct ways. The basic stages of the KM cycle resultant from Dalkir’s comparison of different KM circles are: The initial stage is knowledge creation, when this new knowledge is assessed in the company context to become ready for sharing. To pass to the next step, knowledge acquisition and application, the knowledge needs to be contextualized first in order to be used and finally it needs to be updated which close the circle of KM by returning to knowledge creation⁴³.

According to Dalkir, five major business drivers have increased the interest that the companies have for KM. The increasing globalization of the businesses, the challenge of

⁴² Barclay & Murray, in Dalkir (2005) p. 4

⁴³ Dalkir (2005) pp. 43-44

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creating learning organizations, the bigger mobility of workers among companies and the continuous technological advances makes it necessary to put more attention on KM⁴⁴.

3.1.3 Knowledge Management in Small Enterprises

KM has not dedicated much attention to the special study of the small enterprises; its main focus has been on the big companies. Several studies were recently conducted with the intention to start filling this theoretical gap, still they are focused on the small enterprises group which is wider than the focus of this thesis. Due to the lack of more suitable studies, those new studies are considered the most adequate material to describe KM in small small enterprises. Egbu, Hari and Renukappa claim in their latest study that “Structurally, SMEs are typically informal with flatter organizational structures. They are often weak in terms of financing, planning, training and the use and exploitation of advanced information technology, due to lack of resources...The effective implementation of relevant strategies, tools and technologies for KM can help SMEs in the construction industry to move towards a knowledge culture which is vital in today’s knowledge economy⁴⁵”.

McAdam and Reid conclude that “The SME sector would appear to need to develop their understanding of KM further as a key business driver rather than as a resource-intensive additional initiative⁴⁶”. Yew Wong and Aspinwall suggest eleven factors, ranked as per their importance, in order to have a successful implementation of KM in SMEs.

Critical Success Factors for KM implementation in SMEs	
1	Management leadership and support
2	Culture
3	Strategy and purpose
4	Resources
5	Processes and activities
6	Training and education
7	Human Resources Management
8	Information Technology
9	Motivational Aids
10	Organizational Infrastructure
11	Measurement

Figure 7 CSF for KM adoption in SMEs⁴⁷

⁴⁴ Dalkir (2005) p. 18

⁴⁵ Egbu, Hari & Renukappa (2005) pp. 18-19

⁴⁶ McAdam & Reid (2001) p. 240

⁴⁷ Yew Wong & Aspinwall (2005) p. 75

A more critical remark is made by Brooking who states that only 20% of the employees' knowledge is actually used in the organization. While Egbu, Hari and Renukappa mention that a large amount of the knowledge created in SMEs is tacit in nature and much of it is lost.⁴⁸

3.2 Knowledge

To obtain deeper understanding of the knowledge phenomena, this section is divided into three parts: the definition of knowledge, the transfer of knowledge and different form of knowledge.

3.2.1 Knowledge definition

Many definitions of knowledge exist, one of the most used and consistent is the one proposed by Davenport and Prusak: *“Knowledge is a flux mix of framed experiences, values, contextual information, and expert insights that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms”*⁴⁹. From this definition they identify six knowledge components: experience, truth, complexity, judgement, rules of thumb and intuition, values and beliefs.

Bell definition of knowledge is *“knowledge is the judgment of the significance of events and items, which comes from a particular context and/or theory”*⁵⁰. The differential element of this definition is the dependence of knowledge from a particular context or theory, which implies that knowledge can not be systematically generalized. From a critical perspective, Tsoukas and Vladimirou redesign Bell's theory to include the dimensions of personal versus collective knowledge: *“Knowledge is the individual ability*

⁴⁸ Egbu, Hari & Renukappa (2005) pp. 10 & 19

⁴⁹ Davenport & Prusak (1998) p. 5

⁵⁰ Bell, in Tsoukas & Vladimirou (2001) p. 976

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to draw distinctions within a collective domain of action based on an application of context and theory, or both⁵¹”.

Knowledge Principles
<ul style="list-style-type: none">▪ Knowledge originates and resides in people’s minds.▪ Knowledge sharing requires trust.▪ Technology enables new knowledge behaviours.▪ Knowledge sharing must be encouraged and rewarded.▪ Management support and resources are essential.▪ Knowledge initiatives should begin with a pilot program.▪ Quantitative and qualitative measurements are needed to evaluate the initiative.▪ Knowledge is creative and should be encouraged to develop in unexpected ways.

Figure 8 Table of Knowledge Principles⁵²

Davenport and Prusak’s definition of knowledge is considered adequate to use in this thesis. Additionally, Bell’s clarification about the dependence of knowledge on a determinate context or theory is also considered relevant.

3.2.2 Knowledge transfer

The transfer of knowledge occurs when knowledge is diffused from one resource to another by storing or sharing it. Knowledge is either transferred purposefully or it may occur as an outcome of other activity. Knowledge transfer can be defined as “*Knowledge systematic approach that obtain, organize, restructure, warehouse or memorize, deployment and distribute knowledge to points of action where it will be used for sharing and adopting best practices*”.⁵³

The transfer of knowledge depends on time, scope, complexity, and strategic importance because it determines the effort and resources of the organization. The organization needs to consider pedagogical skills, teaching and learning capabilities, and social networks for successful implementation⁵⁴. In the process of transferring tacit knowledge, an efficient communication mechanism becomes fundamental due to the fact that it enables the individual to express the multifaceted experience and capabilities; as well as to coordinate their activity and integrate their knowledge into productive activities.

⁵¹ Tsoukas & Vladimirou (2001) p. 979

⁵² Davenport & Prusak (1998) p. 24

⁵³ Wiig (1997) p. 8

⁵⁴ Pradhan & Rainer (2004) p. 14

Transfer of knowledge includes two actions: one is transmission which means sending knowledge to potential receiver and another is absorption meaning that knowledge must be incorporated either by a person or a group. As such, Davenport and Prusak have expressed this concept as “*Transfer = Transmission + Absorption*”⁵⁵. The availability of knowledge is not sufficient; it should also ensure the usability of available knowledge. “*Knowledge that isn’t absorbed hasn’t really been transferred*”⁵⁶. Davenport and Prusak further argues that transmission and absorption has no meaning if new knowledge does not lead to some change in behaviour.

While talking about transfer of knowledge, many economists often mention that the individual is not only eager to learn new things from other resources but also willing to share the knowledge that they acquire. Considering this notion, it appears that transferring knowledge is rather very smooth process. Nevertheless, there are other factors that make it complex. The organization may be threaten by the significant problems like unwilling to share, difficult to articulate, time factor, and so forth for which organization should build strategies to capture the knowledge and transfer them to appropriate resources. The transfer of tacit knowledge and its relevant problems are further discussed in the section 3.3.3 and 3.3.4 respectively.

3.2.3 Tacit knowledge Vs. Explicit knowledge

The famous guru of knowledge management, Nonaka Ikujiro states that knowledge can be categorized into two: tacit knowledge and explicit knowledge⁵⁷. Nonaka has defined the typology of knowledge in the form of iceberg. The peak of iceberg which is above the water level is explained as explicit knowledge that is visible and can be expressed and transferred from one resource to another. The beneath part of iceberg is regarded as tacit knowledge that is difficult to visualize and therefore difficult to transmit.⁵⁸

⁵⁵ Davenport & Prusak (1998) p. 101

⁵⁶ Ibid

⁵⁷ Nonaka & Teece (2001) p. 15

⁵⁸ Ibid, p. 70

Tacit Knowledge Transfer

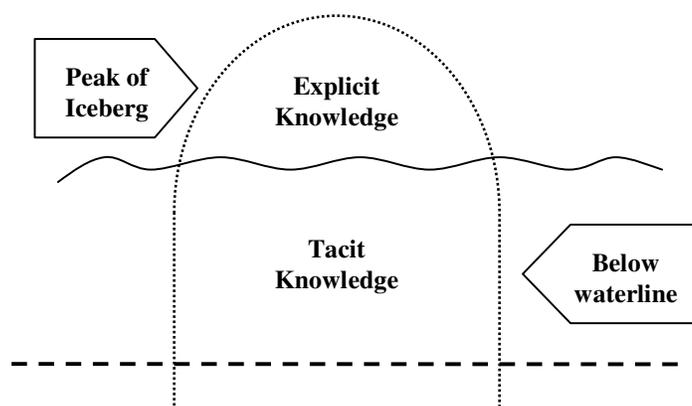


Figure 9 Different form of Knowledge⁵⁹

According to Polanyi tacit knowledge is deeply rooted in individual's action and experience and also in ideal, value and emotion. Nonaka expresses this notion as an analogue process since it is highly personal and hard to formulate; it requires a kind of '*simultaneous processing*'⁶⁰. It exist both technical and cognitive sides of this kind of knowledge. The technical dimension includes personal skills, expertise, information and know-how, while cognitive dimension consist of belief, ideals values and mental models that are deeply rooted in each individual.⁶¹

According to Nonaka, explicit knowledge, on the other hand, is considered as codified knowledge that can be transferred and shared in the form of data, scientific formulas, specification, manuals and so forth⁶². Explicit knowledge is relatively easy to transfer comparing with tacit knowledge due to possibility of codification. The transferability and appropriability of explicit knowledge has made it viable to codify the knowledge.

The ability to do something means to possess some kind of knowledge to give an end result. Such kind of knowledge is composed of both tacit and explicit knowledge in each human action. Whether it is conceptual or abstract in nature, knowledge is embedded in every individual in an organization.

⁵⁹ Ibid

⁶⁰ Nonaka & Teece (2001) p. 15

⁶¹ Tua Haldin-Herrgard (2000) p. 358

⁶² Nonaka & Teece (2001) p. 15

Theoretical Framework

Western organizations traditionally viewed knowledge as explicit orientation. However, they later recognized that both tacit and explicit knowledge complement each other to attain any kind of task and to achieve an outcome. More importantly, organizations have realized that knowledge is actually rooted in tacit.⁶³ Without tacit knowledge, the explicit dimension of knowledge loses its meaning. For instance, to write down a speech (or to make it explicit) means to consider tacit side of knowledge. Knowledge is embedded by means of interaction between tacit and explicit knowledge.

The difficulty of transferring knowledge depends on the kind of knowledge involved. The tacit knowledge which is regarded as ambiguous type of knowledge is hard to transfer from one resource to another. Mentoring, apprenticeship and emulation are some of the sources for transferring tacit knowledge⁶⁴. However, it is not as easily transferred as explicit knowledge. Nonetheless, explicit knowledge can not be usable simply by codifying it. It needs to be evaluated, make accessible and understandable to the users so that it can be exploited and benefited by organization. According to Davenport and Prusak, “*knowledge abounds in organizations, but its existence does not guarantee its use*”⁶⁵.

3.3 Tacit Knowledge

Tacit knowledge is not easy to understand, for this reason the first part of this section provides comprehensive definition of tacit dimension of knowledge to give insight into the phenomena, followed by the definition of organizational learning. It is also worth to include how tacit knowledge is transferred within an organization and what are the problems related with this transfer to be able to analyze the empirical result.

3.3.1 What is tacit knowledge?

The philosopher Michael Polanyi was one of the pioneers introducing tacit knowledge. The knowledge is an activity which would be better described as a process of knowing. Polanyi considers knowledge as both knowledge and dynamic knowing which describes

⁶³ Ibid

⁶⁴ Davenport & Prusak (1998) p. 81

⁶⁵ Ibid p. 89

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how human being strives for acquiring or learning new knowledge. He further explains that knowledge is focused on two phenomenon i.e., focal knowledge and tacit knowledge, which are complementary to each other. Tacit knowledge is the background knowledge which assists in accomplishing a task in focus. For instance, when reading a text, words and linguistic rules function as tacit subsidiary knowledge while the attention of the reader is focused on the meaning of the text. Both subsidiary awareness and focal awareness are mutually exclusive. If a pianist shifts the attention from the piece he is playing to the observation of what he is doing with his fingers while playing it, he gets confused and may have to stop.⁶⁶

The human knowledge can be expressed as proximal and Polanyi describes it as “*we know more than we can tell*”. Knowledge is difficult to articulate because it has been originally constructed in someone’s mind and the facts are thus personal and can not be easily communicated.⁶⁷ Polanyi describes tacit knowledge as being “*in-dwelling*” or constructed from the experience. New experiences are always absorbed through the concepts that the individual disposes that are inherited from other users. Those concepts are tacitly based. All the knowledge therefore rest in a tacit dimension.⁶⁸

Tacit knowledge is social and it is blended with the experience of the individual. According to Polanyi, there is no prescription for transmitting tacit knowledge from master (giver) to apprentice (receiver) which restricts the diffusion of personal knowledge. One way of learning is by example. If the master is a craftsman and the apprentice watches his master’s efforts, then the apprentice unconsciously picks up the rules of art. The receiver then reconstructs his/her own version of that knowledge. Polanyi identifies tacit transfer as imitation or identification. The transfer of knowledge is patterns of action, rules, values and norms created by social context. The knowledge can only be done, if the combination of authority (on behalf of the sender) and trust (receiver) exists.⁶⁹

⁶⁶ Polanyi (1983) pp. 11-19

⁶⁷ Ibid pp. 4-10

⁶⁸ Ibid pp. 29-30

⁶⁹ Polanyi, in <http://www.sveiby.com>

Theoretical Framework

Bertil Rolf mentions that there is hierarchy in process-of-knowing which gives better description of 'tacit knowledge'. Skill, know-how and expertise are the three levels in this hierarchy. Polanyi has not considered them as hierarchy when analysing about tacit knowledge. However, both Rolf and Polanyi have similar idea about knowledge that it consists of both tacit and focal knowledge.



