UNIVERSITY OF VAASA

FACULTY OF BUSINESS STUDIES

DEPARTMENT OF MANAGEMENT

Linda Szőke

TACIT KNOWLEDGE TRANSFER THROUGH ICT TOOLS IN A

MULTINATIONAL ORGANIZATION: CASE IBM

Master's Thesis in

Management

International Business

VAASA 2009

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

UNIVERSITY OF VAASA
Faculty of Business Studies

Author:	Linda Szőke
Topic of the thesis:	Tacit Knowledge Sharing in a Multinational Organization: Casa IBM
Name of the Supervisor:	Adam Smale
Degree:	Master of Science in Economics and Business Administration
Department:	Department of Management
Major Subject:	Management and Organization
Line:	International Business
Year of Entering the University:	2007
Year of Completing the Thesis:	2009 **Pages:** 119

ABSTRACT:

In light of globalisation an intensive global competition has evolved amongst corporations and companies, which have started extending their activities to the international market by establishing more and more subsidiaries all over the world. On the other hand, these extensions have generated problems for managers as their departments and units have got to be diversely located geographically and they have to find a solution for transferring knowledge, the core competences of the organization within their departments, units and teams to sustain the business activities and operations. To bridge over the geographical distance, people within organization have started using non-face-to-face technological (ICT) tools to be able to discuss problems, requests, solutions and develop business solutions or solve tasks were required in different places at the same time.

The aim of this thesis is to create a theoretical framework to answer the questions how people use ICT tools for tacit knowledge sharing and which factors influence how actually these tools are used. The framework is built on the results of the inductive study. This study is conducted as a qualitative case study by interviewing nine members of the Hungarian department.

The empirical research pointed out that the tacit knowledge sharing through ICT tools (especially email, instant messaging and telephone) within the case company is influenced by organizational, social, relational context and characteristics of ICT tools.

1. INTRODUCTION

1.1 Research Background and Research Problem

In the recent past, as the economy changed from industrial to knowledge based consequently, knowledge has become significantly important for companies. With these changes, knowledge and knowledge management have created more awareness and have been generating interest for studies and research. Most of these studies have agreed that knowledge is the most important source of competitive advantage (Conner & Prahalad 1996, Spender 1999, Grant 1996, Nonaka & Takeuchi 1995 and Riusala & Suutari 2004). Due to the incumbent role of knowledge within organisation operations and business activities, managers have to develop abilities, change organisational environments and reorganise their capacities to integrate and transfer these core competences. This rising increases in integration of business activities, requirements and need for learning knowledge within organizations and departments is higher. At this point the role of management in an organization becomes more important then before in order to encourage their employees for knowledge sharing and by influencing organizational culture and providing possibilities and common places for people to knowledge transfer. By knowledge sharing they are able to maintain the well running business, continuously innovate the business activities of organization and develop internal organizational processes.

However, in light of globalisation an intensive global competition has evolved amongst corporations and companies, which have started extending their activities to the international market by establishing more and more subsidiaries all over the world. On the other hand, these extensions have generated problems for managers as their departments and units were got to be diversely located geographically and they have to find solution for transferring knowledge within their departments, units and teams to sustain the business activities and operations. To bridge over the

geographical distance, people within organization start using non-face-to-face technological tools to be able to discuss problems, requests, solutions and develop business solutions or solve tasks were required in different places at the same time (Bouwman, van Den Hoof, Den Wijngaert and van Dijk 2005; Jäväjä 2007; Cross, Parker & Prusak 2001). They start using ICT (Information and Communication Technology) tools such as emails, telephones, databases, intranets and so on to share knowledge between units.

However, the mechanism of knowledge sharing, how people actually use ICT tools to achieve that their tacit knowledge get replicated in another department by another employee is never obvious and clarified. Besides, there are different factors, which affect on knowledge sharing and make the transferring process difficult. There are not so many existing researches on this topic however, only little attention was paid on knowledge transfer mechanism through technological tools. Although it is really interesting how cultural and relational factors goes through the technology. The existing researchers made on ICT and knowledge transfer, focus on the effectiveness.

1.2. Research questions and objective

In multinational environments the phenomenon is frequent that geographically dispersed units have to operate together efficiently as their roles in the business process belong to each other. It means that people in multinational corporations have to have the ability to use the acquired knowledge in different places so they use ICT tools for their work to share knowledge.

In this study I analyze how people use ICT tools in their daily work to communicate with their colleagues sitting in other locations to solve problems and get their tasks done. As ICT tools include several facilities, in this research I focus on email, instant

messaging and phone. When people need to solve complex tasks, they have to share their experience and their tacit knowledge. On ICT tools it is more difficult to share this type of knowledge than in ordinary face to face meetings.

Secondly, the intention of this study is to find out which factors influence the majority's decisions when they choose tools to share tacit knowledge with their colleagues. There are several factors, which can influence their choice such as organisational context, knowledge characteristics, social and relational context and also technology based factor.

In this study I use an inductive approach and qualitative research to answer the following questions:

- How is ICT (especially email, instant messaging and telephone) used to share tacit knowledge in a multinational setting?

- Which factors most influence the decision which tool to use in tacit knowledge sharing?

1.3. Scope of the study

In the recent past, several studies were made and published on knowledge and knowledge management and transfer. It results to a wide range of definition and approach of knowledge transfer. However, only few studies were made on ICT tools from knowledge transfer approach. Moreover, most of them focus on the efficiency and quality of knowledge transfer through ICT tools. In this study the main task is to analyse how individuals make the decisions about tools that they use for knowledge sharing and which factors influence those decisions.

The study is based on a single case study including 9 open-ended, unstructured interviews with people who work for IBM International Shared Service Centre in the Hungary, Budapest Office. To find the answers to the research questions I used the inductive approach and made qualitative research. The methodology, the validity and reliability of the study will be explained and reviewed later on in this thesis.

I use Riusala and Suutari's framework about the international stickiness factors expected to influence the knowledge transfer processes in order to analyse the collected data through their lenses. This framework includes the following factors: characteristics of knowledge, organizational, social and relational contexts. During the analysis of the collected data, it was assumed that more factors might occur. Due to the inductive approach the theoretical framework of this study will develop from the results of the analysis in the last section.

1.4. Structure of the study

This study consists of six sections that's are divided into the theoretical and the empirical parts. After the introduction that defines the research gap, which the study tries to fill by following the research objectives and questions, the second part is the literature review, the theoretical part. As it is an inductive study, the literature review presents the existing theories on knowledge and knowledge sharing, which might appear later on in the empirical research. The most essential concepts of knowledge and knowledge transfer presented to provide a better understanding to the reader about the theories and the theoretical framework of this study is built on in the end.

The second part gives details about the data collection, research methodology of this study. Nevertheless, the third chapter includes discussion about the approach chosen for the empirical part and review of the reliability and validity of this study.

The fourth chapter begins with introducing the case company and giving reasons why this particular organization was chosen to this study. Furthermore, this chapter analyses the empirical data. In this part the deeper examination might lead to enrich the previously presented theories in order to build up a complete theoretical framework of the occurring phenomena of this study in the last chapter.

In the last part the theoretical framework developed from the study results in order to answer the research questions and objectives of this study. The study is closing with a short suggestion for future research.

2. LITERATURE REVIEW

2.1. Knowledge sharing

In this part of the study I provide better understand of knowledge and knowledge sharing mechanism to the readers in order for them to understand the significance of knowledge and knowledge management in the corporations and understand the substance of this research. I use Riusala and Suutari's framework about the international stickiness factors expected to influence the knowledge transfer processes as conceptual framework because according to wmy previous studies these factors are most likely to appear in my research. These are the factors that might influence the choice people made to use for communication with their colleagues.

2.1.1. Knowledge

Literature makes the difference among knowledge, information and data. According to T. D Wilson (2002) knowledge is built up from messages and information. In the knowledge hierarchy the first level is the data. "Data is set of discrete, objective facts about events" (Davenport & Prusak 1998: 2).
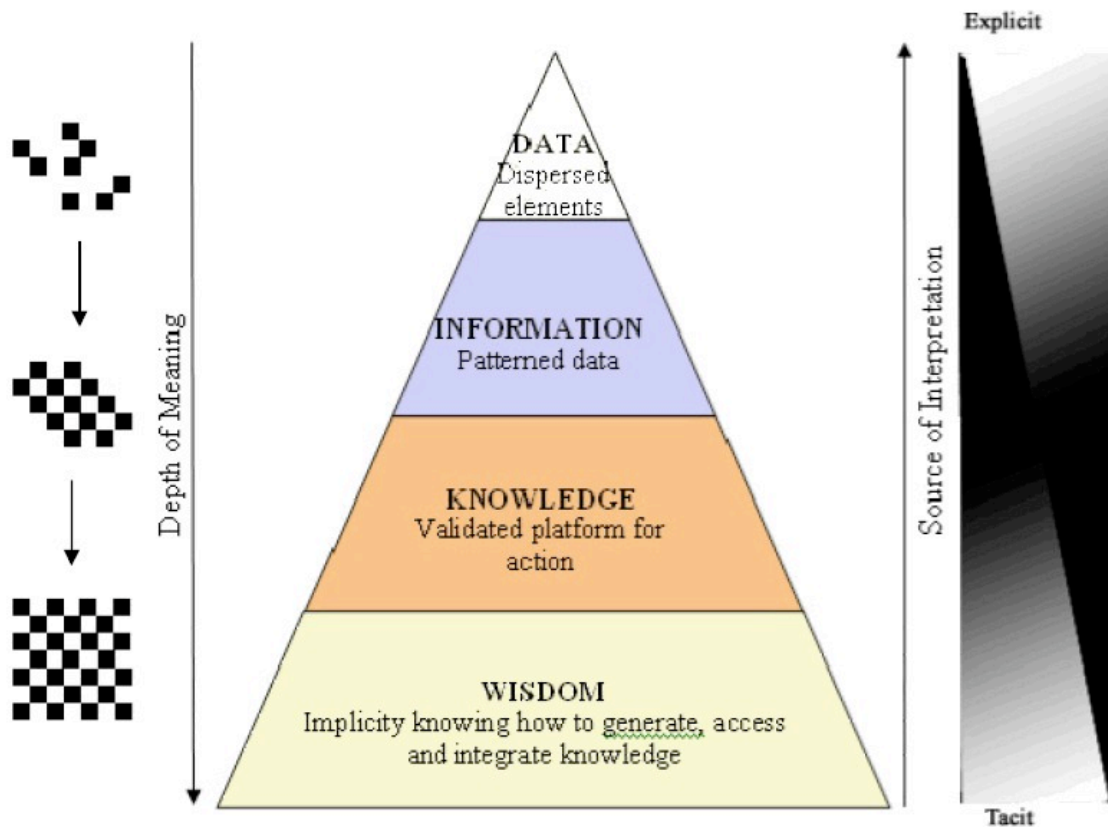
Figure 1. From data to wisdom (Saint-Onge 1999: 246).

People can describe data as records. We give meaning to data only when we connect it to another data, this then becomes useful information to us. Data is important only internally for the organization. There is usually too much data; however it cannot tell what to do. (Davenport & Prusak 1998: 2- 3.)

Firstly, it is essential for people to give meaning for data when they work with these data and create them into information (Davenport & Prusak 1998: 3.). Information includes fact, symbols and axiomatic propositions, which can be used in decision-making. (Kogut & Zander 1992: 386)

The knowledge has deeper, wider and richer meaning than raw data or information as it can create a shared context for organisational members. (Davenport & Prusak 1998: 5) Kogut and Zander (1992: 386) state "knowledge as information implies knowing what something means or knowing how to do something". According to De Long and Fahey (2000: 114) the main difference between information and knowledge is that the knowledge results an increasing capacity for decision-making and action to achieve some purpose.