Figure 10 Hierarchy of knowledge⁷⁰

According to Rolf, tacit and focal knowledge can not be categorized in hierarchy because they are two dimensions of the same knowledge. Skill is placed in the lowest hierarchical level; it is the ability to act according to rules which depends on feedback from a non-social environment⁷¹, for instance the skill of playing the piano. The second level is know-how which includes skill and is established by context outside the individual⁷². For instance, playing the piano is a skill which can be applied to certain criteria to accomplish a special task but it should be regarded good, bad or creative by others (social context) that reflect the result of the performance. Expertise is placed in the third level or the top of hierarchy. Expertise or competence includes know-how and ability of reflection. A characteristic of expertise, contrasting to know-how and skill, is that the actor has power over his/her own knowledge which decides quality standards⁷³. If the pianist has skilfulness of playing the piano by a virtue of possessing special knowledge, then he can be regarded as expertise.

⁷⁰ Source: own construction

⁷¹ Rolf, in <http://www.sveiby.com>

⁷² Ibid

⁷³ Ibid

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3.3.2 Organizational Learning

“*Tacit knowledge can not be taught, trained or educated, it can only be learnt*”. The process of learning tacit knowledge as such implies the existence of an active contribution of the learner; it is necessary to consider that the learning process is time consuming.⁷⁴

Learning is defined by Mellander as “*the mental process that leads to knowledge*”. Different ways of learning according to its formality and intentionality have been defined. The formal dimension refers to the degree of formality of the function of the different parts involved in the learning process. In a highly formal learning, there is an instructor who teaches and a learner learns. On the contrary, spontaneous learning has lower formality than the described above.⁷⁵ The intentional dimension illustrates the planning beforehand of the learning process. They are illustrated in the figure below together with some examples. According to Eraut, tacit knowledge is resultant from informal learning⁷⁶; it is represented by the two lower quadrants of the figure.

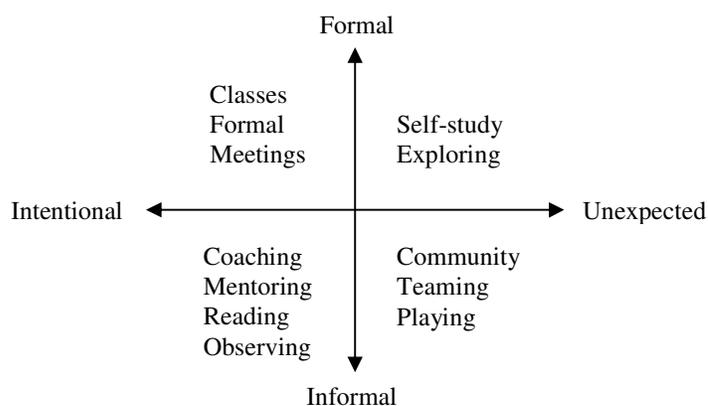


Figure 11 Learning Dimensions⁷⁷

Different entities can be identified in the learning process: individuals, groups and organizations. Learning at individual level is considered a social process which means that individuals learn from the collective. There is no consensus in the literature about the role of the organization in the learning process. Nelson and Winter claim that the firm is a

⁷⁴ Haldin-Herrgard (2000) p. 360

⁷⁵ Mellander (1993) pp. 5-7

⁷⁶ Eraut (2004) p. 249

⁷⁷ Conner, in <http://www.agelesslearner.com>

Theoretical Framework

learning entity and has certain capabilities independent from the individual ones, but Dodgson counter argues that organizations per se are not able to learn.

The position that authors support is similar to Crossan's arguments where organizational knowledge exist, but a strong relation between the individual, group and organizational learning is underlined. Crossan's figure relates the three levels of learning, from individual to organization, through a process of constant feedback. Learning between individuals is done through intuition, when it is interpreted in a group level it is transformed in experimenting, and if this learning is integrated in the organization, institutionalized knowledge is created.⁷⁸ This thesis is focused in the learning relation that occurs between individuals, but as illustrated in this figure other levels of learning may influence the individual stage.

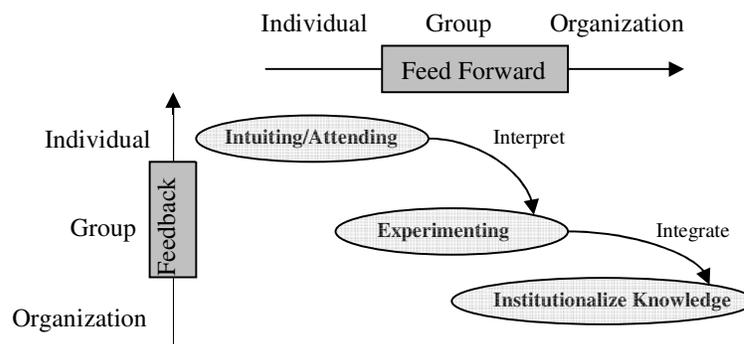


Figure 12 The 4I model of organizational learning⁷⁹

3.3.2.1 Organizational Culture

Corporate culture is defined by Schein as “a pattern of basic assumptions –invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration– that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems”. This definition states that corporate culture is learned by all members on the organization. Schein defines three levels of culture: artefacts, values and assumptions. Assumptions are “the basic

⁷⁸ Crossan, in Dalkir (2005) p. 81

⁷⁹ Ibid

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underlying assumptions, unconscious, taken for granted beliefs, perceptions, thought, and feelings...which can be found in both the organization and personal history of its members". Organizational culture is partly formed by informal norms created by individuals or groups and spread by stories, myths or reflected in routines.⁸⁰ From Schein's arguments, authors understand that tacit knowledge is embedded in the informal part of the organizational culture.

3.3.3 Transfer of tacit knowledge

Two schools can be identified regarding transference of tacit knowledge: the first one claims that tacit knowledge should remain tacit when transferring it and the second one states that tacit knowledge needs to be transformed to explicit to be transferred.⁸¹

Nonaka, reference researcher in this field, includes both tacit knowledge transfer perspectives and integrates them in the model below. The first quadrant shows the tacit to tacit transference that he names socialization, and the second quadrant shows the externalization process. Both have to be understood as part of the spiral of knowledge creation. According to him, the knowledge creating process follows a cyclical process being articulated, then combined, internalized and finally empathized in order to be articulated again.⁸² Authors do not see both socialization and externalization as time-line processes since authors believe both can take place simultaneously in a firm.

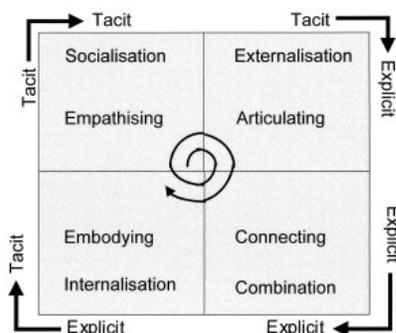


Figure 13 The SECI process⁸³

⁸⁰ Schein, in Dalkir (2005) pp.179-185

⁸¹ Haldin-Herrgard (2000) pp. 359-360

⁸² Nonaka, Toyama & Konno (2000) pp. 9-12

⁸³ Ibid p. 12

Theoretical Framework

Following the different schools argumentation, it has to be mentioned that the supporters of the tacit knowledge transfer without conversion argue that the transformation of tacit knowledge to explicit provokes the loss of a part of the knowledge because all knowledge is not possible to express explicitly. On the other hand, the followers of the codification of tacit knowledge claim that this conversion is necessary to be able to transfer it.⁸⁴ Authors believe that both positions are valid and complementary; therefore both have been taken into consideration in this section.

3.3.3.1 Tacit to tacit: sharing of tacit knowledge

This type of tacit knowledge transference implies that the receiver gets the knowledge in tacit form, thus no conversion is done in order to pass it on to others. The different manners for tacit to tacit knowledge transfer are explained below:

Learning by observation and learning by example

It is not possible to observe someone's knowledge, but it is possible to observe the behaviour of an expert or the expertise of a person. Observing the behaviour of another person, when he/she is applying its knowledge in daily situations, is a source of learning of tacit knowledge.⁸⁵ In this case, informal learning will take place since knowledge is not transferred in predefined circumstances or objectives.

Learning by example is defined as "*perceiving, reflecting and imitating existing procedures*" and takes place when one person in the organization is using the example given by other to incorporate others tacit knowledge to its own knowledge. The intended effects of this type of tacit knowledge transfer are "*passing on implicit routines, standardizing procedures and socialization effects*".⁸⁶

Storytelling

An organizational story can be defined as "*a detailed narrative of past management actions, employee interactions, or other key events that have occurred and that have been communicated informally*" and it is an excellent way of capturing, coding and

⁸⁴ Haldin-Herrgard (2000) pp. 359-360

⁸⁵ Dalkir (2005) p. 90

⁸⁶ Von Krogh, Roos & Kleine (1998) p. 236

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transmitting tacit knowledge. Not all the stories are transmitting knowledge, in order to succeed in this purpose they need to be authentic, believable, compelling and have a clear moral.⁸⁷ *“The narrator draws on his natural knowledge of the story form... But the narrative does not merely communicate the facts. It is mediated through a complex and idiosyncratic filter of the narrator’s consciousness, what he says and what he agrees to share with the interlocutor”*. The narrator’s own interpretation creates the cause-effect logic in the story which comprises tacit knowledge. Storytelling explains partly the circumstances of the company, as well as it can be used as a lesson for the future.⁸⁸

Common sense and shared vision in groups

The transference of tacit knowledge can be done through the creation of a shared vision. If the shared vision is reached by common sense, which does not require any externalization and each person achieves it individually, authors understand it as *“passing on implicit knowledge through collective experience and building shared understanding”* and therefore it is tacit knowledge transfer.⁸⁹ If the shared vision is reached by consensus, but it still remains in tacit form (since the group is not able to write it down explicitly, but its meaning is understood between lines) then authors still consider it as a method for transferring tacit knowledge.

Mentoring

Mentoring transfers tacit knowledge through informal learning. The mentor, or expert, relies on his/her long experience in different context which permits him/her to recognize patterns and select the relevant information. Mentors transfer skills, and more concretely transfer informally technical skills, as well as knowledge about organizational routines. This last point can be further developed by mentioning that mentors *“cover a wide variety of information about who does what and how in the organization...provide ‘access to privileged information’ and familiarized the protégé ‘with nonformal aspects of the organization’ ...also teach norms of behaviour and convey knowledge about the values of*

⁸⁷ Dalkir (2005) p. 86

⁸⁸ Hannabuss (2000) pp. 411-412

⁸⁹ Von Krogh, Roos & Kleine (1998) p. 236

an organization”. The transmission of organizational culture, including the *language* of the company and its values, is done quickly through mentoring.⁹⁰

3.3.3.2 Tacit to explicit: codification of tacit knowledge

This type of tacit knowledge transference implies that the receiver gets the knowledge in explicit form, since conversion of knowledge has taken place to make possible to transfer tacit knowledge.

Nonaka, Toyama and Konno name the conversion process externalization. In Nonaka’s words “*when tacit knowledge is made explicitly, knowledge is crystallized, thus allowing to be shared by others and it becomes the basis of new knowledge...The successful conversion of tacit knowledge into explicit knowledge depends on the sequential use of metaphor, analogy and model*”. His article is also pointing at the responsibility of the manager in facilitating creative and essential dialogue.⁹¹

Tacit to explicit transfer methods

Different ways can be used to make tacit knowledge explicit. As Nonaka mentions the construction of metaphors, analogies and models are few of them. Von Krogh also points out this manner of representing implicit knowledge which “*externalizes, articulates and pass on implicit knowledge, materializing knowledge*”⁹².

Interviewing experts using structured interviewing is another way of materializing tacit knowledge. It is usually performed in exit interviews where the intention is to capture the best practices that the interviewee possesses. It requires good planning of the objectives intended to achieve from the interviewer side, as well as good grasp of the subject. Reflective listening⁹³ and the repetition of the interview several times to validate the information are necessary to capture the tacit knowledge that the interviewee communicates.⁹⁴

⁹⁰ Swap, Leonard, Shields & Abrams (2001) pp. 97-100

⁹¹ Nonaka, Toyama & Konno (2000) pp. 9-12

⁹² Von Krogh, Roos & Kleine (1998) p. 236

⁹³ Meaning by that paraphrasing, clarifying, summarizing and reflecting feelings.

⁹⁴ Dalkir (2005) pp. 84-85

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Other methods can be used to codify tacit knowledge. Ad hoc sessions consist in brainstorming sessions attended by members of a professional network or expertise community. Road maps are more formal meetings focused in solving daily problems in a public forum. Learning histories “*represent a retrospective history of significant events that occurred in the organization’s recent past, as described in the voice of people who took part in them*” and intend to capture tacit knowledge in form of group memory. A strict process is necessary for their creation: planning the scope of the history and the concrete challenge that the organization overcame, reflective interviews getting the different versions of the same history, distillation of the information obtained, writing, validation and dissemination of the final version of the history. Going to conferences or inviting adequate guest speakers is an alternative method; seminars are usually performed and “*leave behind a set of reference materials*”.⁹⁵

Tacit knowledge transfer can be done by creating repositories or databases capturing the know-how and valuable knowledge of an organization. “*Knowledge is carefully codified and stored in databases, where it can be accessed and used easily by anyone in the company... This approach allows many people to search for and retrieve codified knowledge without having to contact the person who originally developed it*”. For instance, Ernst & Young developed a *people-to-documents* approach by extracting the information from the individual and storing it in a repository. “*The 250 people at the Center for Business Knowledge manage the electronic repository and help consultants find and use information. Specialists write reports and analyses that many teams can use. And each of Ernst & Young’s more than 40 practice areas has a staff member who helps codify and store documents. The resulting area databases are linked through a network*”. Different levels of knowledge contributions can be done, for example the core-knowledge database can only be accessed and completed by few authorized members.⁹⁶ Many different IT tools have been created for this purpose; authors consider that further

⁹⁵ Dalkir (2005) pp. 90-94

⁹⁶ Hansen, Nohira & Tierney (1999) pp. 107-108

development of this issue does not correspond to the purpose of this thesis since the knowledge is not more regarded as tacit.

3.3.4 Problems of Tacit Knowledge Transfer

There are several reasons that set barriers to transfer tacit knowledge. If a person is not motivated to share tacit side of his/her knowledge then it is difficult to assure that the person is willing to transfer it without concern for what may gain or lose by doing so. This kind of problematic circumstance, among many others, conditioned the difficulty in transference of tacit knowledge process within a company. The problem of tacit knowledge transfer is elaborated in order to create a basis for analyzing the critical points that are observed in empirical findings.

Lack of absorption and retentive capacity: The absorption of each individual largely depends on their preexisting tacit knowledge. The recipient might not be able to exploit other sources of knowledge. It is their absorption ability to value, assimilate and apply the new knowledge. The ability to absorb such knowledge is not sufficient; the recipient should be able to utilize the new knowledge that reflects the retentive capacity. In absence of such ability, there is possibility of initial difficulty while integrating the received knowledge.⁹⁷

Lack of value of one's intuition: In today's business world, people have started to value immeasurable things like knowledge but still intangible things like tacit knowledge are unusually valued. The tacit form of knowledge like intuition and rule of thumb are often considered valuable. It is hard to claim that intuition is logical and rational for decision making. Therefore, organization often avoids using such disputable method. However, many of the knowledge can be considered to base on intuition.⁹⁸

Unaware of own knowledge: Usually people seem to be unaware of the fact that they are embedded with some kind of tacit knowledge. This kind of knowledge is highly

⁹⁷ Szulanski (1996), p. 31

⁹⁸ Haldin-Herrgard (2000), p. 361

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internalized and it is a natural part of human behavior to be unconscious of knowledge which makes it difficult to reflect and share with others.⁹⁹

Causal ambiguity: Polanyi says that the indefinable portion of knowledge is embodied in highly tacit human skills. The causal ambiguity could result from not understanding the features of new context in which knowledge is put into use.¹⁰⁰

Unwillingness to share tacit knowledge: According to SECI model, Nonaka and Takeuchi explain that externalization is the process of knowledge creation where tacit knowledge is converted to explicit knowledge¹⁰¹. However, from the individual level, it is not always beneficial to make it explicit. If the tacit knowledge provides important competitive advantage, there is little reason to share it with the rest of the organization¹⁰².

Lack of common language: Experience and deeper knowledge leads to tacitness of knowledge. Such knowledge is conducted in nonverbal way and articulates something that is obvious is hard to express to others. There is also a problem when finding a proper language to share expertise. The diversity of terminology or jargon prevails among different occupational groups and lines of business. The transference of tacit knowledge depends on a joint language.¹⁰³

Time: It is considered that time raises difficulty in transferring tacit knowledge. Transferring tacit knowledge requires long time both for individual and organizational knowledge. Developing tacitness in one's work is very time consuming. Especially new employees need time for introduction but only few of the existing employees have

⁹⁹ Haldin-Herrgard (2000), p. 361

¹⁰⁰ Szulanski (1996), pp. 30 - 31

¹⁰¹ Nonaka & Takeuchi in Stenmark (2001), p. 11

¹⁰² Stenmark (2001), p. 12

¹⁰³ Haldin-Herrgard (2000), p. 361

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sufficient time to attend the introduction. Organizations hardly reserve enough time for learning to achieve tacitness.¹⁰⁴

Distance: Polanyi argues that tacit knowledge can be transferred from learning by studying what others are doing. For instance, learning the chess by watching the chess-master is one way of transferring tacit knowledge. As such, face to face interaction is often perceived as a prerequisite for the diffusion of tacit knowledge. The long distance communication of individuals within a company may create misunderstanding of other's tacit knowledge that is communicated via different media. Hence face to face interaction is required to generate more precise knowledge inside the organization.¹⁰⁵

Lack of motivation: There are several factors that make a person reluctant to share their crucial knowledge. From the givers' perspective, the fear of losing ownership, a position of privilege, superiority, not rewarding for sharing hard-won success, unwillingness to devote time and resources to transfer knowledge exists. If it is from the receivers' perspective, he/she is reluctant to accept knowledge from others which result in foot dragging, passivity, pretend acceptance, hidden disruption or outright rejection in the implementation.¹⁰⁶ The problem is created if even one of the parts is reluctant to share.

Tacit knowledge not perceived as reliable: When the source of knowledge is not perceived as reliable then it can not be considered as knowledgeable, which makes it difficult to transfer to others. The tacitness of knowledge does not guarantee the trustworthiness which make others hesitant to accept it. Apart from this, if the knowledge is recorded and that data proven to be useful in past then the organization face less difficulty to transfer such knowledge (which is explicit knowledge) comparing with tacit knowledge without any proof of being potential.¹⁰⁷

¹⁰⁴ Ibid

¹⁰⁵ Ibid, p. 363

¹⁰⁶ Szulanski (1996), p. 31

¹⁰⁷ Ibid

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3.4 Theoretical Model

The model below summarizes authors' perspective about tacit knowledge transfer. Authors think that the linear representation of tacit knowledge transfer is not the most adequate in this case since several tacit knowledge transfer activities are occurring simultaneously. Instead authors have chosen to construct a multi-dimensional table to reflect the tacit knowledge transfer inside the organization. This model is the basis for the analysis of the empirical data. In the final phase of the thesis, after merging the results of the empirical and theoretical part, this model will be adapted for small enterprises. The present model is representative of the general process of tacit knowledge transfer; authors can not claim that it is exclusively applicable for small enterprises due to the fact that previous studies have not explored enough the small companies' segment.

A new dimension is introduced in this theoretical model: personal and inter-personal level. Those two categories result from authors' perception of the tacit knowledge transfer process in the existent theory. Personal level implies that just one of the individuals taking part in the transference is active, the receiver, while the other is passive, the sender. In inter-personal level both individuals, sender and receiver, are participating actively when transferring tacit knowledge from one to another.

		Inside the company		Problems
		Personal level (Active receiver and passive sender)	Inter-personal level (Both receiver and sender are active)	
Tacit Knowledge transfer	Tacit to tacit	<ul style="list-style-type: none"> ▪ Learning by observation ▪ Learning by example 	<ul style="list-style-type: none"> ▪ Common sense ▪ Shared vision ▪ Story telling ▪ Mentoring 	<ul style="list-style-type: none"> ▪ Lack of common language ▪ Distance ▪ Tacit knowledge not perceived as reliable
	Tacit to Explicit	X	<ul style="list-style-type: none"> ▪ Metaphors, analogies and models ▪ Interviewing experts ▪ Other methods 	
Problems			<ul style="list-style-type: none"> ▪ Lack of value for one's intuition ▪ Unaware of own knowledge ▪ Unwillingness to share competitive advantage ▪ Retention of individual knowledge 	<p>COMMON PROBLEMS</p> <ul style="list-style-type: none"> ▪ Lack of absorption and retentive capacity ▪ Causal ambiguity ▪ Time ▪ Lack of motivation

Figure 14 Multi-dimensional model for tacit knowledge transfer inside the company¹⁰⁸

The model above is formed by three dimensions: the way in which tacit knowledge is transferred, the level inside the organization and the problems when transferring tacit knowledge.

The first dimension included in the model is the tacit knowledge transfer process which can be divided in two: tacit to tacit and tacit to explicit. It has been previously developed in this thesis the existence of two ways of transferring tacit knowledge, either by codifying it or by transferring it in tacit form. The second dimension divides the ways of transferring tacit knowledge inside the organization in two, either personal learning of tacit knowledge or inter-personal sharing of tacit knowledge. The third dimension takes in consideration the different problems resulting from the transference of tacit knowledge

¹⁰⁸ Source: Own construction

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inside the company. All three dimensions are combined to classify the different processes of transferring tacit knowledge, as well as the diverse problems resulting from them.

In the first quadrant of the table converge personal level of transferring tacit knowledge into tacit form. Learning by observation, by doing and by example can be placed in this category since the transfer of tacit knowledge is done by single individual absorbing knowledge from the environment.

In the second quadrant the inter-personal level of transferring tacit knowledge into tacit form is illustrated. The active participation of two or more individuals when transferring tacit knowledge is represented by the inter-personal level. Four different processes can take place: common sense and shared vision refer to a collective learning of tacit knowledge; while storytelling and mentoring usually take place in a smaller group.

The third quadrant represents the transfer of tacit knowledge by converting it to explicit in personal level. This quadrant does not contain any process for transferring tacit knowledge due to the fact that the externalization process of tacit knowledge always requires two active parts: giver and receiver. The tacit to explicit transfer has to be always considered inter-personal since the receiver plays active part in the learning process and the giver is forced to play an active role because the codification of tacit knowledge into explicit needs dynamic participation of the giver. For instance, when drawing a model the giver has to abstract his knowledge in a paper and the giver needs to internalize it. This is not the case in the first quadrant, where the giver plays a passive role and the receiver is taking all the responsibility in transferring the tacit knowledge; since the giver can be observed without being conscious of it and the receiver has to observe him and internalize the knowledge.

In the fourth quadrant converge the inter-personal level of transferring tacit to explicit knowledge. The interviews to experts and the construction of metaphors, analogies and models are the most common methods to codify tacit knowledge.

Theoretical Framework

The problems' dimension includes the different problems that can take place when transferring tacit knowledge classified according to the first two dimensions. That results in common problems for the different types of transfer, but also specific problems can be included for particular transference processes. Authors have identified in the existent theory that tacit to tacit problems, as well as inter-personal level problems can be recognized apart from common problems.

Authors intend to use this multi-dimensional model as a basis for the analysis of the empirical information. Companies do not transfer tacit knowledge by only using one of the processes mentioned in the theoretical model; they otherwise utilize simultaneously several of those. The tacit knowledge identified in the different companies participating in the empirical study will be implemented in the theoretical model. Complementarities and critical points of transference of tacit knowledge will be pointed out. Finally, similarities and dissimilarities of tacit knowledge transfer process within the empirical findings and the theoretical framework will be discussed.

4. Empirical Research

In this chapter, the empirical findings resultant from the interviews conducted in two companies, Zenterio and SysPartner, are presented.