Some researchers distinguish wisdom from knowledge, which has deeper and more complex meaning than knowledge has. Saint- Onge (1999) defined wisdom as a kind of master knowledge that individuals can achieve when they integrate their experiences and knowledge that they get through actions. However, in this study knowledge is the only one that is examined.

On the other hand, knowledge management literature distinguishes between explicit and implicit knowledge. Explicit knowledge can easily codify, communicate and transfer. Furthermore it is easy to learn (Casvugle, Calautona & Zhao 2003: 7- 8). People can write it down and then send it by email. Firms use explicit knowledge such as documentations or operating processes. When the receiver will read it he/ she can easily understand, as explicit knowledge is usually based on universally accepted and objective criteria (Casvugle et al. 2003: 7).

However, the tacit knowledge is a form of "hidden knowledge" because it is more complex to transfer (Wilson 2002.). As Polany says (1966: 4) "We know more than we can tell". Tacit knowledge usually is learned through experiences and it is difficult to communicate and formalize. (see e.g. Nonaka & Takeuchi 1995; Wilson 2002.; Toftern & Olsen 2003, Janz & Prasarnphanich 2003: 354. and Casvugle et al. 2003: 8.) Nonaka and Takeuchi (1995: 63- 64) explained the meaning of the tacit knowledge through a very clear example. A Japanese company wanted to develop an

automatic home bread-making machine in the late 1980s and it asked the best bread-making baker about his secret recipe. He gave the recipe and explained how he baked breads, after all this information the company could still not develop the machine which could make the same delicious bread. It later turned out that the head baker was not only stretching but also "twisting" the dough when he was making bread. (Nonaka & Takeuchi 1995: 63- 64.) This kind of knowledge cannot be shared with people as you need to learn it through experience, and it might happen that you still cannot adopt it completely.

As tacit knowledge is context specific, it is difficult to communicate and codify and because it is based on experience, its transfer causes difficulties. (Janz & Pransarnphanich 2003: 353. and Nonaka & Takeuchi 1995) Transferring tacit knowledge within organisation is a real challenge for companies as they usually have several tools and platforms for knowledge transfer such as shared databases, intranet and groupware. Without personal interaction and reciprocal communication people can only share explicit knowledge. This however, is another issue in which managers can motivate employees to use these tools.

In a firm tacit knowledge can be individual or collective by a team. For instance individual tacit knowledge can be an employee's skill or habit. Collective tacit knowledge can be past organisational collaborative experiences, firm routine and culture or the top management style (Casvugle et al. 2003: 8). When firms would like to share tacit knowledge they need to create a common place and atmosphere for learning. (Wilson 2002.) In this case ICT tools provide the created common place where employees share their tacit knowledge with their colleagues and the organisational climate promote these tools for learning. The tacit knowledge is very important for companies and it is usually embedded in their organisation. For that reason it is very difficult to interpret and transfer even internally from one department to another one. It means that tacit knowledge provides the capacity of the firm to build sustainable competitive advantage those other companies can hardly

imitate (Casvugle et al. 2003: 8). If a firm can create and share knowledge rapidly and effectively it will be able to innovate faster and successfully. The knowledge creation and transfer play key roles in organisations' lives as well organised and efficiency working knowledge transfer provide competitive advantage for firms (Casvugle et al. 2003: 8).

From resources based of view knowledge is the core source of companies that has to be valuable, rare, inimitable and non-substitutable. So this theory says that firms' capabilities and knowledge have to be transferred to new context and units to sustain the organisational advantage and improve the performance of the whole company. However, there is a paradox in this theory as when a capability is transferable, it becomes appropriable. (Spender 1999: 129)

Spender (1994: 121- 124) even made differences between individual and social level and defined four types of knowledge such as: conscious, automatic, objectified and collective.

Table 1. Different type of knowledge in organizational analysis (Spender 1994: 124).

	Individual	**Social**
Explicit	Conscious	Objectified
Implicit	Automatic	Collective

Conscious knowledge is explicit knowledge that individuals can report and make available for other people (Spender 1994: 123). Automatic knowledge is implicit knowledge, which is held by individuals. Individuals can bring automatic knowledge by creating organizational practice unconsciously or by their routines actions however, they cannot report it. (Spender 1994: 123-124.) Objective knowledge is collective explicit knowledge. So it means that the explicit knowledge is diffused

through the whole organisation. This kind of knowledge is for example a company's rules or team process and guidelines. (Spender 1994: 124) The last category is the collective knowledge, which is a highly context-dependent knowledge. This is an organisational knowledge, which is path-dependent, compelling evidence of history and evolution organisation. (Spender1994: 124, Casvugle et al. 2003: 8. and Long & Fahey 2000: 114.).

De Long and Fahey (2000: 114) say that there are three distinctions of knowledge: human, social and structured knowledge. The human knowledge is hold by individual and it can be both explicit and tacit knowledge and it is manifested in skills and expertise. The social knowledge exists only between individuals or within groups and teams. The social or collective knowledge mainly includes tacit knowledge, which is shared by group members. However, it is more than the sum of individual knowledge as it reflects the ability to collaborate effectively and it can be developed only as results of group members working together. The last type is the structured knowledge, which is embedded in organisational systems, processes and routines. This type of knowledge mainly includes explicit or rule-based knowledge. The main differences between the social, human and structured knowledge is that the last one can exist independently of human knowhow. (De Long & Fahey 2000: 114.)

Davenport and Prusak (1998: 5) define knowledge as "a fluid mix of framed experiences, value, contextual information, and expert insight that provides a framework for evaluating and incorporating new experience and information". This is the definition that adopted and applied in this thesis. In this study I focus on the tacit knowledge, the complex and hidden knowledge of people, which is based on experience although during the analysis other dimensions of knowledge might occur such as conscious, automatic, objectified; collective or human, social and structured knowledge. In my opinion, the main difference between the tacit and explicit knowledge is how easy to experience and share the knowledge. For instant, in university on the lectures and from the books basically I was able to learn explicit

knowledge, the theory how business works. When I started working for a company and I experienced how those learnt theories work in the real life and how people use those theoretical concepts in the real business life, I gained tacit knowledge by experience. I hardly could explain and codified this knowledge and share it with somebody. However, the inductive approach does not give the opportunity to make deep research about the research problem.

2.1.2. Knowledge Based View and Knowledge Management

Due to the economy change to knowledge based, knowledge has become the most strategically significant resource of companies. According to the resource based of view knowledge provides core competences for organizations, which allow them to over perform their competitors. For these reasons, managers realise how important these core competences that give competitive advantage for their corporations. The knowledge of competitive advantage has to be shared and spread within the whole organization. (Conner & Prahalad 1996, Spender 1994, Grant 1996, Nonaka & Takeuchi 1995, Davenport & Prusak 1998, Tsouksas 1996, Kalling & Styhre 2003 and Riusala & Suutari 2004).

Moreover, due to globalisation and internationalisation since the late 90's, companies started expanding their business activities to other countries' needs and requirements for sharing their core competences and knowledge effectively across units and borders have get key roles in organisation strategies. The effective knowledge sharing let companies sustain their competitive advantages, which is an essential management issue for organisations in order to differentiate their organisations from others and make them unique. (Davenport & Prusak 1998: 14- 17.)

Most of the companies develop their strategies on the knowledge based view that says companies consists of invisible assets such as individuals' skills, knowledge,

practice of communication and knowledge based theory which also claims managers of the organisation need to take care that this knowledge would be distributed properly in the whole company. Nowadays companies do not just sell only machines, products and services for their customers anymore, they also sell their knowledge as they offer their type of value and sell their solution for a business problems. As examples, Ford focuses on the "quality", IBM markets on "industry-solution units" and Xerox calls itself "the document company" (Davenport & Prusak 1998: 13). For that reason, the knowledge management became the new bible or mantra of modern organisations seeking to compete in an increasingly turbulent and competitive world (Gallupe 2001: 62).

As the knowledge management and knowledge related topics become more and more popular among researchers, more definition and wider range of studies are born in this area. Most of researchers and philosophers compare knowledge to information and most of them define it as a combination of experience, context, interpretation and reflection process to describe how something is done or these direct outcomes. (Fahey & Prusak 1998: 268 and Gallupe 2001: 62- 63)

However, knowledge management is a systematic management of the knowledge related process through identifying, gathering, sharing and applying knowledge in order to improve the organisational performance and create value. (Holden 2002: 71) So it means that managers have to manage and pay particular attention on the organisational knowledge in order that this knowledge would be transferred internally among departments, units and teams.

2.1.3. Knowledge Sharing Mechanisms

According to Szulanski (1996: 28- 30.) the knowledge is transferred through four stages: initiation, implementation, ram-up and integration. It means that in the first

stage the problem and needs for knowledge are identified. During the implementation stage the source and the recipient will begin making effort to establish the communication flow and transfer best practises to solve the identified problem. The next stage begins, when the recipient starts using the transferred knowledge as he struggled and faced problems that ineffectively used knowledge. In the last stage, which is the integration stage, the recipient will achieve the satisfactory result and use the new knowledge routinely. (Szulanski 1996: 28- 30.)

The following picture reflects how knowledge flows in an organisation and it shows the knowledge sharing from the specific transfer aspects.
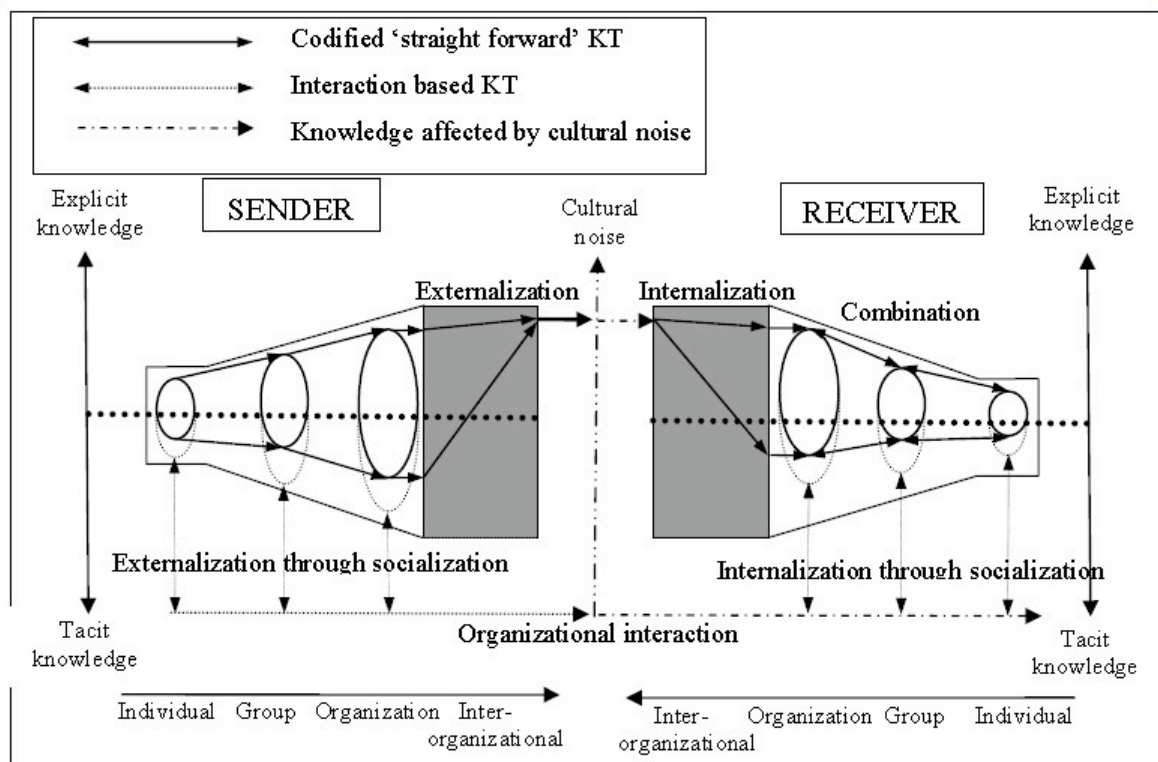
Figure 2. Some transfer specific aspects of international inter-organisational knowledge transfer (Karlsson & Kappanen 2005: 10).