Tacit knowledge is difficult to put into words and therefore is difficult to transmit. For instance, knowledge about how to cycle. How is it learnt? One of the ways to do it could be to read instructions about the different steps that have to be followed to ride a bicycle. But that could hardly succeed since learning how to cycle is tacit knowledge. It is not possible to explain explicitly how to do it since some practice is needed. The same situation takes place in a company; not all tacit knowledge transferred is explicit, tacit knowledge is an ongoing process inside a firm. This section captures tacit knowledge transferred, either to tacit or to explicit form. It focuses on the process of transferring tacit knowledge and not in its content.

4.1 Background of the Companies

The research is based on two Swedish small enterprises: Zenterio and SysPartner. This section presents the background of these two companies using both primary and secondary data.

4.1.1 Zenterio

Based in Linköping, Zenterio was founded on January 2002. The Managing Director, Kent Lundberg; the Director R&D, Jens Gabrielsson, and a Software Engineer, Hans Forsstrom, of Zenterio are part of this research¹⁰⁹. The founder of Zenterio, Kent Lundberg, established the company when R&D centre of Nokia was closed in Linköping. He expresses, *“I was part of Nokia from 1998 till 2002 ... I was member of board at Nokia and I was aware that Nokia is likely to close down because Nokia was going through high burn rate.”* Therefore, 15 core group members along with Kent Lundberg joined Zenterio. Today the company has 18 employees and it is growing gradually. Their

¹⁰⁹ Refer to appendix 2 to obtain the background of interviewees.

extensive experience and their knowledge of software engineering enable Zenterio to offer integrated solutions to meet the customer requirements. The figure below presents the organizational chart along with the products and services chart of Zenterio.

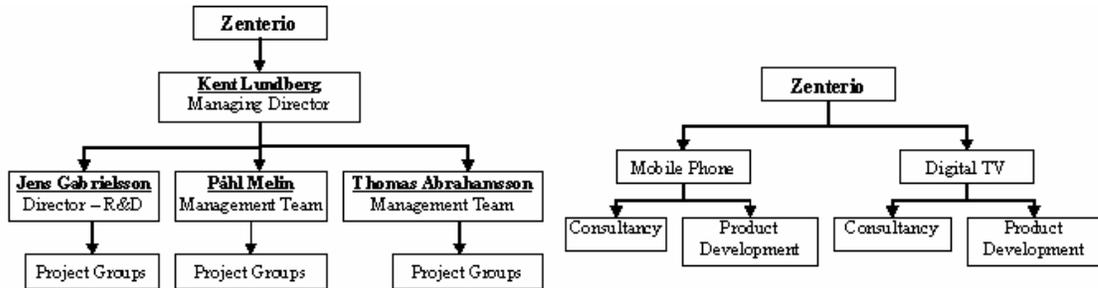


Figure 15 Organizational and Product & Services Chart of Zenterio¹¹⁰

Zenterio was selected as one of Sweden’s 25 IT companies for the well respected Tech Tour list in 2005. Zenterio is 100% employee-owned software engineering and consulting company. Zenterio’s team has brought successes to many software projects globally. It provides services that cover technical, consultancy, software engineering, product integration and testing.¹¹¹ The Director – R&D says *“We are heavily focusing on digital TV and mobile phones but also doing consultancy but mainly within these two areas since we have experience within this.”* And according to the Managing Director, *“Today we do software development of mobile phone and digital television. We share software to Philips, Nokia and those companies that have brand name. We also have product for mobile phone which is the system for content navigation.”*

With 18 employees, Zenterio can be categorized as a small enterprise. The Managing Director and the Director – R&D of Zenterio describe that due to few employees and also due to similar background the company has experienced flexibility in coordinating and distributing the work among the team members. The Managing Director expresses this by saying, *“Groups are organized in very flexible way. Since we are only 18 people, if one group needs resources or competence from other, it is easy to co-ordinate with each other.”* In a small company like this, the way of organizing is less hierarchal which creates an atmosphere to manage the work easily. The Director – R&D explains, *“We*

¹¹⁰ Source: own construction (with the consent of Zenterio’s Managing Director)

¹¹¹ www.zenterio.com

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have very flat organization, since we are quite a few people so we have little loose organization which is split into two different groups. One group handling issues regarding digital TV and other one doing mainly mobile phone development. Even so, we can use people from both the team for certain project. We are four in members of management team including me and Kent Lundberg who are mainly responsible to solve issues like tactical and strategic decision for the future.”

4.1.2 SysPartner

SysPartner is an IT consultancy based in Linköping. It was founded on August 2005 by Mikael Eriksson, Thomas Karlsson and Jörgen Gustafsson. Mikael Eriksson explains: *“I decided that from all of my experiences and all the companies I’ve been on, I can do this better and I can create a better workplace for my colleagues. I have a lot of input to give; I have a lot of ideas to make reality out of. Therefore I started this company with a couple of colleagues”*. One of the founders, Jörgen Gustafsson (CTO), is actually working on a full-time assignment at Manpower Solutions, thus two people are sitting in the company’s facilities. Those two members are Mikael Eriksson, Chief Consultant and Thomas Karlsson, Chief Finance Officer (CFO), who were interviewed for this research¹¹². Additionally, the company has two part time employees hired in an hourly-based system. The services offered by SysPartner include IT solutions, as well as consultancy services; this is illustrated in the figure below together with the organizational chart.

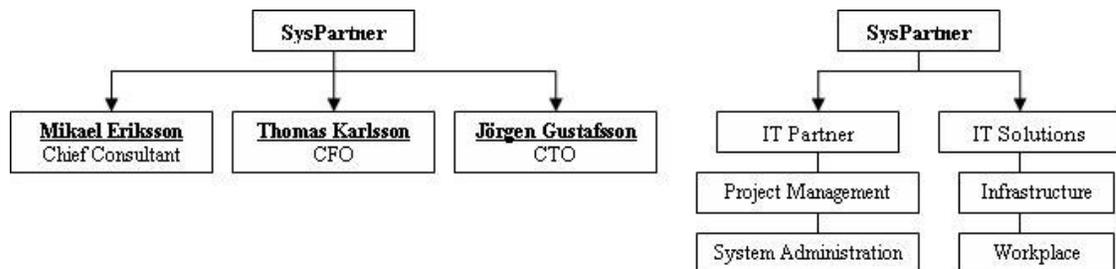


Figure 16 SysPartner's Organizational Chart and Products & Services Chart¹¹³

¹¹² Refer to appendix 2 to obtain the background of interviewees.

¹¹³ The figure of products and services have been extracted from SysPartner Webpage <http://www.syspartner.se>

The aim of the company is to “*be a natural partner*” for their clients. In order to achieve it, they offer the consultancy services of specialized professionals and intend to make their clients “*a better competitor on the market thanks to IT*” by “*analyzing what they really need and we give them help, and sell what they need instead of what we want to sell*”. The company designs personalized follow-up plans for its clients, if “*in one year from now [the client] needs an active directory consultancy, they should be aware of our existence and that we are specialized in that kind of area*”¹¹⁴.

Since the company has three employees the work is organized “*in teams, but with teams consistent of our customers. I [Chief Consultant] am working as a project manager in Stockholm and there I have a team of people not from my own company but from the customer*”. The CFO is the only member of the company working full time in the company facilities, since the Chief Consultant is “*most of the time in Stockholm Tuesday, Wednesday and Thursday, I work from Linköping on Monday and Friday. Apart from that when I am traveling I can not be here*”.

SysPartner intends to grow since they express the “*need to have more people in the company*” since “*we have assignments, but we do not have enough people. We are advertising and we go to the university and we try to build staff*”. Meanwhile they are working hard and claim: “*To compare us with other companies, we are very motivated because it is so personal, it is our company, and we are very new so we have to work twice as hard as the big guys*”.¹¹⁵

4.2 Sharing knowledge

In the process of knowledge sharing, both companies manifested practices of regular meetings to share the know-how, experience, insight, or ideas. When asking how often the meetings are conducted in Zenterio and SYS Partner, it resulted that both companies have routine meetings once a week. “*Inside the project, they have the regular project meeting, what they have done during the last week and what are they are suppose to do*

¹¹⁴ Mikael Eriksson, CEO of SysPartner.

¹¹⁵ Ibid

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*next week. Those are planning meetings”*¹¹⁶ However it varies, if there are various activities taking place at the same time, in such case both companies said that they are inclined to have more meetings.

The Managing Director describes the different types of meetings in Zenterio, *“When we start a project then we have something called kick-off meeting and when the project is finished then we have kick-out meeting. When we do the kick-out meeting, it’s all wrapped up in nice form so that anybody can go back and look into how we did it...”* In Zenterio, the groups working on product development are divided depending on their specialty area: digital TV or mobile phone; consultancy activities are also divided according to the same criteria. Since the members of Zenterio often work in groups they get opportunity to provide, as well as receive experience and learn from each other frequently. The Director – R&D states that *“...they can use each other’s knowledge and they can work within two different groups interchangeably to certain extend. We have people from hardware, software, administration, sales, management, and so on. But all of them know each other’s knowledge basis quite well because they have worked quite a while together.”*

The team members have long working experience together from their time in Nokia which has facilitated the members of Zenterio to recognize each other’s competences and allowed them to help each other in different solutions. The Managing Director explains, *“Usually we don’t have that many conflicts but if I see that something is going wrong, it is very easy to step into the employee’s room and talk about it.”* However, Software Engineer explains that there can be a problem while sharing the information and he illustrates it with an example *“...I have been working with most of the team members in different projects and can get help from each other easily...but the main problem is when it is been a while since I solved a problem, then I might not remember exactly how I did it. Then I will have to focus on giving them tips about where the solution is. This could be a part of the source code, some document or may be I found some information in a forum on the internet.”*

¹¹⁶ Kent Lundberg, Managing Director in Zenterio

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In Zenterio, the Director – R&D explains that it is important to get the right competence for right project and also it is responsibility of the management team to provide feedback to work efficiently. However due to scarce time, neither management nor any of the team members have been able to do it successfully. He expresses, *“Normally together we try to set up the project and try to get the right competence in the project...I am using my previous experience. My problem or I guess we have the same problem through out the company, is that it is difficult to give always the time to support them and in some extend I think I let them have too much freedom perhaps to solve the problems themselves because of lack of time. Usually at the end we do succeed in solving the problems but the problems that have popped up have been solved earlier if I had the time to follow it up earlier with greater depth. After each case providing feedback and setting meeting frequently is good but then you always run into the time issue.”*

In the case of SysPartner, they feel necessity to share the knowledge to fit into the competitive business world for which they find meetings are very important. The Chief Consultant expresses *“...to make this company successful, to be a good competitor on the market, we need to take professional decisions; that is why we have weekly meetings which is formal board meeting”*. SysPartner has a limited work force which according to the Chief Consultant is problem for rotating the job *“...since we are working at our customer sites, my project is basically my concern; we have not enough people to be able to rotate the people. In my dream world, Jörgen (CTO) will do exactly the same thing as I, so in case I get sick he goes to my clients and takes care of what I do that is not possible now because we are too few people.”*

Due to the limited number of employees, SysPartner finds important to communicate knowledge in order to share the responsibilities. All three members of SysPartner are specialized in different areas and they have different responsibilities in the company. The Chief Consultant is mainly focusing on consultancy, the CFO is handling finance, as well as marketing, and the CTO is working in a full-time independent assignment for Telia; each of them works independently. Though they have different backgrounds, they try to

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involve each other in sharing their experience; however it is observed that SYS Partner is facing barriers when sharing knowledge. The CFO explains it: *“We know that we are small company and we try to do things that everyone can get involved so all three share things. But I can’t teach them all in economic side and I can’t learn all technical side from them either. So it is difficult.”* Nevertheless, according to the Chief Consultant despite these differences, they try to divide the work according to their speciality and also try to help each other, *“Usually it is easy to transmit knowledge to Jörgen (CTO) because we are both technicians. I can not help Thomas (CFO) that much with the finance. Since we have worked together we know each other very well, what he is good at and which our expertises are. But we do help each other with technical problems, if there is a need and there often is...when it comes to a specific configuration there is just one way to do it and there is where we can help each other.”*

Despite the different responsibilities, the members of SysPartner find potentially important to have frequent communication to be aware of all the common issues and try to share them in different ways of communication. The CFO says, *“When we are together we discuss and dedicate times on different issues like marketing, sales, update website or other common issues, but when Mikael Eriksson (Chief Consultant) and Jörgen Gustafsson (CTO) are away, we usually communicate through phone and mostly via email (sometimes 10-20 times a day). But through e-mail it takes longer time to explain things and also that people can take things otherwise.”*

The Chief Consultant of SysPartner explains that it is essential to provide feedback, as well as encourage each other to work proficiently. He says, *“...we transmit knowledge or information very much. If I have a problem and I go to Jörgen (CTO) ‘Do you know how to solve this?’ We do help each other a lot. It is very important. I say this time it wasn’t that good, but if you do it this way I would prefer it. Or ‘Thomas (CFO) you did a great job’...Good and bad things...we try to motivate each other”.*

Both companies proclaim that they are customer oriented and their main focus is to run the project successfully and satisfy the needs of the customer. In order to fulfil their aim

they conduct formal meetings to provide information to each other that enable them to carry the business efficiently. The Managing Director of Zenterio says “...we have information sharing, we together go in the conference room, I give everybody brief about what is going on, mainly about new customer and we call them prospects and the business that goes on. So information is very open, we don't have any secrets for anybody. We try to have such meeting at least once a month.”