The knowledge within an organisation flows in a spiral way as it travels through different organisational levels (Nonaka 1994: 20). This picture shows that the interaction starts at the individual level and by their interaction in teams, and through organisational learning, this knowledge will become richer and flare out by more values, norms over time how it moves through at the different organisation's levels. (Fiol & Lyles 1985: 804., Huber 1991: 106- 107. and Hedberg 1981: 6.)

On the other hand, this figure shows how much of tacit and explicit knowledge is transferable from different approaches though they are usually not independent of each other. The sizes of ellipses illustrate the failure that tacit knowledge captures compared to the explicit. One of the reasons of failures is that less tacit knowledge is transferable as this kind of knowledge is "sticky". (Szulanski & Cappetta 2003 and Szulanski 1996) One of the main sticky factors is the cultural noise, or put in another words, the cultural factors influence the process at a higher level. As Inkpen (2000: 1030) states, tacit knowledge can be shared only by interaction (internationalisation/ externalisation through socialisation) between organisational units with personal interaction.

Haas and Hansen (2007: 1134) distinguished two types of knowledge sharing mechanism within a firm such as by personal interaction and through electronic documents. The knowledge sharing through direct contact between individuals is defined as the procedure when one person advises another on how to complete specific tasks (Haas & Hansen 2007: 1135). Researchers call this method person-to-person sharing as the knowledge transfer requires direct contact between the provider and the receiver of knowledge in meetings, by telephone or via emails. This type of knowledge sharing might be called personal advice usage. The second way to obtain knowledge is from written documents that can be available in paper or electronic formats. In this knowledge sharing mechanism, the recipient does not need to contact the provider directly as the document can be used as a stand-alone resource. This

type of knowledge transfer might be named electronic document usage. (Haas & Hansen 2007: 1135.)

Argote, McEvily and Reagans (2003: 573) assigned a unique property of individuals as they said that individuals are the key drivers in knowledge sharing. Furthermore, the social status of individuals has to be considered in the sharing mechanism as in the organisation and knowledge of persons with high status is more likely to be licensed than that of one with low status. The status is an indicator in the process. On the other hand, dyadic relationship, which includes intensity of connection, communication and contact frequency between sources and recipients, and social similarities of participants influence the success of the knowledge sharing process. From the knowledge sharing mechanism point of view the value of internal and external knowledge have an impact on knowledge transfer. According to Argote, McEvily and Reagan's (2003: 574) the social isolates with special expertise are more likely to share their knowledge than the socially connected members with unique expertise. The success of knowledge sharing also depends on the ability of individuals to transfer knowledge accumulated on one task to related tasks. When individuals of an organisation recognise the similarities between tasks, it makes the transfer easier. The experience of people provides the capacity to understand shared knowledge better. The motivation of individuals determines if they are willing to expend extra effort transferring their knowledge or not. People can be motivated by monetary rewards and social rewards such as personal network expending. The social rewards can be just as important for individuals as monetary rewards. Moreover, the opportunity for people in the organisation is provided to learn from each other where they will share their knowledge more often and intensively. The management of an organisation can influence the organisational culture; provide opportunity for knowledge sharing for example by meetings which indirectly have an impact on the people's attitude on knowledge sharing. However, these sticky factors and barriers of knowledge transfer will be discussed with more details in the next section.

Literature divides the knowledge sharing tools classically to information technology (IT) based and direct human interaction based tools. In this study I have focused on the IT based tools in which the development of IT plays key role in organisational knowledge sharing to provide the access large databases and fast and easily reachable way of communication moreover, it bridges over geographical distance in the communication.

2.2. "Stickiness" and Impediments

As in the previous part we could see why knowledge is so important and critical for companies and I have provided reason why knowledge has to be shared within the whole organisation, in this part I describe what factors and impediments are likely to influence the knowledge transfer process in the studied organisation. According to Riusala and Suutari's framework about the international factors expected to influence the knowledge transfer processes, the following factors make the internal knowledge sharing "sticky": characteristics of knowledge, organisational, social and relational contexts. More factors might occur during the analysis. These factors will be included later on in the analysis and conclusion part of this study where the theoretical framework will be developed.
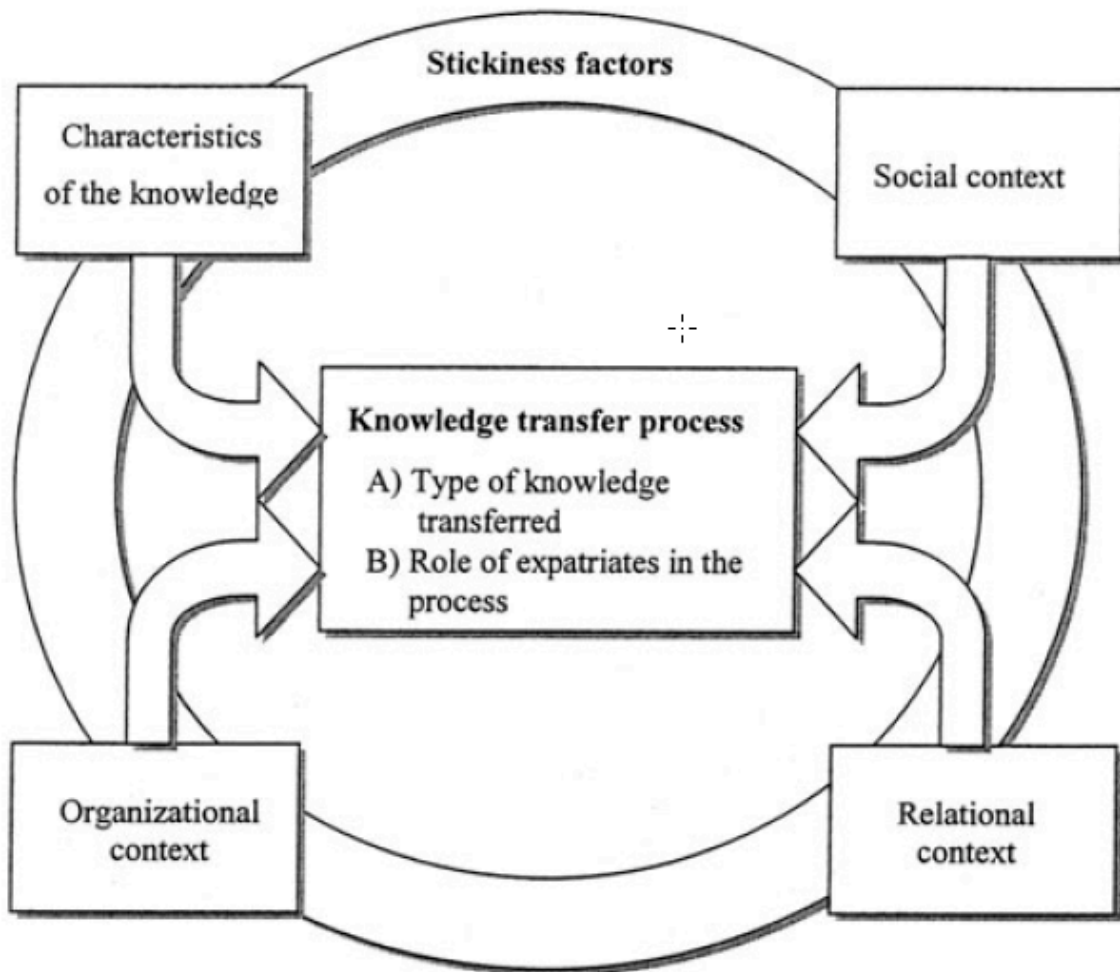
Figure 3. Riusala and Suutari's framework specifies the internal stickiness factors expected to influence the knowledge transfer process (Riusala & Suutari 2004: 751)

The knowledge transfer is not always smooth and successful even if when it goes in internally in the same organisational environment. Scholars have often referred the difficulty of knowledge transfer within organisations to an internal stickiness and can be caused by various factors (Riusala & Suutari 2004: 746). The knowledge transfer is a dyadic exchange of organisational knowledge between sources and recipients and this exchange depends on characteristics of everyone involved. While the recipient and the receiver (in some literatures call them source and sender) are involved in the process, their characteristics must influence the knowledge transfer beside characteristics of organisational context where the transfer obviously happens and characteristics of knowledge. However, I will discuss characteristics of source

and recipient under relational context and the characteristics of organisational context under organisational context part.
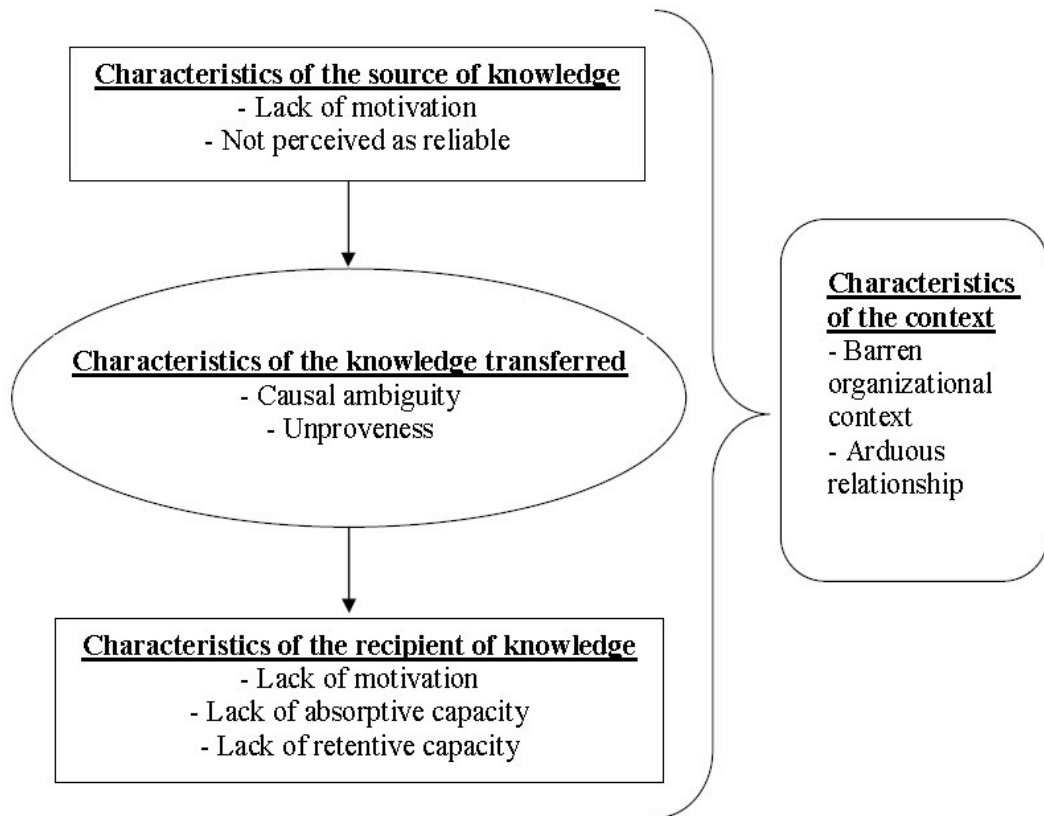
Figure 4. Szulanski's origin of internal stickiness (Szulanski 1996: 30-32)

2.2.1. Characteristics of Knowledge

According to Szulanski and Cappetta (2003: 522) characteristics of knowledge transferred include casual ambiguity and unproveness. On the other hand the central characteristics of knowledge are referred to its transferability, where the commonly accepted distinguish are two types of knowledge: tacit and explicit. I have already given the definition of tacit and explicit knowledge in the previous part so that here I

am describing the characteristics of knowledge from the "stickiness" of knowledge transfer point of view.

However, Kogut and Zander (1992: 387) made construct to measure different attributes of knowledge such as codifiability, teachability and complexity. The first feature of knowledge says that knowledge is more codifiable if it can be easily articulated in documents and by identifying the codes and symbols it can be easily communicated for the recipient. (Riusala & Suutari 2004: 747. and Kogut & Zander 1992: 387.)The teachabilty dimension measure how much the knowledge can be transferred successfully to the newcomers or other colleagues. (Riusala & Suutari 2004: 748) However, the complexity of the knowledge is not easy to measure and basically it reflects how many critical and interacting elements there are in the knowledge transfer process. Put it in a more systematic and computer scientific definition, it shows the number of the parameters to define a system. (Riusala & Suutari 2004: 747 and Kogut & Zander 1992: 388)

Kostova (1999) claim that the knowledge transfer does not occur in social vacuums as it is contextually embedded. Kostova distinguished three types of context such as social, organisation and relational. Riusala and Suutari's model was based on these contexts.

2.2.2. Organizational Context

The organisational culture defined as set of values and assumptions that include norms, symbols, rituals and cultural activities (Kostova 1999: 316). Kostova (1999: 316) grouped these values into the following seven dimensions: innovation, stability, respects for people, outcome orientation, detail orientation, team orientation and aggressiveness.

According to De Long and Fahey (2000: 115) there is a link between culture and behaviour, which is also noticeable and can be observed in the organisational culture. For that reason, the culture and the organisational culture are related to each other and even I would say that the organisational culture is a little part of the culture.

As De Long and Fahey (2000: 115) said "culture is reflected in values, norms and practice". Values are at the deepest level of the culture, which are embedded and tacit preferences about how people should do in the organisation and what they should strive and attain (De Long & Fahey 2000: 115). As values are at the deepest level, they are really difficult to change and even articulate, however they have impacts on the knowledge creation and transfer, as they are manifested in people's behaviours, they should never be underestimated (De Long & Fahey 2000: 115). So it means that people need to think about values and the values of the knowledge when they want and need to transfer knowledge and think about that these do have the same values for the recipients as well or not. Although in an organisation most of the values are the same and only the local national values could influence how much they are important for those people.

Norms are usually derived from values however, they are easier to observe and identify (De Long & Fahey 2000: 115). Norms are more susceptible to change for example if we are talking about information sharing. For instance in a setting where employees believe that knowledge sharing leads to personal risk taking and decreasing their power, they would not interact to support knowledge creation and transfer according to their social norms. (De Long & Fahey 2000: 115.) However, these norms can be influenced and moderately changed by management as they are not at the deepest level.

Practise is the third element of culture, which determines employees' behaviours. This is the most visible symbol and form of culture. More so, it is a widely

understood set of representative behaviour. One of the easiest ways to observe values is in how people answer to the telephone. Also it can be observed how people fill out forms, write reports, reviews etc. (De Long & Fahey 2000: 115.) The most easiest and possible way is to make changes in culture and also in organisational culture i.e. if you make changes on practice such as making it support knowledge sharing. Like sometimes managers change practise and norms in order to try to reshape values over time (De Long & Fahey 2000: 116).

The organisational context takes place in knowledge sharing and exchange. The success of the transferring knowledge in one context does not necessary mean that it can be replicated into another context and implemented in the same way. It might be accomplished poorly or the context fails to provide the necessary elements for a successful replication of the knowledge, it said to be barren. (Szulanski & Cappetta 2003: 525. and Szulanski 1996: 31-32.)

Kostova (1999: 317) distinguished two types of effects that influence the success of knowledge and especially practise transfer such as general and practise- specific. (Riusala & Suutari 2004: 748) General effects in an organisation are the values, which show how the corporation learns, innovates and make changes (Riusala & Suutari 1999: 748). Kostova (1999: 317) says that the practise-specific effects influence the success of transfer by the compatibility between the values implied by the particular transferring knowledge and the values underlying the culture of an organisational unit. If these values are compatible between the recipients and the source, then it will be easier for the recipient to understand and adopt the received knowledge than when these values are incompatible. There is one more type of effects on the organisational culture. It is the absortive capacity. Generally everybody supposes that their colleagues, who they contact or work with on tasks, have the same knowledge or background. The absorptive capacity is an ability to apply knowledge to assimilate and replicate new knowledge gained from external sources for example, at schools or in previous positions, organisations. Employees in a team

who have high absorptive capacity are more likely to harness new knowledge from their colleagues working for other teams when they help their activities. (Tsai 2001: 998.) The lack of absorptive capacity makes recipients unable to utilise external knowledge. The lack of basics skills or shared language or relevant experience and prior knowledge might cause this phenomenon. (Szulanski & Cappetta 2003: 524., Szulanski 1996: 31. and Tsai 2001: 998.)

On the other hand, the organisation culture and climate determines what people are willing to share what they know with their colleagues or they believe that if they share their knowledge with anybody, it causes losing their values. The last one often happens in a competitive working environment where employees do everything to win over their colleagues. The role of the organisational culture is significant input to success effective knowledge transfer so that managers have to develop organisational beliefs, values and work system in their organisational culture in order for it to encourage learning. (Janz & Prasarnphanich 2003: 353)

So a supportive organisational culture initiates and encourages employees for knowledge sharing activities by creating an environment where knowledge can be exchanged and accessible for workforce (Janz & Prasarnphanich 2003: 353). The organisational climate is closely related to organizational culture as has an impact on individuals, teams and then on departments or units, and finally on the whole organisational learning as individuals connected to them. When the organisational climate refers risk taking, rewards systems and providing a warm, friendly and supportive environment, the knowledge transfer will be shared more obviously and successfully beside initiative interaction among individuals. (Janz & Prasarnphanich 2003: 360) The friendly climate helps to assist in the learning by openness and caring attributes in the organisation.

Organisational rules and policies are parts of the organizational culture and these rules have effect on the knowledge flows in organisations. For example the organisational culture and climate can determine how to deal with mistakes as the norm can be changed and influenced by management (De Long & Fahey 2000: 121). So that norms in the organisation provide the ability to evaluate and correct mistakes, which becomes critically important to success of interaction for diagnosing and learning from errors (De Long & Fahey 2000: 121).

Every organization has its own organisational policies and rules. The main and general rules are that everything is handled as confidential within organisations especially in a multinational environment and there are several control points in the business activities and processes to provide this confidentiality. Moreover, employees have to prove written documentation about their actions as backup information to make the process transparent for involved people and mainly for auditors.

2.2.3. Social Context

This context has country-level effect on the success of the transfer as some countries provide more favourable environments for transfer and others present a number of difficulties (Kostova 1999: 313). So the main differences between the source and recipient countries are institutional distances and characteristics. So it might happen that due to the institutional environment differences, the transferred knowledge does not fit to the institutional environment of the recipient country.

Researchers have studies the concept of national culture, which was categorized to the regulatory, cognitive and normative nature of culture in a given country. Kostova (1999: 314) defined the regulatory component of institutional environment as it "reflects the existing laws and rules in a particular environment that promote certain

types of behaviours and restrict others". The cognitive component reflects the widely shared social knowledge and categories as a collective knowledge about people that distinguish the members of one category from those of other category. (Kostova 1999: 312 and Kostova & Roth 2002: 217) These kinds of category are stereotypes or frames of thought and schemas. The normative component reflects the values, beliefs, norms and assumptions about behaviours and natures of people from the same country (Kostova & Roth 2002: 217).

The communication is an important part of every national culture. People from different countries have different communication style and while it is obvious that communication is an extremely important part of knowledge transfer in the following part I show how national culture affect's on communication and through that communication, indirectly on the knowledge transfer process. Different cultures have effect on communication by their language specialities, communication style differences and value orientation characteristics. All these influence choices of people and how they start communicating with others hence how to build up the communication between them. Moreover these communication factors have impact on people and influence their decision when they have to choose communication tools to contact their colleagues. Additionally, as the manpower is really diverse in an international firm, we have to talk about intercultural communication. Lusting and Koester (1999: 52) defined the intercultural communication as a "symbolic process in which people from different cultures create shared meanings". The communication in an organisation happens through internally established standard operating procedures, organisational culture, assumptions, artefacts and overt behaviour rules that characterise the organisation (Taylor & Osland 2003: 215). Within organisations individuals have been recognised as the basis of learning and knowledge sharing. Their national or ethnic cultural background is the major influence on communication so it is reasonable to analyse how these senders and receiver's intercultural factors affect on knowledge transfer especially tacit knowledge, which can be lost during the transferring process due to the lack of connection problem between participants. (Taylor & Osland 2003: 213- 215.)

Table 2. Intercultural communication factors that affect organisational learning

Sender-related factors	Receiver-related factors
Marginality	Cosmopolitanism
Stereotypes	Satisfying
Style differences	
• High versus low context	
• Direct versus indirect verbal style	
• Personal-oriented versus status-oriented verbal styles	
• Self-enhancement versus self-effacement	
• Succinct- exacting- elaborate	
Linguistic ability	

The sender-related intercultural factors include the following: marginality, stereotypes, style differences and linguistic ability. Cultural marginality refers to people who have internalised to two or more cultures and they understand these cultures objectively and subjectively. Their positions bring them access to boarder sources of information and accurate view of events and circumstances. However, these people could feel as outsiders in both cultures. (Taylor & Osland 2003: 217-218.)

Stereotypes usually concern strangers, creating an expectation of how they would behave. Stereotypes are based on relatively little information. It is "an exaggerated set of expectations and beliefs about the attributes of a group membership category... an overgeneralization without any attempt to perceive individual variations" (Ting-Toomey 1999: 161). Stereotyping is a very normal behaviour and it is not always viewed as a negative behaviour, as it is helpful if people use it as descriptive information about groups or persons when they are willing to continue learning about

strangers. However, the absence of learning leads harmful reduction in intercultural communication effectiveness. (Taylor & Osland 2003: 218- 219.)

Another main factor, which affects communication in an international environment, is the communication style difference. Cultural and ethnic identities influence both the verbal and non-verbal communication styles (Taylor & Osland 2003: 219). Most common verbal style differences, which affect on organisational learning and knowledge transfer, are the following: high versus low context, direct versus indirect, person oriented versus status-oriented, self-enhancing versus self-effacing and elaborate versus succinct styles. (Taylor & Osland 2003: 220)

According to literature low context communication relies on explicit verbal message and senders and receivers with this style can easily transfer a clear and direct message. In contrast, in high-context communication the sender wants to transmit messages via the context and the non-verbal channels such as pauses, silence and tone of voice. It might happen that in the knowledge transfer between high and low context communicators they misinterpret the message and the part of the knowledge will be lost in the communication. In this research, the phenomenon how people use non-verbal channels can be observed only when employees call their colleagues to talk on the telephone to them. (Taylor & Osland 2003: 220.)