Besides the regular meetings, casual or informal meetings are more common in both companies. They express that it is a potential way of sharing knowledge among the different individuals inside the company. According to the Managing Director, the different ways of communication are casually undertaken by the members of Zenterio and he says “If somebody has a problem with technical issues then they discuss it and find the solution together. The normal way of doing such discussion is visiting from one door to another to ask for help and they can approach each other whenever they have the problem. We have very informal environment, for example, in the cafeteria and we also have quite a lot of parties...it is also a situation where we can share lots of information and have discussion about various things.” Similar situation is pictured in SysPartner; its Chief Consultant expresses, “...we have a lunch meeting since we are full time at our customers, the lunch time is actually the worst time to have meeting but the only time we have. We try not to have too serious meetings during lunch.”

4.3 Codification of Knowledge

When asked if the companies have implemented any knowledge management in Zenterio, the Managing Director replied, “...we keep the knowledge for our self for solving the other cases. The people who are involved in the project, off course they learn from the mistake. But we don't have any knowledge bank where all kind of experience, information and knowledge are stored.” The Software Engineer said, “We don't build up our own database for common solutions to certain problems, but we generally know what other guys have been working on other projects...you can always go and ask him how he did, what kind of solution he has for this...”.

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When talking further about managing knowledge, both Managing Director and Director – R&D of Zenterio admit that it is important, but they believe that there are several alternatives to the formal process of managing knowledge. Since it is a consultancy, they believe that documenting each case or project is very important, but they have not implemented formal process of keeping the record of the experience that was learned from solving the cases of the customer. The Managing Director explains, *“We have project plan, system specification, software architecture document, all of these are documented. So if somebody leaves then anyone can step in the project. Even documentation for customer is also available. But not about what did you learn from the particular project, or what did we do something wrong. Though we have been discussing about documenting it... but it is something I can not say that we do. We have been discussing about it but people are not sure if we get any value out of it.”* However, he adds that metaphor is a useful tool to transfer the knowledge with codification. According to the Director – R&D, the information, experience and knowledge related to each project are not documented, they are rather absorbed in the heads of the members involved in documenting the project of clients, and he expresses *“The information gathering is done within the company. That benefits both us as well as the client. Those information remains in your head more since you have actually taken the time to put it together into the document and presented it.”*

KM is certainly an issue for Zenterio and that is why the members of management team often discuss about its importance and how it can be valuable for the company. But not all the members of the management team have the same opinion about it. According to the Managing Director, it is not so essential for small company like Zenterio to implement KM and neither he thinks that it can benefit the company in large extend. He says, *“It is not so important for the moment this kind of knowledge management in our company, may be it is more important for advance research specific area where they are the only one who knows about this thing then may be it is important to have formal procedure of how you document knowledge and new experiences. We have no such plan to implement knowledge management into the company; one of the reasons is due to price....what is the price of doing that and what is the price that we get out of it. I can't*

think of anything that can be worthwhile to document apart from what's already written in documentation. I am one of those guys in the company who doesn't believe in knowledge management and then there are other people who think that it is important." As explained by the Managing Director, resources like cost are one of the reasons for not considering the KM into practice.

In SysPartner's case, the information is documented in a personal level. The information and the experience collected from different clients or projects are recorded mostly for personal use and they are shared only when required. According to the Chief Consultant *"I really need to document certain things. But many of the documentation I do mostly use for myself. If I work 2 or 3 days in one thing I write it down so I know next time it appears."* However, it emerged that some of the information is written down for the use of the company, but it is not a routine process. The CFO of SysPartner says *"We write down the things that we do in the meeting but we don't have time to write all the information all the time."*

SysPartner is a newly established company; there are few clients to whom SysPartner provides products and services. The experiences and information resultant from those activities are only documented to provide facilities to the client. According to the Chief Consultant, there is no particular person assigned for managing knowledge and neither the information and experience obtained after providing services to the clients are documented, *"Since SYS Partner is a new company I [Chief Consultant] have only been at one customer, so I documented it for myself and for the costumer employees (processes, routines etc). It is very important that every one knows where it is. If a server is missing I need to know if it is in Italy, Turkey or France. So I document for the customer but we have no documentation for ourselves. We haven't thought about making documentation or storing data and we have not discussed about that yet."*

4.4 Tacit Knowledge transfer without conversion

As the Chief Consultant of SysPartner says when talking about the tacit knowledge transfer process, *"It would be probably a better idea to...sit down and talk to each other,*

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but we don't have that kind of time". None of the interviewees dedicates certain time to transfer exclusively this kind of knowledge, but they do recognize that this transfer takes place when realizing certain activities. Some of them share consciously tacit knowledge "in a story kind of way", others state "the only way I can do it is to point out that this is the best way to do it". Zenterio's Managing Director explains "the first thing to do is to make them understand your point and many times I feel it is quite powerful to use similar stories...then we can share the experience from previous situation and implement them in the current situation".

4.2.1 Transmission of tacit knowledge

The Managing Director of Zenterio states while discussing about tacit knowledge transfer, *"in a group like this, it is very difficult to make them trust you without further explanation because they are very analytical, so they prefer to understand why they do certain thing. You must be able to convince them somehow. It is impossible to give them orders. Of course, sometimes it is necessary for them to follow me or trust me in certain situation, but you can not do it very often".*

SysPartner's CTO explains some problems when transferring his tacit knowledge, *"I have little longer experience in the marketing and sales and I know certain thing should work but I can't explain properly why it should work. Sometimes I try to make them understand, but sometimes I think that the marketing is changing all the time so we should try something new...we should try another thing because we don't know if the market has changed that might not work now. Though I explain them why it should be this way, they don't always agree and we try to have common decision for all important issues".* The Managing Director comments that each of them can impose certain decisions in their expertise area, but *"when we have a discussion...because we have very strong wills within this company...we have a parking space in the whiteboard. When we do not agree and we have a long discussion and before it is too long, I say: We park this...and we do deal with it another time".*

4.2.2 Mentorship

None of the companies provides a formal mentorship program to new employees, but they deal with it in an informal way. Zenterio integrates new employees “*passing them around the corridor, introduce him/her to others*”. Zenterio’s Director – R&D explains that there is not a routine to transmit the company culture, but the informal method has had good results, despite he would see the introduction of formal mentorship as an improvement. He explains, “*Usually the new person tries to learn from expertise by asking others how to do and looking at others how to behave*”, but recently the company had problems with a new employee who was not fitting in their “*little community...it didn’t work, perhaps we could have done more but I don’t believe it would have worked out anyway from his end since this person being so much different than the make-up of the rest of the guys*”. The Managing Director explains the situation in Nokia, where the majority of Zenterio’s employees were working before; at that moment, the process of receiving a new employee was “*strictly documented*” and he refers to the actual situation in Zenterio as “*we try to get them into the team and make them feel comfortable and relaxed*”.

SysPartner is adopting another approach towards mentoring. Since the person hired is a high experienced consultant, the company intends to have the most respect for his knowledge and learn from him. A personal developing plan is designed for each employee, including short and long term goals to achieve inside the company. SysPartner has “*a certain policy of...which is our ethical and moral values and it is very important that all employees have the same picture or set of mind*”¹¹⁷ which they have tried to document and transmit to new employees.

4.2.3 Transfer at a personal level

Learning by example is a very common process in both companies; since documentation of the knowledge does not exist, learning by example is a fast way of absorbing others’ tacit knowledge. Employees observe each other and learn from what they see. As a Software Engineer in Zenterio comments “*mainly is by looking at what they have done*

¹¹⁷ Mikael Eriksson, Chief Consultant in SysPartner.

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before and ask them...mainly we learn during the project". Especially in Zenterio, where all employees work at the same company facilities, they are very close in daily work which permits them to share knowledge with each other *"we can always go and ask him how he did, what kind of solution he has for this, or give me a hint or where should I look"*¹¹⁸. The Software Engineer comments *"most of them have been working longer than I so they are experienced"*. All of them agree that a network of people is much more adequate for their case than the use of a knowledge database since it saves time as well as financial resources, *"it is quicker to go and ask to another that has done it before...it [database] would be quite expensive way to record knowledge, and it will be taking too much time to keep that up to date"*¹¹⁹.

SysPartner's case is more challenging since the consultants work at their clients' sites and the expertise of the different co-workers is not matching. Learning by example takes place more frequently between the Chief Consultant and the CTO since both have similar background. Despite that, they try to learn from each other in more general terms *"since Mikael(Chief Consultant) and Jörgen (CTO) are much more in technical area so I try to learn from them"*¹²⁰.

4.2.4 Storytelling

Storytelling is casually used in Zenterio. The stories are mainly based on previous work situations, *"I retell a story of previous project...how that went and what happened"*¹²¹ to transmit knowledge to others. Lunch time seems to be the most appropriate time to share briefly those stories which can give cause for *"feeling that something in that case explained can be useful then I go after the story again"*¹²². The Director – R&D of Zenterio specifies the concrete purpose he looks for when storytelling *"I am using storytelling mainly to point out the errors or bad things...perhaps that is the thing that sticks in your head the most"*.

¹¹⁸ Hans Forsstrom, Software Engineer in Zenterio.

¹¹⁹ Ibid

¹²⁰ Thomas Karlsson, CFO in SysPartner.

¹²¹ Jens Gabrielsson, Director R&D in Zenterio.

¹²² Hans Forsstrom, Software Engineer in Zenterio.

In SysPartner, the Chief Consultant is fond of story telling since it is a way of transferring tacit knowledge without imposing it “*We can not tell each other exactly how to do because I would be some kind of a boss for Thomas and Jörgen, and I do not want to be that... so I try to make a kind of story*”.

4.2.5 Common Culture

In Zenterio, most of the employees have Information Technology background at university level. Since almost all have similar education and experience, according to the Managing Director it is easier to understand each other, “*The common background makes it easier to communicate and creates common culture.*” The Director R&D explains, “*...since we worked for such long time and experienced it more or less this way over time and we are following the same footsteps.*” He further describes that the culture of Zenterio is non-authoritarian which in his opinion can have both pros and cons. He says, “*We have very non-authoritarian culture. So it is totally allowed to say anything to anybody. It encourages to short of good nature to make fun of each other. It is very friendly culture if one can accept that kind of bantering. On other hand it might not be the best culture for making good business and making money and so on but at least we have lot of fun together in my opinion.*” The Software Engineer says that the projects are not controlled strongly by the project leader and one is free to work on his own, “*How you solve it and how you work during that is not that much controlled, so you get a lot of freedom when you get to that part. If there is a new person comes in, how to do his/her day to day work isn't that much controlled.*” But the Director - R&D says that the company needs to change some aspects of the culture and he would prefer to have more strict environment than the one Zenterio is possessing now, “*I would like to have more clear decision part, like who should go to whom to ask and be able to put more demands and requirements on the guys, I feel now it is too much freedom sometimes.*”

The Managing Director of Zenterio says, there are some values in the company which might not be easy to communicate, but due to the open environment, he believes that it is relatively easy to keep the values, “*... from organizational level, we have couple of company values that we try to convince every body. May be those values are difficult to*

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communicate like customer orientation. These kind of values are nothing that is written down but we try to have very open atmosphere so that people can say whatever they think and share their knowledge and experience. That is also something that new employees need to feel immediately.” According to the Director – R&D, the culture of Zenterio is very easy to adapt since employees preferably want to have open atmosphere. However, the new worker who comes directly from University might not feel integrated if they have certain expectation and might not be comfortable to be open from the very beginning. *“I think it is not that difficult to transmit this kind of culture if one is okay to have fun and to discuss thing with anybody. But it might be difficult for some people to adjust if they come directly from university and have not worked elsewhere before and they expect to be in a certain way and they might not feel comfortable with starting to open too much. So we should make the culture that is bit stricter in my opinion.”*

SysPartner describes its culture as being positive and to see the fun side of the work which according to CFO is fundamental for the company to be successful and he expresses, *“We have a culture that we should have fun at work and we should encourage people to have fun and open environment. We try to always think positive and see the positive and fun side of the job and if we don’t forget this culture than we are going to have a good company.”* The Chief Consultant of the company wants to establish an environment where co-worker can enjoy the work, and at the same time they can develop themselves as well as develop the company. He states *“...we want to create the best workplace in Sweden, every one that works here should have fun on the work, they should enjoy themselves and they should feel a personal development. This is very important for us, if we do not succeed with this we do not succeed with delivering professional consultancy. I as a Chief Consultant try to motivate the people.”*

The essence of SysPartner’s culture is to ‘*stay positive*’. The Chief Consultant explains that it is very important that the present workers, as well as upcoming workers, should have positive nature so that it can influence each other at workplace. *“...we try to have a lot of fun at work... we spend so many hours at work and of course you can not be a happy all day long throughout the year. But most of the time we try to think in a positive*

way, that is very important for us so we put on top of our list 'be positive, be happy'. We try to hire someone that is naturally positive. Not everyone everyday is... we try to influence each other to have the right culture." He further explains "we try to create an atmosphere where everyone benefits from sharing knowledge." Since all three members have different backgrounds, they use common language to share knowledge for managing daily work and the Chief Consultant says, "when Thomas (CFO) is talking with our reviser about finance than I can not understand their language...Thomas can not understand me and Jörgen (CTO) when we talk technical issue. When I communicate with Jörgen I use other terms than I would do in another meeting where Thomas is included."