The differences between direct and indirect verbal style is the straightforwardness of the content message and the extent to which intentions are revealed by tone of the voice. The failure in communication between these different communicators is caused by, that in the indirect style the message is hidden in the verbal statement. For a person who has direct style it is hard to understand the real meaning of their words. (Taylor & Osland 2003: 220.)

The person-oriented style is individual centre so that it concentrates more on the individual personality and emphasizes the important of informality. On the contrast, the status-oriented style, as the name of it reflects the meaning already, emphasize the formality and concentrate on the role of individuals. Sometimes there is uncomfortable atmosphere and misinterpretation during the interaction between people with different oriented style, as person with status-oriented style does never except knowledge and information from somebody who is situated in lower position in the hierarchy. It determines who talks to whom in the hierarchy and also who is allowed to come up with new innovative knowledge and how much information is shared. (Taylor & Osland 2003: 220- 221.)

The next style pairs were defined according to importance of boasting about individual's accomplices and abilities or humbling behaviour, modest talks and use of self-deprecation when people talk about their performances. The first one descries the self-enhancement style and the second one defines the self-effacement. There is a big chance when people from self-enhancing society will not pay attention on self-effacing people's knowledge transfer as their styles might be distasteful for them and they will ignore and sabotage organizational learning. (Taylor & Osland 2003: 221.)

The last communication contrasting styles are the succinct versus exacting and elaborate verbal ones. This refers to the amount of talk which people feel comfortable. The quantity of talks increases from succinct such as low amount to exacting (just "right" amount of words) to elaborate (high amount). A typical example for elaborate communication style is people from Latin countries who are always eager to talk even just to fill in the silence as opposed to Finnish people who think that sitting in silence with somebody is a social activity. (Taylor & Osland 2003: 221.)

The lack of language comprehension and fluency impede the understanding and cleareness of the context (Taylor & Osland 2003: 221). People can hardly exchange their knowledge if they do not speak the commom language very well. Due to this problem many people in an international organisation tend to restrict their communication to fellow colleagues who speak their languages.

According to Taylor and Osland (2003: 222) the other main factors are the receiver-related factors that affect on the international communication inside organisation and set up barriers into knowledge transfer. One of the receiver-related factors is cosmopolitanism. Cosmopolitanism is an attitudinal stance toward the outside world. Cosmopolitan people orientate toward the outside world and are more open-minded than others. If people have this attitude, they accept and adapt to new information and knowledge much easier and quicker so that the cosmopolitanism of receivers influences the effectiveness of communication in an international environment. The lack of cosmopolitanism might lead people to ignore incoming information or knowledge from outside of their local sources as they think that it is irrelevant to their concerns. (Taylor & Osland 2003: 223.)

The other of the receiver-related factor is the satisfaction. When people are satisfied they are likely to believe that their knowledge and skills are good enough and they stop learning (Taylor & Osland 2003: 223). In long-term period this attitude is enough to ruin business or in other circumstances could be successful in their careers, however they are stuck at their current stage in the developing progress and although competitors are passing them due to their continuous learning they get highly qualified.

The research is going to be made in one office of IBM Hungary in Budapest so that the institutional characteristics and distances might not turn out in the interviews. On the other hand, the interviews will be made with international people so the

components of institutional theory can appear partly during the analysis. From the social context I believe that in the analysis of collected data most of the intercultural communication factors will be observed.

2.2.4. Relational Context

In the knowledge transfer the relationship between source and recipient plays an important role as well as beside the organisational and social context. The lack of relationship can cause failure even if both, the organisational and social context are favourable in the transfer. The knowledge transfer, especially when it includes tacit components, requires several individual exchanges between the source and recipients so that their relationship determines how smooth the knowledge flows between partners. (Riusala & Suutari 2004: 748.)

Szulanski and Cappetta (2003: 522- 525.) proved in their study that characteristics of recipients and source make the knowledge "sticky" in the transfer and some of them require more efforts to provide the flow between partners. The source may have a lack of motivation to share knowledge as they are afraid of losing values or a position that results to passive behaviour and a kind of hidden sabotage. If the knowledge is not perceived as reliable, it will influence the source and increase the stickiness of the sharing knowledge. More trustful is that when the source is perceived, the less sticky knowledge it is to transfer. The lack of motivation does not influence just sources; it also influences recipients in accepting the transferring knowledge. The resistance of external knowledge is called as "not invented here" or NIH syndrome and it causes passivity, hidden sabotage or rejection in the implementation of new knowledge. (Szulanski & Cappetta 2003: 524. and Szulanski 1996: 31.)

The most important origin of internal stickiness was the arduous relationship between the source and recipient (Ruisala & Suutari 2004: 748). The previously established relationship between source and recipient influences the knowledge sharing process and is important from the contextual aspect as the continuous knowledge sharing process depends on a certain degree of the ease of communication and the "intimacy" of the overall relationship between the source and recipient. However, the distant and the hard relationship between the involved partners make the knowledge sharing process more difficult and cause an arduous relationship. (Szulanski & Cappetta 2003: 525. and Szulanski 1996: 32.)

According to Kostova (1999: 318) there are two types of relationships: attitudinal and power/ dependence, which are the most important in relational context. However, she worked out and proved her theory on practice and knowledge transfer between parent companies and subsidiaries and in my research I examine the social context only in one department in one country so these factors might appear a little bit differently from Kostova's theory. Attitudinal relationship reflects how actively the involved people are engaged in the transfer process to provide its success. There are three types of attitudinal relationships that affect the motivation of sources and recipients such as commitment, identity and trust. These factors affect the level of new knowledge adaptation. The commitment of recipients is defined as the degree to which coalition members are willing to exert considerable effort on behalf sources and have a strong desire to maintain the relationship with sources (Kostova 1999: 318). If somebody is committed to the source she or he will be more willing to meet with the challenging of the process transferring and any kind of tasks. Identity is defined as a reflection of the degree to which the members of the transfer coalition experience a state of attachment to the company (Kostova 1999: 318). So it means that if recipients feel that they are the part of the organization or project where the knowledge transfer process is necessary they will likely share the values, beliefs and goals of the company embodied in the practise and they will also accept and adopt the transferred knowledge easier (Kostova 1999: 318 and Kostova & Roth 2002: 220). Identity of the recipient with the source will also reduce the effect of the NIH

syndrome and the transferred knowledge will be perceived less stranger (Kostova 1999: 318).

The trust defined as a common belief within the source and the recipient that sources "(1) make good-faith efforts to behave in accordance with any commitments; (2) is honest whatever discussions precede such commitments; (3) does not take excessive advantage of the recipient.., even when the opportunity is available" (Kostova 1999: 318). If the level of the trust is higher it will likely reduce the uncertainty regarding to the value of the transferring knowledge and the motives behind the transfer (Kostova 1999: 319). The level of the trust influence, knowledge flow and moreover the amounts of the knowledge flow, and lack of it causes serious barriers in the knowledge transfer between individuals. Trust influences how much people accept or transfer information or knowledge from their colleagues and how they will use it in the future for their work. As it occasionally happens when for example a financial analyst does not share information about the cost with his/her engineer colleague who needs to design a project, just because he/she does not trust him/her. First of all, it sets back the speed of the work as he/she might need to redesign to fit in the cost/financial plan, secondly it influences the amount of knowledge flow between the two departments. (De Long & Fahey 2000: 119.)

Power/ dependence relationship between the source and the recipient might prove an alternative source of motivation to comply with knowledge transfer and this engages actively in the transferring process (Riusala & Suutari 2004: 749 and Kostova 1999: 319). The dependence of the recipient on the source might be developed from the positioning at the lower hierarchical level in the organisation (Kostova 1999: 319).
On the other hand, the recipient has to know the right person, the source in order to get his or her knowledge. In the recent knowledge based economical world, the magic is to know the right person who knows what you need to solve your tasks and problems. For this reason, individuals in the organisation make efforts to build their personal network to get to know somebody in every area, which is related to their

work. To find somebody and achieve his or her knowledge in the organisation, most of the corporations provide modern information technology-based facilities for social network building such as intranet, instant messaging and so on. (Tsai 2001: 998.)

Hansen (1999: 82) there are two type of social network: one of them is based on strong ties and the other one is on weak ties. There are weak ties in distance and infrequent relationships or non-direct relationships. Weak ties help a team search for useful information for example in other units and they provide access to acquire information. Strong ties occur among small groups in which everyone knows what the other knows and they usually concentrate more on the problem to find the relevant information. (Hansen 1999: 82.)

People build their network on similarities so it means that people are willing to interact with others who have the same national or cultural background, speak the same language (especially when it is theirs mother tongue) or have the same organizational status (Makela, Kalla & Piekkari 2006: 1- 22). According to Makela, Kalla and Piekkari (2006: 1- 22), the knowledge sharing among individuals flows better if there are similarities between sources and recipients. There is a tendency that people associate with others like 'themselves' (Makela et al 2006: 3). These similarities can be based on geographical proximity, or on cultural, or on behavioural resemblances. This phenomenon in sociology is called homophily and it is perceived very well for instance in a meetings or workshops where people meet for the first time. The interpersonal homophily is tendency of similar people interact with each other (Makela et al 2006: 7- 8). According to the homophily theory, when you put people in an unknown international environment they will find someone who are like themselves for example from the same nationality or have the same organisational status/ position and they will start talking about common topics (Makela et al 2006: 3). In the same way people in multinational environments build and extend their social networks that they use for their current work by focusing on national, linguistic and organisational similarities (Makela et al 2006: 15). However, this

interaction tendency between similar people may have an aggregate effect at the organisational level. This phenomenon may produce an informal clustering within the organisation and develop significant barriers of knowledge sharing as sources and senders get to know each other and start sharing their experience and knowledge only if they belong to the same cluster (Makela et al 2006: 11).

The fact is about Riusala and Suutari's framework on the international factors expected to influence the knowledge transfer processes that theoretical stickiness factors have not had much empirical validation yet. However, this study analyses these factors at the general level to develop a theoretical framework in the end.

2.3. Information and Communication Technology (ICT)

In this chapter I introduce the characteristics of ICT tools and how individuals use ICT tools in the business to share knowledge. I also show the main decision making theories to provide a better understanding to the reader on how people make decisions in order to understand which ICT tools they choose to use for communicating with their colleagues about their problems or tasks.

2.3.1. Information and Communication Technology in Business

In today's working environment, offices without computers are unthinkable and most of the people can reach at their workplaces by emails. In organisations ICT tools are used for communication by dynamic interaction between people (Bouwman et al 2005: 4). ICT tools are all the different technologies that people use to communicate and share information and even knowledge (Bouwman et al 2005: 32). According Dewulf and Van Meel (2002: 242) "the terms ICT is rather broad, but basically it

encompasses digital equipment (computers, organizers, mobile phone), the software that runs this equipment and the underlying infrastructure (Internet, extranet, intranets)."

Nowadays in this world in several professions such as financial, design, programming, all you need is a computer through which you can point people to knowledge and you can share the needed knowledge over distance. Even currently more and more university try the online teaching and provide online course to their students. By videoconference the technology has made it possible for you to sit down and interact with your partners as a kind of "face-to-face". The only difference is the absence of physical contact between the parties involved. (Jäväjä 2007: 21.)