4.2.6 Advices and Trust

Zenterio's Managing Director claims "it will be stupid enough not to take the advantage of the good ideas that exist in the company". The company transference of knowledge is pretty much driven by advices and the Managing Director's role in this case is mediator "if I know someone is dealing with very similar issue then I suggest that person to take the suggestion from the other guy", at the same time he expresses his security that this process happens daily between the employees. When it comes to negative advices, he is guiding the employee face-to-face, but never by email, "...try to avoid giving critics in written form...it is very easy to misunderstand emails". Advices are also given if it is not required "I usually go to someone within the company which I would assume to have some knowledge that could help me in specific case".

The measure in which the co-workers trust on each other's opinions is relative. The statement "If I deliver something to a client I need to know that this is correct"¹²³ which implies certain level of own testing of other's advices when responsibility in front of the client exists. The Software Engineer explains "Of course I trust them...but of course I have to test it because we probably get some differences from when it has been used...failures you didn't have in your previous project".

¹²³ Hans Forsstrom, Software Engineer in Zenterio.

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As the CFO of SysPartner reasons, if the issue is technical they work separately because advices in these issues are not possible between him and the rest of co-workers due to the different expertise. The Chief Consultant and the CTO frequently refer to technical issues since their background is similar. SysPartner's Chief Consultant develops more this argument by pointing at his need of learning everything by himself, *“Probably, I will do it in a slight different way that someone told me because I think there is a better way to solve this...because my knowledge is why I exist within this company. So everything that someone tells me I need to learn”*.

The suggestions from all the co-workers, when discussing a general issue, are always frequent. Those discussions normally include contrasting advices, *“when we are discussing things we always come up with different ideas and we have to think that it is good. We have different background and different expertise and we think very differently”*¹²⁴. The recent establishment of the company is also a reason for recurrent advising, *“when we talk on the phone, because right now all it is so new, much things going on, and we are very new in our roles that we need confirmation that I do a good work”*.

4.2.7 Time to transfer tacit knowledge and meeting places

Zenterio has one big conference room and a small one for exclusive use for meetings. The company has at its worker's disposal a big coffee room and the offices of the employees are also improvised sites for informal meetings. It is not programmed exclusive time to transfer tacit knowledge, but it is done *“when it is needed”*.

The Director – R&D of Zenterio comments on the time dedicated to transfer tacit knowledge from a long term perspective. He exemplifies it with the case of a worker who is leaving the company *“Person A has been responsible for a certain customer and now this guy is leaving. In the specific instance, I am thinking of myself, I looked at the documentation of that specific project and then I went and asked complementary questions and then I documented that questions in that specific case to make sure to keep*

¹²⁴ Thomas Karlsson, CFO in SysPartner.

up a good relation with that customer and supporting if necessary in the future". The company will suffer in six months the first retirement of a key worker. They are going to deal with this lost by *"probably hiring a new person to take his place and learn from him during six months basically"*¹²⁵. The company tries to have a good attitude towards the people who are leaving and make them *"feel comfortable"* since in the future *"he might be interested to join again"*.

SysPartner does not dedicate special time to transfer tacit knowledge either, but the process is done spontaneously. Some members of the company have a more intense sharing of tacit knowledge, the CTO comments *"I communicate with Mikael (Chief Consultant) more, I know him better since we have worked together couple of years from now"*. The company has also common meeting places such as the office or the restaurant when eating lunch.

4.2.8 Sharing tacit knowledge and its benefit

According to the Director – R&D of Zenterio, it is vital to have a willingness to share the knowledge, *"I would like to hope that everybody is willing to share their knowledge within the company."* The Managing Director states that all the knowledge can not be communicated, but the company should create a culture which makes everyone willing to share the knowledge, *"...you can not communicate everything. If you can share one secret with somebody, then may be you get secret from him as well then you have two. This is what I try to convince everybody by acting like that. But I think that one important thing to have is open atmosphere that you want to share knowledge or secrets; it is an important for the company. If I want to have that type of atmosphere in the company and I am keeping secrets for myself then that it is not good."* Similar statement was made by the Software Engineer, as per him knowledge sharing is beneficial because it is the process of give and take, *"One thing is that I get to help them. I get to talk about my solution and if they don't like it they will tell me about it later on. So I will know I done it like this and I should have done like that instead. It is always giving and taking. So it is good for my side point of view."* And the Director – R&D explains that *"Knowledge is*

¹²⁵ Jens Gabrielsson, Director R&D in Zenterio.

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inherently good so company would definitely benefit from contenting knowledgeable workers.”

The Chief Consult of SysPartner says that it is not possible to share all the knowledge, he illustrates this with an example, “... *it is possible to share all the information and even if you could it is some times a bad thing to do because sometimes I share knowledge based on my experience and if I share that with Jörgen (CTO) he might be frustrated because it is not applicable for him. Because we grow different at different speed and some areas Jörgen (CTO) is much older than me.*” Similarly, the CFO of the company explains though all the members are willing to share the knowledge, some difficulties lie ahead, “*I can't share all the knowledge and they can't share their knowledge too. All three are willing to give because we know that if we give and we get some back. But sometimes it can be a problem because I really want to take care of finance I have competence in my area and I can't share all ... and same for them.*”

However, the Chief Consultant believes that knowledge is creditably fundamental for the company and to share those knowledge means to create profitability, “...*I hold back the profit and the development possibilities for the company... we do make our living on base of our knowledge. Every time I share the knowledge, I will able to multiply my knowledge and use it on another customer. We learn once and we can multiply it several times. So the more people are in the company the more important will be to share the knowledge.*”

5. Analysis

In this section, the two first research questions are discussed by analysing tacit knowledge transfer process, as well as the critical points in it. The analysis brings together the empirical data parallel with the theoretical framework for authors' final verdict.

5.1 Tacit knowledge transfer

In this section, the first research question is analysed by explaining the transference of tacit knowledge into tacit and explicit form.

5.1.1 Tacit to tacit

Authors have chosen to analyse tacit to tacit knowledge transfer from two perspectives: transference at personal and at inter-personal level. The disposition of this section follows the guidelines established in the theoretical model, since authors believe that it permits a clear analysis of the empirical data.

5.1.1.1 Transfer at personal level

Learning tacit knowledge at the personal level requires perceiving, reflecting and imitating existing procedures. Empirical evidence of learning by example and by observation has been observed in both companies. Furthermore, transferring at personal level is considered as the main channel to transmit tacit knowledge in both companies.

All three interviewees from Zenterio are highly dependent on learning from others' expertise by asking or looking at each other's behaviour or activities. The company is concentrated in one floor; doors are left open as such each employee has the possibility to pass by others' rooms to consult, ask and work together. Those close and constant interactions and the fact that the work is organized in groups make observation and learning by example easy. The lack of more formal methods to transmit tacit knowledge, such as mentorship or databases, makes each employee dependant of personal level knowledge transfer.

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The circumstances are different in SysPartner; the company facilities are not used simultaneously by all the employees, and they have different backgrounds. The task of each co-worker is independent from the others since the company is too small to be organized in teams. Those facts are actually restricting their internal transmission of tacit knowledge. Nevertheless, all employees try to share a common, but less profound, knowledge basis since the managerial decisions are taken by consensus; that makes them put effort into observing and learning by example from each others. Contrarily to Zenterio, SysPartner's members share tacit knowledge apart from their daily work; which makes necessary the creation of constant discussion meetings.

The distance and the way of organizing the work inside the firm influence the process of transferring tacit knowledge in a personal level. Closeness and teamwork favour the flow of tacit knowledge between individuals because it implies frequent interrelation. Small companies are capable to base all their internal communication system on a network of direct and personal interrelations due to their size and the frequent existence of one unique facility. Small companies with several scattered facilities or working separately have a less intense and more superficial tacit knowledge sharing at personal level, despite it is still relevant in common issues. Nonetheless, small companies, including the ones with disperse structure, also use learning at personal level as a system to pass on implicit routines, standardize procedures and socialize; even though no particular person takes responsibility to diffuse the company's routines and habits, the employees do it for themselves by observing, learning by example and asking to others.

5.1.1.2 Transfer at interpersonal level

Since firms depend on the knowledge of its employees, it is important to create a continuous tacit knowledge flow between the different company members by transferring it at inter-personal level. This section deals with learning at interpersonal level as process of transferring tacit knowledge into tacit form among individuals. From the empirical study, it is observed that discussion, common culture, mentoring, and storytelling are

various ways of transferring tacit knowledge at inter-personal level in the small companies.

Discussion

According to all participants in the study, tacit knowledge is constantly manifested in discussions. In Zenterio and SysPartner, discussions take place in teamwork and meetings (both formal and informal) and such discussions consequently assist transfer at personal level in transferring know-how, experience, insight, or ideas among the individuals. In small companies, the open environment for discussion is common because it creates relaxed and calmed working conditions. Therefore, tacit knowledge is integrated prosperously in the discussion which means the tacit knowledge is interchangeably used. In this situation the background of the different participants in the discussion has to be considered; since unequal background or experience would produce the failure of the tacit knowledge transmission because one of the parts would be in inferior conditions for tacit knowledge assimilation.

Team work and meetings are conducted frequently in Zenterio and that permits employees to be aware of the tacit knowledge basis of their co-workers. The company has open atmosphere that facilitates to discuss work without restraint among individuals and also gain productive work environment. In such circumstance, tacit knowledge is accessible by each member in the discussion process and hence can be conveniently transferred in tacit form at inter-personal level without any conflicts. SysPartner also has analogous situation when it comes to discussion among individuals. Though the members have different background, they are focused on building a common ground for discussing interrelated issues and this is done by regular meetings and communication through emails, phones etc. Since SysPartner is limited to one room, and when they are working together inside single room office, the members constantly interact with each other. In this scenario, communication is affluent which has permitted them to transfer tacit knowledge on daily basis. Although, the members are aware of the skills and competences of the other workers and exploit them in some extend, they can not take the

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responsibility for each others' job. This is because they have limited employees to rotate the job and hence the tacit knowledge can not be interchangeably used.

Common Culture

Tacit knowledge is embedded in informal norms created by individuals or groups and basically underlines the assumption, perceptions and feelings of organizational culture. In small companies friendly culture is constructed; it creates an atmosphere where each individual is inclined to transfer tacit knowledge. If one gives knowledge, then he/she intends to get it back and therefore tacit knowledge is multiplied which is beneficial for both individual as well as organization. The transference of tacit knowledge at inter-personal level is also dependent on advices and trust among individuals.

Most of the members of Zenterio worked together since long and they are following the same footsteps or same pattern of work. The company has very flexible environment with non-authoritative culture. The work is less controlled which has facilitated the employees to work freely without constraint. Such circumstance creates a culture where everyone is willing to share the tacit knowledge. This will also lead to trustworthiness and subsequently value each other's advices. If the members are encouraged to be more open, then the individuals are more likely to keep the knowledge accessible to all. As a result, they will be bound in the relation of trust and consequently absorb the advices provided by others. SysPartner also have similar type of culture where employees are encouraged to have fun and open environment. If the employees have fun at work and enjoy themselves then it will deliver personal development of individual in the sense that one becomes more knowledge intensive which ultimately will be benefited by the company. The newly established firm, SysPartner, is in initial stage and needs to generate outranging performance. As such, the members of the company are inter-dependent on each other's knowledge and experiences. The companionship among the members has also allowed them to trust each other. Therefore during discussion of interrelated issues they take into consideration the advices and suggestion provided by others.