ICT tools can spread information involving large numbers of end-users by providing possibilities of email, intranet and so on. Certain technologies may take away the barriers laying in knowledge sharing such as geographical distance and time differences between people in closed time zones. In business these tools are helpful in informing users, facilitating their participation wherever they are and creating commitments. These tools provide the fast and easy way to communicate. The only problem incurred is that users have to be active. (Dewulf & Van Meel 2002: 238-243.)

2.3.2. Classifications of ICT Tools

According to the time aspect, ICT tools can be divided into two categories: synchronous and asynchronous regarding to the exchange of messages among communicating parties. The synchronous type of ICT tools is able to make real time communication between users (Bouwman et al 2005: 32). However, they require from their users continuous availability on the actual tools. These kinds of tools are telephone, instant messaging, audio and videoconferences. The asynchronous ICT tools deliver do not need to deliver messages in a short time and as the time is not the most important factor. Users have to wait to get their messages although they do not

need to be always logged in to the specific tools to get them. These kinds of tools are emails, voice mails, databases and intranet.

From the information theories of information technologies, the coding theory is the most important and direct application. The coding theory can be subdivided into source and channel coding. The source coding is how the information of the user in physical signals is transformed. The information when goes through the channel suffers from physical variations, and when the receiver tries to decode the information, error might be produced. The data compression through tools can be done by lossless, when the data must be reconstructed exactly and the information is represented with essentially free of error. The lossy way is when the data is reconstructed within a specific fidelity level (Yeung 2008: 3.) From these aspects the information and data are not transmitted totally however, the lost data does not influence the meaning of complex transferred information. (At this point we have to note that information technologies and digital communication literatures do not make difference between information and knowledge since machines do not differentiate between the types of information that they are transmitting. From their point of view the knowledge is a message, numbers of data what has to be transferred on through a medium.) The channel coding theory is about how information is transmitted through a channel. During the information transferring an error correcting code can be added to data in order that only the right redundancy goes through efficiently and properly across the noisy channel (Yeung 2008: 1).

When we talk about ICT tools, it can be significant as well that the information from digital communication point of view is transmitted to one or several points. When the message generated by the source is delivered to one receiver, it is called point-to-point communication system. When the same message is delivered to several receivers, it is the point-to-multipoint one (Yeung 2008: 2).

On the other hand, the quality of communication is a significant feature of real-time telecommunication networks and it plays an important role in transmission of information. Different tools provide different quality of service (QoS) levels and QoS is formed by several factors additionally, every part of the communication scheme provides different means of QoS. For that reason, in the beginning the main factors, which are important in the actual communications, have to be determined from all of the involved components of service. For instance, in a message there are a group of physical symbol such as words, dots or dashes, which by general agreement convey certain meaning to the communicating parties (Harvey 1928: 536). In communication the sender mentally selects particular symbols such as his voice in order to get the attention of the receiver. When these symbols are successfully selected, they will get the listener's attention. More carefully the selection of symbol sequence is, more precise message the listener will get. (Harvey 1928: 536.) The QoS is formed by several factors, which can be divided into two groups: human and technical ones (Peuhkuri 1999.). The human factors are what people expect from the communication service such as stability of service quality, availability of subscriber lines, waiting times and fault clearance times. The technical factors are how the technology tries to satisfy the human requests by offering for instance reliability, expandability effectiveness and maintainability of the system. (Peuhkuri 1999.) When people use the network, they prioritise their needs through QoS parameters. Then their information will treated on the established channel according to their priorities. As the ICT tools will transfer the information with best effort rates inside the priorities defined by the user, people always have to carefully choose the most suitable assets according to their preferences. These technical details of ICT tools might influence the choice of people, which tool to use in knowledge sharing. Besides, they might help to understand employees how they use ICT tools to share tacit knowledge in multinational environment.

In this study I focus on only the email, instant messaging and telephone from all of the ICT tools and analyse how people in IBM use them to communicate with their colleagues. Firstly, the reason why I choose these three tools is that in IBM APC

these are assets that every employee uses for their daily activities. Moreover, instant messaging and telephone are synchronous, real time and email is asynchronous tools. All of them are able to make point-to-point or point-to-multipoint information transfer as even on telephone you can make teleconference and call several users at the same time. Each of these tools provides a different kind of service, in this sense, for every communication, users will choose the one that is more appropriated to their needs. Secondly, these tools have all the selections of presented technological categories, which make this study more reliable and give a better picture in the end of this study why and how people use their chose in knowledge transfer.

According to WordNet (2006.) electronic lexical databases for English languages email is "a system of world-wide electronic communication in which a computer user can compose a message at one terminal that can be regenerated at the recipient's terminal when the recipient logs in". Email bridges over distance and time barriers as receivers do not need to be always logged in to their email-boxes to communicate with sources as it keeps messages for a while.

WordNet (2006.) defines the telephone as "electronic equipment that converts sound into electrical signals that can be transmitted over distances and then converts received signals back into sounds". This equipment provides the possibility to communicate with someone who is located in a different place. However, users need to be always next to the telephone to pick up it when it is ringing and answer to the call.

Cross, Parker and Prusak (2001: 109) gave a definition of the instant messaging program as a system through which the organisations provide a quick possibility to communicate by overcoming barriers of physical distance. It allows users to send messages to each other simultaneously while the developed variant of instant

messaging provides applications for audio or video conference calls (Cross et al 2001: 109).

My experience is that these are the most commonly used tools in everyday work of an international ICT firms and their usages do not require high level of technical expertise. Although generally international organisation use mostly email and telephone for communication and instant messaging programme is still not the most frequently used ICT tool, only in production companies use them to contact their colleagues. Besides, nowadays most people use these tools for communication in their everyday lives for example to talk to their friends or to their parents.

2.3.3. Decision-Making Theories

Decision-making is generally considered by managers and academic literatures to usually connect this topic to the management among organisational activities. However, people at every level in the organisation make decisions about which tools they choose for their work to use for communicating with their colleagues about the actual problems; and by understanding these theories they help to answer the second research question, which factors must influence individuals' decisions which tool to use in knowledge sharing.

Decisions can be seen as products of the decision making process, where identifying decisions is often problematic (Fulop, Linstead. Lilley & Clark 2004: 265). Mintzberg and Waters (1990: 2) say in their study that it is difficult to track decisions down as managers often seek to avoid making decisions or obscure them. They said that the action is actually more important than the decision as the action can be observed. Consequently, Fulop, Linstead. Lilley and Clark (2004: 465) see "decisions as occurring in a flow of smaller decisional acts". The traditional

decision-making approach is defined as response to a situation requiring a choice (Fulop et al 2004: 466). This choice is not always objective and rational as values and institutional arrangements or others can influence it. Researchers also found it necessary to categorise decisions in order to describe the process of decision-making (Fulop et al 2004: 466).

They identified three types of categorisations for decisions: sporadic, fluid and constricted. The sporadic decision processes are informal and suffer from delays due to waiting for information to overcoming resistance or opposition. There is often variable information gathered from various sources of expertise as a result, the decision takes a long time to take and it is eventually be made at the highest level and it does not happen on a routine bases. Fluid decision processes as the name suggests, flow. They are formally channelled and relatively speedy and predictable in order to make the decision process smoothly. It is due to source of information are fewer, more familiar and seen to be reliable. For that reason, there are fewer delays. Constricted decision process are narrowly channelled as there are more source of information but these are usually technical from experts in order that there is less effort needed to acquire information, which is readily available. These decisions can be made at the local level and these kinds of decisions deal with familiar matters. Making decisions about which ICT tools to use and whom to contact to get the necessary knowledge to solve tasks and problems are mainly in this decision type as needed information is readily available, require expertise from familiar areas. (Fulop et al 2004: 466-467.)

Simon (1984) in his study distinguished two type of decision: programmed decisions and non-programmed decisions, which are important to identify as they require different methods of problem solving by involving different modes of managing and organising. Programmed decisions evolve from polices, rules, precedents and guidelines and usually are made routinely and repetitively. By contrast, the non-

programmed involves finding solution to problems, which are usually uniquely unstructured. (Fulop et al 2004: 470.)

Fulop, Linstead, Lilley and Clark identified five organisational decision models, which are the following. The theory is "under rational model of decision making, the assumption is made that participants have agreed in advance that making a decision is the right process to follow and that rules and languages of decision making are understood by all" (Fulop et al 2004: 467). According to this theory the decision-making processes is seen as a sequential series of activities leading from an initial recognition of a problem through the delineation and evaluation of alternative courses of action and the selection of the preferred alternative to the implementation of action (Fulop et al 2004: 467).

According to the bureaucratic or administrative model, decisions are based on the actual behaviour of decision makers. Some researchers believe that there are cognitive and mental limits to human rationality as there are limited capacity of processing information and limited available source of information. Other elements also make the rational decision-making impossible such as deadlines, group pressures or cost consideration in order to make the decision based on the actual behaviour of decision makers. (Fulop et al 2004: 470.)

The garbage can model of decision-making is based on the approach, which assumes a clear linkage between goals, people and solutions. Cohen, March and Olsen (1972) worked out this approach and they said that under conditions of organized hierarchy, it is not clear when an issue arises whether it is a problem or a solution to a problem so that through this process problems and solutions become linked together and a problem in area becomes a solution in another one. Fulop, Linstead, Lilley and Clark explained that according to this model, decisions are based on ritualistic activities as

due to the ritualistic nature of processes, individuals interpret and justify their choices to others. (Fulop et al 2004: 475.)

The political model of decision-making is based on the theory which says that there is not always harmony and agreement between organisational participants over organisational goals and how these goals are to be achieved. Researchers recognised the role of the conflict and this approach says that the political model is the conflict resolution in the decision making-process as different groups have different goals and strategies for pursuing their interests. (Fulop et al 2004: 476.)

The last model is retheorising decision making, which uses a textual process model of organisations, means for instance, that the analytical emphasis is placed on understanding the practices involved in communication in specific context. Elements of the model are discourse, text, genre and social subjectivity. The major concept is the social subjectivity, which says that in society, at home, at school and at work we are all social subject and that we are social beings, products of social influences that create our sense of individuality and self-awareness. These social influences operate through languages and communications and the subjectivity means the condition, which is continually formed and reformed under changing social, economical and historical circumstances. In this decision-making theory the social subjectivity concept is used to look at managers and others in organisations, since according to this model they make decisions as a communicative process, operating in specific organisational context. (Fulop et al 2004: 482- 489.)

Some researchers believe that the non-decision making is also a decision-making theory moreover, they say that dominant coalitions when people (who do not necessarily refer to formal authority holders) can produce such awesome concentration of power and they can influence or totally reshape their environment in that they are operating (Fulop et al 2004: 477).

2.4. Summary of Literature Review

The knowledge is important in an organisation as all organisational strategies are based on knowledge. Davenport and Prusak (1998: 5) define the knowledge as "a fluid mix of framed experiences, value, contextual information, and expert insight that provides a framework for evaluating and incorporating new experience and information". Most of the literatures distinguish two type of knowledge, the explicit and tacit knowledge. The main difference between them is that the explicit knowledge is easily codified, communicated and transferred. It can be written down into a document. When somebody reads this document he/ she is able to understand this type of knowledge without further explanation. The tacit knowledge is more complex and it can be defined as a "hidden" knowledge form what is usually learnt by experiences. It is difficult to transfer and the tacit knowledge sharing process always requires continues interaction between the recipient and the source. For that reason transferring tacit knowledge within organization is a real challenge for companies.

In this dramatically developing and changing world the knowledge has become the most strategically significant resource of organisations. According to resource based of view, the knowledge provides core competences for the company and it let the organization create their competitive advantages to excel at the business and the company could over perform their competitors. The knowledge of competitive advantages has to be shared within the whole organisation. Moreover, the skills, knowledge and experiences of individuals working for the organisation are invisible assets, source of the company. The management build their strategies on the knowledge of these people. For that reason transferring and sharing the knowledge of people is essential key of the company. (Davenport & Prusak 1998 14- 17.)

The knowledge is transferred in an organisation through four stages: initiation, implementation, ram-up and integration (Szukanski 1996: 28- 30.). At the first stage

the problem and the need for new knowledge is identified. In the implementation stage the recipient starts using the transferred knowledge. During this stage problems of the ineffectively used new knowledge will turn out. In the last stage the recipient and source will solve these problems by verifying the transferring knowledge. In the end of the process the receiver will be able to utilise the transferred knowledge. The knowledge within an organisation flows in a spiral way. It comes from the individual level and by the interaction of people it moves towards to their groups, departments, units and in the end to the whole organization. During this process the knowledge becomes richer and flares out by people adding values and norms. The tacit knowledge is difficult to transfer as there are several factors influencing its sharing process. It is a fact that less tacit knowledge can be transferred within organisation than explicit one. The main reason of tacit knowledge sharing failure is that this kind of knowledge is "sticky" (Szulanski & Capetta 2003 and Szulanski 1996).

Riusala and Suutari identified the main international factors that influence the knowledge transfer, make the knowledge "sticky" and distract the knowledge to spread in the organisation smoothly. In this research this model helps to understand how people use ICT tools to share tacit knowledge in a multinational setting. These factors are the characteristics of knowledge, organisational, social and relational context. The main characteristic of the knowledge in this study is the transferability. The other important characteristics of knowledge are codifability, teachability and complexity (Koghut & Zander 1994: 387). However, as lot of researchers proved it, it is more difficult to transfer, codify and teach tacit knowledge than explicit one. Moreover, tacit knowledge is really complex compare to explicit one. The organisational culture defined as set of values and assumption that includes norms, symbols, rituals and cultural activities (Kostova 1999: 316). As the organisational culture is a culture, it is noticeable in values, norms and practices (De Long & Fahey 2000: 115).

When the knowledge cannot be transferred from one department to another one successfully and this knowledge cannot be replicated exactly in the same form in another group, one of the reasons can be the organisational cultural difference

between these departments. The organisational culture has effect on the knowledge sharing and differences between the organisational cultures of recipient and source might cause failure. However, the absorptive capacity of individuals so that people's abilities to apply and assimilate new knowledge, influences how much transferred knowledge can be replicated in recipient organisation. (Tsai 2001: 998.) An organisational culture and climate, which support organisational learning, adopting and sharing external and internal knowledge, has positive effect on knowledge transfer. Although even if the organisational culture is supportive, the lack of employees' basic skills makes the knowledge transfer impossible.

The social context has country-level effect in the success of knowledge sharing. This concept shows how national cultures, the institutional distances and characteristics of people participating in knowledge sharing influence the accomplishment of knowledge transfer. From nature of national point of view researchers categorised the national culture to regulatory, cognitive and normative. The communication is a crucial part of every national culture. In this study it gets an essential part, as the communication is significant component of knowledge sharing mechanism. As this study is observing the knowledge transfer in multinational environment where the manpower is diverse, the intercultural communication factors of the sender and the receiver could influence the process of knowledge sharing. Additionally, indirectly these factors could significantly influence on the choice of people of ICT tools when they have to choose one from three of them to contact their colleagues. The sender-related factors are marginality, stereotypes, style differences and linguistic abilities. The receiver-related factors are cosmopolitanism and satisfying. As this study focus on two only verbal ICT tools (email and instant messaging) where non-verbal communication is impossible. On the third tool, on the telephone the non-verbal communication is partially possible, the communication style differences of source and recipient are very interesting. These style differences are high versus low context, direct versus indirect verbal style, personal- versus status-oriented style, self-enhancement versus self-effacement and succinct-exacting-elaborate verbal styles. According to Taylor and Osland (2003: 220- 221.) these style differences

influence the sender in the communication and how he/ she builds up the communication, choose asset for the knowledge transfer.

Last but not least the factor of Riusala and Suutari's framework is the relational context. If there is lack of relationship between receiver and source, the knowledge transfer will never accomplish. People can be related to their sources with weak or strong ties. The relationship can be weak when partners know each other perfunctorily although they cooperate during the transfer. The connection between participants is strong when it is based on previously established relationship, they know each other and they know what their partners know. (Hansen 1999: 82.)

The trust is important part of every relationship. It determines how the recipient handles the source and his/ her behaviour. It also determines the success and the speed of the knowledge transfer. Besides, people often build their relationship on similarities and interpersonal homophiles. There is a tendency that people prefer to talk to somebody who are from the same nation, or they are at the same level in the hierarchy, or speak the same languages, or working on the same task, having similar responsibilities (Makela et al 2006: 7- 8.). Basically, people extend their network on similarities to themselves.

In this world an office without computers are unthinkable and people in several processions are able to reach their workspace by intranet and email. In an organization ICT tools are used for communication by dynamic interaction between people (Bouwmanet et al 2005: 4). Software and programmes running on computers provide space and opportunity for people to transfer data, information and even knowledge to large number of recipients. However, machines do not make differences between the types of information that they are transmitting. Certain types of technologies can take away the barriers laying in knowledge sharing such as geographical distance, limited time differences. From the time aspect ICT tools are

categorized to synchronous and asynchronous depending on if they are able to provide real time communication among users or not. The significant feature of real-time telecommunication networks is the quality of the communication tools can serve (Peuhkari 1999.). Different tools provide different quality of service. From digital communication point of view it is also important if ICT tools make transition to one or several point (Yeung 2008: 2). These characteristics of ICT tools might influence the choice of people which tool they use for communication. In this study from all ICT tools focus on only email, instant messaging and telephone as these are the most commonly used assets in IBM for daily activities. The context in Riusala and Suutari's framework and ICT tools characteristics are likely help to recognize and identify the factors which tools people in multinational environments use and how to share tacit knowledge.

Understanding the decision making theories might help to recognise how people choose ICT tools for transferring tacit knowledge, which factors are influence their choices they make. Fulop, Linstead, Lilley and Clarke (2004: 465) defined the "decisions as occurring in a flow of smaller decisional acts". Basically, the decision making is a response to a situation that requires choice. Literatures categorised to sporadic, fluid and constructed decisions depending on numbers of sources where decision makers getting information from. Fulop, Linstead, Lilley and Clarke identified the following decision making theories. The rational model is based on rules, which participates made and agreed with in advance and participants follow. According to bureaucratic model people get the decisions based on their actual behaviour. When people make their decisions following a clear linkage between their goals and solutions, they use garbage can model for getting to their choice. Then in the political model the conflicts play role in the decision process. According to the last model the environment of decision makers and their society influence their choice.

3. METHOD OF RESEARCH

This chapter presents the methodology and the approach to be used for the empirical part of this research.

3.1. Research study

In this study I use inductive approach with qualitative research and abstract methodology. The research questions of this study are descriptive and explanatory in order to get a deeper understand of the social phenomena of ICT using and influencing factors.

- How is ICT (especially email, instant messaging and telephone) used to share tacit knowledge in a multinational setting

- Which factors most influence the decision which tool to use in tacit knowledge sharing?

The unstructured approach helps to build up a picture of behaviours and natures of the phenomena and to find the theoretical part of the study. This approach also gives me a chance to use my creativity and come up with a new, unique framework. On the other hand, by using this approach I might not know exactly what I will find and even how to get there moreover, it is impossible to achieve a deep immersion. For that reason I used ą and Suutari's framework to compare my findings with the key components that is found in literatures. (Mayor & Blackmon 2005: 349.) However, this is the best choice to make analysis of the collected data for this study as the

intuitions guide the analysis and interpret the findings, which provide originality and value of the research. (Mayor & Blackmon 2005: 141, 149, 161)

The inductive logic is to develop concepts and a conceptual framework from my own data to generate theory after analysing them and identifying patterns (Mayor & Blackmon 2005: 150). Moreover, during the research process the study is constantly considering to authors who previously made research in the same areas and justifying with arguments. (Yin 2003: 56.)

Beside the academic reasons, there is one personal reason that I chose this approach for my study. I work for IBM Hungary and my position is related to the Budapest Office. I had the chance to get access, collect data and make interviews with my colleagues in the midst of my thesis process. For these reasons above, I decided to choose and use this methodology, which is not so common among master degree students because most of them do scientific research and first build the theory and then test it in the empirical part of their studies.

This study is used qualitative research with abstract structure. It means that before the empirical part I had the research problem and some key variables in my mind however, there was not any specific relationship between variables developed or theoretical perspective (Mayor & Blackmon 2005: 245). The qualitative research is more suitable for this study compared to quantitative research to analyse and make observations about a phenomenon and effort to provide rich contextual data to generate theories. One of "the preference for qualitative research is that it is understood simply as the analysis of words and images rather than numbers" (Silverman 2000: 8). However, with qualitative research the authors' subsequent identification is underlined as they know relatively little about the subject, that is under investigation (Silverman 2000: 8).

By using quantitative research authors objectively report reality, which based on statistical correlations, various mathematical models, graphs and relationships between variables. It is the best to use for testing hypothesis by measuring phenomenon and perceiving its values. However, it cannot be used for observing process and inappropriate to use to some of the tasks of social science. (Silverman 2000: 2.)

For that reason the qualitative case study method was chosen as this seems to be the most appropriate in this kind of research where the contemporary social phenomenon is in focus and descriptive and explanatory questions are asked. Besides, I chose case study to seek data as it seems to be the most appropriate to link the initial questions and propositions of the study to describe the phenomenon and interpret the findings in the selected unit in detail. (Yin 2003: 20- 21.)

3.2. Data Collection

In the empirical part of this study, the data collection is based open-ended, semi-structured interviews. The source of this case study are the interviews as they allow the interviewer to pose informative "why" and "how" questions to get the interviewees' personal opinions and thoughts about the observing phenomenon (Yin 2003: 89). Moreover, this kind of interviews is rather guide the conversation and might lead the discussions into areas that I had not previously considered but which are significant for understanding the phenomenon. By using interviews there is an opportunity to probe answers where I want my interviewees explain more or build on their responses. Moreover, in open-ended interviews the interviewer can add more questions or clarify those when they are needed for provide better understanding of interviewees. (Saunder, Lewis & Thornhill 2007: 315.)

The initial interview was structured and formed based on the research questions and the supposed factors in the literature review, which are provided in the beginning of the study. Although additional question were asked always when they were necessary. The questions were divided into three parts. In the first part of the questionnaire, background questions were asked such as the status in the organization and work description. In the second part, questions were about how interviewees use ICT tools in their everyday works to interact with their colleagues. Questions are related to the typical interaction situations, contact frequency, used communication tools, nature of the contact and problem solving processes etc. The last part of interview included a kind of checking questions, which were related to the supposed factors based on previous studies and literatures. The purpose of these questions were to check and clarify interviewees' response of previous descriptive type of questions and make sure if the factors, which were in my mind before starting the empirical part of this study, are influencing the ICT tools or not.