It is not beneficial for the company if one keeps the tacit knowledge and do not transfer it to others. Therefore, friendly environment and less hierarchical organization succeed in transferring tacit knowledge which is observed by the authors in both the participating companies in this study.

Mentoring

Mentorship is access to familiarize with organizational norms and values as well as the process of transferring the skill and experiences of the expertise. Normally mentoring is given to new employees to informally provide them with relevant information which the individual can use as a guide or tool to integrate in the organizational culture.

Zenterio does not have any routine process to transmit the company's culture to new employees. The new person is incorporated into the team and involved in a comfortable and relaxed atmosphere to be able to develop freely. As such, Zenterio does not provide mentorship; the person has to integrate in the company's culture by her/himself. Similarly, SysPartner intends to transmit culture and company's values to new employees by facilitating their integration in the group. From the empirical observations, authors believe that small companies do not rely on mentorship for transferring tacit knowledge as such; they rather promote socialization among the employees and integrating them in the company's culture.

Storytelling

Storytelling is a narrative detail of past which is communicated informally. In small enterprises, storytelling is occasionally seen as an effective way of sharing tacit knowledge while conversing with other.

In Zenterio, storytelling is often used and all interviewees have recognized it as one of the tacit knowledge transfer tools. If someone has to explain about a particular case, storytelling is useful to put into words the tacit knowledge resultant from past experience. At the same time, the receiver perceives that knowledge in a most convincing manner because it is applicable in practical situation. In SysPartner, storytelling is used in similar way; one of the respondents emphasized it as very is useful tool to express the previous

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experience and sharing tacit knowledge. Authors have observed storytelling as a helpful tool when transferring tacit knowledge, for instance when pointing at the past errors in order to avoid their repetition and creating a learning process from the mistakes made. Nevertheless, storytelling is only used in minor cases. Therefore, authors consider it as a *support* tacit knowledge transfer technique; it complements the key methods: corporate culture, discussion and tacit knowledge transfer in personal level.

5.1.2 Tacit to Explicit

None of the methods to transform tacit knowledge into explicit form is used regularly in any of the companies. Two main factors have been observed causing this situation: time and cost. The time needed to keep a knowledge database updated is excessive. The characteristics of small companies are such that narrow down the network among co-workers facilitating face-to-face interaction. This permits efficient person-to-person tacit knowledge transfer, as such the investment of time in constructing a common knowledge database is considered unnecessary. The cost of the system itself, its implementation and its maintenance, as well as the opportunity cost of investing those resources in more urgent issues is a contrary force towards tacit knowledge codification.

Personal notes regarding the different projects or information resulting from the information elaborated for each client are the only documents available. Since the customers are not interested in receiving explicitly the tacit knowledge of the firm, both companies focus exclusively on fulfilling the customer needs. Consequently, models, metaphors and analogies are created, but not shared with others.

Zenterio used codification of knowledge in an exclusive case when one of the co-workers communicated his intention of leaving the company. Then, an informal exit-interview was performed to retain his tacit knowledge regarding certain customers, and permit the company to have the same relation towards the customers after this person leaves the company.

When no retirements or leaves take place in small companies, tacit knowledge transference without conversion is a valid system. But the fact that one of the persons integrating the knowledge network stop working cause a great lose for the firm. In this situation the company has to act in order to retain the knowledge.

The non codification of tacit knowledge is working well in small companies. The definition of knowledge used by authors states that knowledge is context dependent. When transforming tacit knowledge into explicit, knowledge is untied from the context and can become out-of-date. If knowledge is kept in tacit form, the creator of knowledge can transform it and adapt it to context changes. Therefore it is just made explicit when no other option is left.

5.1.3 Learning Dimensions

A firm is a learning entity and learning is the mental process that leads to knowledge. Tacit knowledge can not be taught, trained or educated but it can only be learnt. In the empirical study, authors have observed that informal ways of learning are commonly used but formal learning is additionally used in both companies, Zenterio and SysPartner. Furthermore, these learning can either be intentional or unexpected. In the following figure, authors have categorized different ways of transferring tacit knowledge into learning dimension.

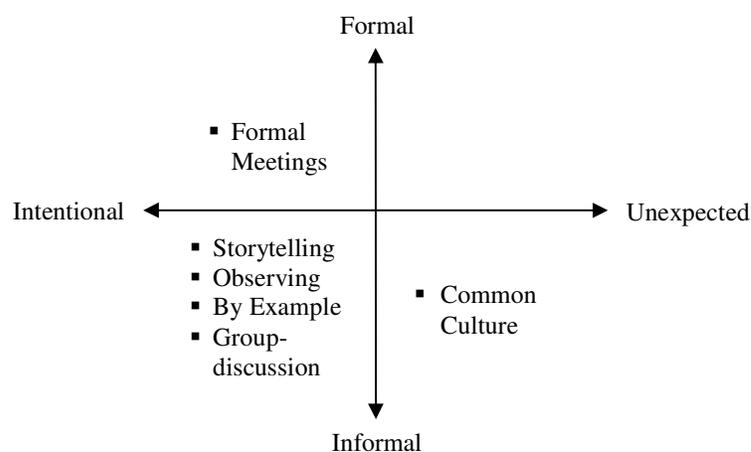


Figure 17 Learning Dimension in Small Enterprises¹²⁶

¹²⁶ Source: modified version of figure 11 (resultant from empirical findings)

Tacit Knowledge Transfer

Formal tacit knowledge transfer is not very common in small enterprises. However, formal meetings take place regularly in both companies. These meetings take place only when firm's common issues need to be discussed or information needs to be shared with all the employees. Nevertheless, formal meetings represent a minor part of tacit knowledge transfer within small companies. Unexpected formal learning was not observed in the empirical research, for this reason it has not been included in the figure above.

The most common practice of transferring tacit knowledge in small companies is based on informal learning. Through the informal learning process tacit knowledge is transferred to tacit form in more functional approach than the formal learning. Particularly, intentional learning is frequent in small companies. Informal learning includes storytelling, observing, learning by example and group-discussion which have been observed as the most used ways for transferring tacit knowledge in both companies. Common culture can also be characterized as informal level of transferring tacit knowledge, but in an unexpected way. Common culture is shared unconsciously by all members of small organization; therefore it can not be planned, neither intended.

The tacit to explicit knowledge transfer is not a usual practice in small companies; therefore, codification of knowledge is not placed in the above figure. In both companies tacit to tacit knowledge transfer is smoothly functioning. Coordination and communication is easily handled in small companies, which could have been different if the size of the organization is bigger. Moreover, as mentioned before, in small enterprises with limited resources, cost and time are unavoidable driving forces when codifying tacit knowledge.

5.2 Critical points when transferring tacit knowledge

Several critical points exist when transferring tacit knowledge. In order to make the transference successful, those critical points have to be managed correctly. Authors

analyze below the different problems found in the empirical research which are extremely important for small companies to be able to transfer tacit knowledge successfully. Common problems for all types of tacit knowledge transfer, as well as problems when transferring tacit knowledge in tacit form and inter-personal tacit knowledge transfer, have been considered. Since small companies are not using tacit to explicit knowledge conversion, no problems have been defined for this variable.

5.2.1 Tacit to tacit problems

Three different problems were identified in the theoretical part when transferring tacit knowledge in tacit form: lack of common language, distance and tacit knowledge not perceived as reliable. The first two were observed in the empirical part.

Tacit knowledge is difficult to put into words; therefore it is difficult to find the appropriate language to express it. The success when transmitting tacit knowledge depends significantly on the communication abilities of the persons, both sender and receiver. If both parts have a common language the process becomes easier. Authors have observed that common language exists when both parts have the same background or when they have similar working style resultant from past working experience together.

Distance, as has been mentioned before, is a big inconvenient when trying to transmit tacit knowledge. The separation between different parts or members of the company makes learning at personal level difficult since physical interaction is occasional. The absence of face-to-face contact is relevant since it can not be completely substituted by other means (phone calls, video conferences, emails...). Therefore, small companies working separately have weaker flow of tacit knowledge transference.

Tacit knowledge not perceived as reliable has not been observed in any of the companies. Trust and appreciation of others' ideas are central issues in their common culture. Their interrelations are beyond professional relations, they share companionship. This situation makes them extremely respectful for other's knowledge and advices; therefore tacit knowledge is perceived as reliable.

Tacit Knowledge Transfer

5.2.2 Interpersonal problems

In theoretical framework, three problems at interpersonal level were identified: lack of value for one's intuition, unawareness of own knowledge and unwillingness to share tacit knowledge. All three problems are corresponding to the empirical findings.

Authors have observed that both companies lack, in certain measure, value for one's intuition. Tacit knowledge grounded on intuition can still be regarded as knowledgeable and such knowledge is potentially relevant to transfer. Therefore, lack of value for one's intuition is a hindrance for the transference of tacit knowledge at inter-personal level. Even though intuition is considered a valuable intangible asset, in the business world it is not regarded as logical for making crucial decisions. Both companies rely on each others' advices on large extend. Nevertheless, due to the fact that they deal with technical area, the sender needs to provide advices with analytical approach to convince the receiver. Tacit knowledge based on intuition is avoided when it is possible in both companies.

In both companies, authors observed unawareness of own knowledge. The fact that the individual is unconscious about his/her own knowledge makes it complicated to transfer it to others since intention of transferring it or intention to make it explicit needs to exist in interpersonal level. From empirical, authors believe that a person is not able to share all tacit knowledge possessed; therefore unawareness of the own knowledge always exists.

The unwillingness to share tacit knowledge is common in both companies. In both companies, there is lack of attention in making knowledge accessible for all. This is due to the fact that all the members of the organization heavily rely on tacit knowledge and do not find necessity to make it explicit or share it when it is not directly required. Therefore it is hard to claim that individuals are willing to share their tacit knowledge. Such circumstances set barriers to transfer tacit knowledge at interpersonal level. Sharing knowledge is a time consuming process and the company lacks time. As a result, the main cause of the unwillingness to share tacit knowledge is the scarce time. The

consequence of this problem is that knowledge is retained by one specific person and it can not be exploited by other members in the company.

5.2.3 Common problems

Four common problems affecting all tacit knowledge transfer dimensions, personal/inter-personal and tacit to tacit/tacit to explicit, were identified in the theoretical approach: lack of absorption and retentive capacity, time, causal ambiguity and lack of motivation. From those, the two first have been identified in the empirical research.

Absorption and retention are necessary for the proficient transmission of tacit knowledge. It is not always successful. In many cases the transmission fails because the message is not correctly wrapped up by the receiver. It is important to consider that each individual receives tacit knowledge frequently and from different sources. Not all this tacit knowledge is absorbed by the receiver; only the one that the person perceives and considers useful in a determinate moment or the one that is able to utilize is absorbed. In those cases, incomplete transferences exist due to the lack of absorption and retentive capacity of the receiver. An example included in the empirical data is the lack of retention of some of the stories explained in Zenterio, some are just regarded as useful after some time, which is not a lasting problem because the knowledge resource is always available when needed.

Time is always a scarce resource for small companies. The lack of quality time to interact with others is frequent due to tight deadlines, unexpected problems and busy schedules. The transference of tacit knowledge is time consuming, which creates reduction of time for transferring tacit knowledge and consequently the amount of tacit knowledge transferred declines.

Causal ambiguity cases have not been found in any of the companies. Despite Zenterio had a problem with an employee, who was not adapting to their company context, it ended with the exclusion of this employee since all effort to integrate him in the company were in vain. In small companies, it is very important to fit to be able to perform

Tacit Knowledge Transfer

efficiently the entrusted task as scarce resources require. Causal ambiguity cases have no space in small companies since they need to maximize the efficiency of their resources.

Lack of motivation would produce the same consequences inside the company. Since small companies are characterized by limited resources, they are aware that employees are valuable assets for the company. Therefore, the employees are motivated when sharing personal knowledge. The fact that the company is small makes the employee to be close to the concern of the company and hence motivation is higher.

6. Conclusions

This section presents the conclusions of the analysis and the answer of the third research question. The final model is also presented in this chapter, followed by recommendations for future research.

6.1 Result

From this research, it has been observed that tacit knowledge transfer is relevant for small small enterprises because every single individual embeds certain form of tacit knowledge that is vital for optimum success of the firm. Because of limited work force, every member of the firm has to perform multiple roles for the company. As such, having transferred the knowledge within the co-workers would build synergies within them. These synergies are one of the competitive advantages of the company that in turn help the company on their ultimate goal. As per authors' observation, transfer of tacit knowledge among the individuals of the company acts as supporting pillar for the long sustainability of the firm.

Before answering the third research question, authors want to provide summary of first two research questions. From the empirical findings, authors have come across that the small small enterprises give less emphasis on transfer of tacit knowledge to explicit form. This is because the transfer process is time consuming and it tends to be expensive for the small small companies. Small small enterprises rather focus on transference of tacit knowledge in tacit form because knowledge is easily accessible due to closeness and limited number of employees. Tacit knowledge is transferred either at personal level or at inter-personal level within a company. The most effective way of transferring tacit knowledge in small small companies is learning by observation, learning by example, common culture and discussion. There are other complementary processes like storytelling and exit-interview which are occasionally used for transference of tacit knowledge. Small small enterprises use these processes in informal manner when transferring tacit knowledge. Several problems have been identified in the process of transferring the tacit knowledge. Time, cost and distance have been recognized as major

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problems for small enterprises. But there are also other secondary problems that are observed, such as, lack of value for one's intuition, unaware of own knowledge, unwillingness to share tacit knowledge, lack of common language, lack of absorption and retentive capacity and same background. As mentioned earlier, being knowledge as one of the intangible assets of the firm, it is needed to wipe out the barriers that are led on the process of tacit knowledge transfer. Therefore, an urgent need for building strategic management exists in the small small enterprises for affluent transference process of tacit knowledge.

The third research question analyzes the differences and similarities between the existent theory and the results of the present study. The main structure of the theoretical model has been kept since authors believe that it represents well the transfer of tacit knowledge in the group of small small enterprises. Still the processes included in the theoretical model have been adapted to the context of small small enterprises. In the tacit to tacit dimension, the theoretical assumptions have been proved as relevant in this thesis. Special cases can be pointed at, such as mentoring, that has been excluded from the final model due to the non-existent use of it. In the tacit to explicit dimension major changes have been done since small small companies are hardly using those procedures; still exit interviews have been observed as relevant. The problem dimension has been restructured due to major importance of some of the problems observed such as time, distance and cost. The consideration of the narrow group of small small companies in this thesis has created the exclusion of some of the problems since the small size of the company and its common culture has eliminated the perception of irrelevant tacit knowledge, causal ambiguity and lack of motivation. The multi-dimensional table below is the representation of the modified version of the theoretical model.

6.2 Final Model

This multi-dimensional table is based on the theoretical model; several changes have been introduced according to the results of the analysis. The present table is specifically applicable to analyze tacit knowledge transfer in small small enterprises since the research has explored particularly the smaller segment of small enterprises.

		Inside the company		Problems
		Personal level (Active receiver and passive sender)	Inter-personal level (Both receiver and sender are active)	
Tacit Knowledge transfer	Tacit to tacit	LEARNING BY OBSERVATION AND LEARNING BY EXAMPLE	COMMON CULTURE DISCUSSION + Storytelling	DISTANCE + Lack of common language Same background
	Tacit to Explicit	X	EXIT INTERVIEWS	COST
Problems			Lack of value for one's intuition Unaware of own knowledge Unwillingness to share tacit knowledge	COMMON PROBLEMS TIME + Lack of absorption and retentive capacity

Figure 18 Multi-dimensional model for tacit knowledge transfer inside small small enterprises¹²⁷

The first quadrant of the model, relating tacit to tacit with personal level, is of special importance for small small enterprises. Learning by observation and learning by example are frequently used when transferring tacit knowledge. The second quadrant, where tacit to tacit and inter-personal level interact, is pointing at the importance of the common culture and discussion in small small companies. The freedom available in the workplace contrasts with a common organizational culture; therefore common vision is playing a key role, as well as discussion, when succeeding in transferring tacit knowledge. Storytelling has been considered as *supporting* method to transfer tacit knowledge; despite it is used in small companies, it does not have major importance. Tacit to tacit knowledge transfer is the main channel used in small segment of small enterprises.

¹²⁷ Source: Own construction.

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The third quadrant remains empty since no personal level of tacit to explicit knowledge transfer has been identified in small small enterprises. Regarding the forth quadrant, where tacit to explicit knowledge and transfer at inter-personal level interact, one conversion method has been introduced, the exit interview. Small small firms avoid conversion of tacit knowledge to explicit; the leave of an employee is the only situation that has been observed as forceful to capture tacit knowledge in explicit form to keep that knowledge inside the organization.

Three major problems have been identified in small small enterprises context: distance, cost and time. The short distance that often exists between the different parts of the small small organization is a factor in favour of keeping tacit knowledge in tacit form. The distance between the different members of the organization is so small that making tacit knowledge explicit would create high cost and time consumption. Several other general problems have been identified such as lack of value for one's intuition, unawareness of own knowledge, unwillingness to share tacit knowledge, lack of common language, lack of common background and lack of absorption and retentive capacity.

Tacit to tacit knowledge transfer has been identified as more relevant than tacit to explicit conversion in the small segment of small enterprises. Therefore the main drivers of the transference of tacit knowledge are learning at personal level and common culture.

6.3 Discussion

The conclusions reached in the present study open a relevant discussion when considering the influences of tacit knowledge transfer in small small companies into other organizational areas.

Human Resources Management is one of the most directly affected areas since most of the critical points when transferring tacit knowledge depend on the employees' behaviour. Since an important part of a fluent tacit knowledge transfer depends on the integration in the corporate culture, the recruitment process should take in consideration the fit of a concrete person in the concrete organizational framework. Learning at

Conclusion

personal level is one of the main ways of transferring tacit knowledge in small enterprises; therefore the company should construct a common culture that motivates learning from the example of other co-workers. If the company has a distance problem, the visits and discussions between the different parts should be promoted in order to maximize the learning at personal level.

Cost and time are issues that hinder small companies to state explicitly their knowledge; therefore the conversion of tacit knowledge to explicit form should be done only when indispensable. The leave of a worker from the company is the most serious *tacit knowledge drain*¹²⁸ suffered by small companies. Exit interviews are useful in those cases since the replace person can quickly internalize the tacit knowledge made explicit. HRM has an important role when dealing with those issues.

The last area affected by tacit knowledge transfer process is the strategy. To guarantee a good transfer of tacit knowledge, the company should have a defined strategy to deal with this issue. Meaning by that a clear position of how tacit knowledge transfer should take place in the company and therefore make sure that all the strategy levels are coherent with it.

6.4 Future Research

This thesis is based on the *process* of tacit knowledge transfer in small enterprises. It would be interesting if the future research is based on the *effective ways* of transferring tacit knowledge in small enterprises. This will facilitate the small enterprises to conduct the transfer process efficiently. The second recommendation is about nationwide survey of tacit knowledge transfer in small enterprises which helps to get quantitative result and hence can be easily generalized. Another research that might interest the researchers is about comparison between small and large enterprises in tacit knowledge transfer process. This study will give a profile of tacit knowledge transference process and also to observe if the result can lead to any similarities and/or dissimilarities.

¹²⁸ Terminology resulting from "brain drain".

7. References

In this section, the readers will find the compilation of references used in this thesis, including books, articles and internet sources.

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- UN-ECE Operational Activities <<http://www.unece.org/indust/sme/def-eu.htm>> (accessed on 23/11/2005)
- Zenterio <<http://www.zenterio.com>> (accessed on 09/11/2005)

Appendix 1

Questionnaire for Interview

“We know more than we can tell“

Tacit knowledge:

- It includes professional expertise, individual insights and personal experience
- It is difficult to pass on to others
- It is the kind of knowledge that is difficult to put into words
- It is about how to do things
- It is practically useful

Example:

- How do you teach/explain another person how to go by bike?

Why useful for your company?

- The potential and performance of the employees improves if they are able to transfer their tacit knowledge.
- In some cases, it is necessary and urgent to transmit the tacit knowledge from one person to another. For instance, retirement.

BACKGROUND OF THE COMPANY

- Can you explain something about your company?
- When was it founded?
- Initially how many employees were working when the company was established and how many are there currently? Can we have a profile of the current employees?
- What is the company doing?
- How do you work, do you organize the work in fix-group, changing group, expertise group or individually?
- How does the group work? (the process of working)

BACKGROUND QUESTIONS

- Which is your educational background?
- When did you start your career? How many years have you been working in this company?
- Can you summarize your professional experience?
- Which position do you occupy in this company?
- How did you start your career in this company and how long did it take for you to reach this position?

SHARING KNOWLEDGE

- How do you communicate with other members of the company? (common meetings, personal meetings, email, fika-meetings...)

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- Are you able to communicate everything you want to others?
- Is it difficult for you to transmit knowledge to other members?
- How do you recognize the specific skill and competence of particular employee?
Do you observe or communicate, what is your decision based on?

CODIFICATION OF KNOWLEDGE

- Do you try to keep a record of the knowledge resultant of the different consulting cases?
- How do you share the result of the different consulting cases? (feedback, write reports)
- Is there anyone in charge of managing organizational knowledge?

TACIT KNOWLEDGE

- How do you transmit your experience, impressions and expertise to the others? (informal meetings, lunch together, fika-breaks,...)
- Do you provide mentorship program to new comers? Are they assigned a person that shows them how to work? Are they left to develop freely?
- Do they learn by example from more experienced workers? Is the company taking incentive to make them learn from expertise?
- Do you explain stories of what happened in determinate case?
- Do you consider the example of other workers useful for you?
- Do you feel that your company has a common culture that make you act in a determinate way? How important is to transfer the norms and values of the company to all the members?
- Do you offer standardized services (e.g. yellow page) to your clients or offer more personal service to them?
- How you help each other when solving problems (cases)? Do you contact the person with the specialized expertise you need? Or do you have a database with information that helps you to solve the case?
- Do you dedicate “certain” time for transferring unique knowledge? (face to face interaction etc)
- Do you value the ideas of your co-workers, or you need to confirm them by yourself?
- Do you have meeting places? Common places? How often do you conduct meeting?
- Do you incentive employees to trust in other’s opinions and implement them? (educate employees to transfer tacit knowledge)
- Do you provide guidance and advice to your co-workers either personally or in seminars?
- Do you think that it is possible to share all the knowledge that you have?
- In what extend do you think you are benefited when you share your knowledge?

Appendix 2

Interviews with Small Enterprises

Interviews with organization				
Organizations	Interviewee		Date	Interview
	Name	Designation		Venue
	Kent Lundberg	Managing Director	10.11.2005	Linköping
	Jens Gabrielsson	Director -R&D	28.11.2005	
	Hans Forsstrom	Software Engineer	28.11.2005	
	Mikael Eriksson	Chief Consultant	14.11.2005	Linköping
	Thomas Karlsson	Chief Finance Officer	25.11.2005	

Background of Interviewees in Zenterio

1. Kent Lundberg

After studying Computer Science in faculty of Information of Technology at Linköping University in 1982, Kent started his first company with his friends in the year 1984/85 which later was sold to Telia in 1987. Thereafter, he worked in Telia research until 1990. During that time it was very popular to talk about usability and human factor, so he started another company called UI Designer (User Interface Designer) in 1990. But in 1998, he sold it to Nokia and since then he was employed in Nokia. And in the year 2002 he established Zenterio. Kent Lundberg is the driving force behind Zenterio.

2. Jens Gabrielsson

With the background of computer courses in High School Studies, Jen started his career 10 years back in the field of IT. He worked in UI Design in the beginning and after UI Design was bought by Nokia, he continued his career in Nokia. In year 2002, Zenterio was founded and since then he has been working as Director – R&D. He holds multitude task in this company, he manage project, IT- management and also he is the member of the management team.

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3. Hans Forsstrom

After completion of bachelor degree in Computer Engineering at Linköping, Sweden, Hans Forsstrom worked at Nokia, Linköping for 2 years in the field of digital TV. Currently, he is working as a Computer Engineer at Zenterio and he is assigned for project related to mobile phones.

Background of Interviewees in SYS Partner

1. Mikael Eriksson

He started working at the support department for a computer store in Linköping and Göteborg. Later on he worked as a network technician and system administrator in Convergys Customer Management in Linköping. The company was adsorbed twice and he ended working in Manpower Solutions performing the same task but having more responsibility. Afterwards he started working in a different company as a consultant for less than one year. At that moment, he decided to found SysPartner where occupies the Chief Consultant position.

2. Thomas Karlsson

Thomas Karlsson has worked in IT business for about 10 years. Previously, he had experience on Sales Manager and he was also President of IT Company in Sweden. With this strong background, he joined SYS partner and he is working as Chief Finance Officer but he also performs sales and marketing jobs in this company.