In order to achieve as clear picture of the studied phenomenon as possible I use inductive research with qualitative method, the interviewees were chosen by the following criterions. As I have been working for the company for 2 and 1/2 years, I have a basis for accessing information and I am an evaluated as a well-informed interviewer (Saunder et al 2007: 320). All respondents had sufficient knowledge of the business and its processes and all of them play a substantial role in the case company. The interviewees were chosen to represent all hierarchical levels with intention. One employee and one manager (or at least team leader) in each team, who work in an international environment and contact people from abroad every day as it is related to their everyday tasks. Another important criterion was that respondents have different backgrounds to get a wide and more valid picture and broad perspective to the observing topic. On the other hand, even if I made the interview with international people from different groups, one thing gives an essential limitation of my research. This is that all of them work in Budapest or in Vác (town around 50 km from Budapest), for IBM ISSC Hungary.

In my opinion the following criteria might have affect on the choice of people on ICT tools such as age, position, status, nationality and length of employment. Everybody use email as providing backup documentations of every action is needed although when you need to transfer tacit knowledge, which is hard to codified and documented, writing an email is not enough so people have to use complementary ICT tools to share their knowledge. As most of IBM employees in APC are between 25 and 35, they are familiar with the modern technical equipments and know very well how to use a computer and different programmes running on it. When somebody is from a high context culture, where people love talking and explain things with lot of words and several sentences, they more likely prefer to use the telephone instead of "Sametime" as typing everything what they want to say, takes time. Moreover, people from different culture have different communication styles and these intercommunication factors of nationalities most likely have affect on their ICT tools choice. According to my experience when a person is sitting in higher status in the hierarchy such as managers, they prefer to use the phone to communicate as generally they are very busy and they do not have time for typing and chatting on instant messaging program. The length of employment influence how much people could metamorphose to real APC employees and adopt the organizational culture. Additionally, during the time they have spent working for IBM, they could build their personal networks and establish working relationships. These also most likely to influence their choice of ICT tools as they know each others habits and preferences, they know how to explain the transferring knowledge in order to the others could understand. The last and not least in the previously established relationship partners have already developed trust on each other, which make the transfer easier on every tools and the knowledge sharing takes shorter than in a fresh relationship.

Table 3. Timetable for the interviews

Date of interviews	Company status	Gender	Age	Length of employment	Nationality
28. 12. 2008	Employee 1	Male	25-30	1-3	Hungarian
30. 12. 2008	Employee 2	Male	30-35	More then 5	French
06. 01. 2009	Employee 3	Male	35-40	1-3	Peruvian and Italian
06. 01. 2009	Employee 4	Male	Less then 25	1-3	South African
08. 01. 2009	Team Leader 1	Male	25-30	More then 5	Hungarian
08. 01. 2009	Manager 1	Male	25-30	3-5	Indian
13. 01. 2009	Team Leader 2	Female	30-35	More then 5	Polish and Hungarian
13. 01. 2009	Manager 2	Female	35-40	More then 5	Hungarian (Transylvanian)
22. 01. 2009	Manager 3	Male	30-35	More then 5	Hungarian (Croatian)

Altogether I made 9 interviews between end of December 2008 and January 2009, lasting between 20 and 65 minutes. All interviews were done personally and they were taken in separate meeting rooms or places to avoid distraction and interruptions. All of them were taken in Budapest, 6 of them were made in English and 2 of them in Hungarian. All of them were recorded for later transcription and analysis. After making the transcriptions and translation into English in the two cases, all of them were sent to the interviewees to read out and make the necessary correction to avoid misleading or misunderstanding.

3.3. Data Analysis

After collecting the data and making the transcription of every interview word by word, I read them several times in order to get familiar with my data and not specifically look for anything (Mayor & Blackmon 2005: 351). Then I was checking and analysing my collected data through the lenses of internal stickiness factors from Riusala and Suutari's framework and characteristics of ICT tools. I was moving on the lenses and went through the transcription one by one from the actual perspective of lenses from tacit knowledge, organizational, social and relational context, and characteristics of ICT to the decision making theories. During the analysis I had already recognised important themes, other factors, which are influencing people decisions on ICT tools such as task orientation and time differences. After the analysis from the lenses point of view I tried to recognise relationships between factors and develop categories and hypotheses (Mayor & Blackmon 2005: 482). When I found out the categories, I went through my interviews again from those new perspectives to seek relevant patterns within my data for my developed hypotheses. In the end I built up the framework of this study.

3.4. Validity and reliability of the empirical data

The validity and the reliability of the concept are used to provide the correctness of the collected data. A study is much more valid if the truth of the social phenomenon has not been mislead by particular influences and represented accurately. A valid study allows readers to form the impressions that from the data they should be able to demonstrate how the researcher got to her/ his findings and conclusions. (Silvermann 2000:78- 79. and Hammersley 1990:57.) According to literatures detailed specification of the conceptual framework and methods of quantitative studies are assumed to lead to higher level of reliability in spite of qualitative studies would be difficult to repeat exactly in the same way. Reliability refers to the degree of

consistency, which are assign to the same observation on different occasions. (Silvermann 2000: 78- 79. and Hammersley 1990: 67.)

The empirical data of this study was collected by open-ended, semi-structured interviews. Respondents were carefully selected for the interviews. To supply with better validity, all of the interviews were taken in separated environments from other employees in order to complete confidentiality, which allowed interviewees to express their views and opinions absolute freely. However, I know all of them and worked with them so that I have experienced their working styles and how they used ICT tools to communicate with me. To avoid making research bias I used open ended questions and let them talk without interruption. All interviews were recorded, transcript words by words and sent back to respondents for double check their answers. They had time to check their responses and corrected parts they do not completely agree with or just wanted to put them in another words. (Yin 2003: 63.) After several readings I made the analysis of the data. The quotations of respondents were used to support the conclusion. Every interview was made personally, which increase the validity of their answers. On the other hand, as I have been working for the company as a member of the observed department, I got a deep view of research context and I had access to various databases, documents and other internal sources, which make this study gain credibility. Every of the respondent works for the same unit however; they have different roles in the business process and different responsibilities in the value chain. Consequently, they work in similar working environments that provide higher validity of this study and clearly conducted conclusion.

To provide the reliability of this study, detailed description of the used methodology was given. Additionally, the description of the methodology was completed by the interview guide used for all interviews and it can be found in appendixes if they are needed for further inquire details. The questioner for the interviews was developed from previous theories and previous experiences from direct observations. However,

direct observation decrease the reliability as it is based on the researcher's own experience. On the other hand, the nature of the methodology, the inductive approach decrease the reliability of this study as it did not follow a rigid or consistent structure, or the reliability of the interpretation of the transcripts could be weak, or during the interviews some bias could appear, which mislead the answers of the respondents.

As the questioner was developed form previous theories and experiences so that results from the collected data is reliable for analytical generalisation. Previous theories help to identify themes in this study and cases that makes the results general and transparent. However, critics typically say that single case study offer a poor bases for generalizing, this gives a limitation for this study. (Yin 2003: 36.) The fact, that I use single case study, gives limitation for this research by specific results, which might not occur in other organisations.

4. RESULTS

This chapter presents the empirical case study, the analysis and the results of the research. First of all, I introduce briefly the case company, which was examined in the research and give the reasons why this company was chosen. Then the collected data of the empirical study will presented according to the theories presented in the first part and the deeper analyses might lead for further theories, coherences, connections and correlations among data and factors.

4.1.Case company

International Business Machine Corporation (IBM), or in its nickname "Big Blue" is the world largest IT and consulting company. It employs over 388, 000 people worldwide and is in over 170 countries. The corporation's headquarter is in Armonk, New York, United States.

IBM's very first manufacturing facility had begun to take shape in Endicott, N.Y in 1911 under CTR name. It changed its name to IBM in 1924. Now the IBM name means technology, innovation and creating value for its clients. To Hungary IBM came in 1932 and established its subsidiary under Organitio Irodafelszerlés RT. Then in 1936 it changed the name to Electrical Bookkeping RT. Only in 1947 it got the IBM name and started to produce and turn over the whole product portfolio of IBM from the personal computer and high-power computers to IT consulting services. In Hungary IBM is located in 3 towns (Budapest, Vác and Székesfehérvár) and in 5 buildings. IBM ISSC is located in two buildings in Budapest and it has over 1400 employees. It was established in 2004 and since that time it has continuously expanded its business activities and headcount. This Centre provides back-office and

call-centre services for IBM's own operations and global customer set, which includes process support for human resources, customer services, accounting and financing. IBM ISSC offers services to business and organisations to help them transform their operation activities to be more efficient, effective and responsive to the market demands. (IBM 2009.)

40% of the IBM employees works from home in "homeoffice". It means that all they need for working from home basically is a computer. Through Internet IBM employees can reach their workspaces, emails and they get access to all systems what they use for their works and intranet. So IBM computer is able to bring the whole office to IBMers' home. There is a program on their computer where if IBMers log on, the software makes them possible to access every necessary information and system what they need to do their jobs and through "Sametime" they are able to reach all of their colleagues. On "Sametime" they even can phone them, as there is an opportunity on this instant messaging programme to use it as a telephone. IBM offers the "homeoffice" opportunity to people in order that they could build balance between their private and working lives. They offer it for people who live far away from their office and it takes for hours to them to get to the office, or to people who has small children to take care or in any other special cases. As on the computer employees can reach their workspace, colleagues and their emails, they do not need to go to their office every day. They go there only once or twice a week when they have meetings or they need to handle some paperwork. As only some teams are responsible for dealing directly with clients, everybody is available on "Sametime". The member of these teams are usually do not work from home or telephone is provided for them to reach their external clients and they could be available for everybody. Teams and projects in IBM are usually segmented to specialists for regions and works. Team members are responsible for countries and regions. It means that they are in touch always with the same people of a team who are responsible for the same regions as they are. In this way roles of teams are built on each other and they are connected to each other. The research was made in APC, which means that all the tasks were financial related or purchasing jobs or

managerial tasks. Managers and team leaders rarely work in "homeoffice" as their responsibilities to coordinate and manage people, works, projects and task force them to stay in the office in order that they could be always contacted personally if it is needed.

This corporation is an excellent example for geographically dispersed teams where knowledge sharing and transfer within their departments and units are needed to sustain its business activities and operations. The highly qualified and multilingual staff In IBM ISSC buildings face the everyday challenges that geographical distance may cause. To solve this problem and help their work they use ICT tools every day and almost all the time. This setting makes the corporation optimal and an excellent example as case study for this present research.

4.2. The Existence of Tacit Knowledge Sharing Through ICT Tools

In the interviews it was obvious that there is need within IBM for knowledge sharing and more so continuous information and knowledge sharing as IBM built its business activity processes so that roles of teams are connected to each other. These teams are in a value chain and members of these teams have to share their knowledge with each other to get their things done. One of the reasons why it is important to share their knowledge as people in one team see the problem from one aspect and without knowledge and experience sharing it might happen that they would not be able to see and solve the problem. If the knowledge is shared within different teams and a problem appears, it could be seen from different aspects by the different teams. On the other hand, teams and projects in IBM are usually segmented to specialists for regions and works. Problems and projects are related to regions or countries. For that reason, the special tacit knowledge about the country or region has to be shared among teams in the chain.

"Basically people who work for IBM and who are here, it does not matter which department they belong to or they work with, they have a certain basic knowledge."– Employee 3

When people in a team work on a project, it often happens that this team is global and these people are not in the same country or even might not be in the same continents. For these people the only tool for knowledge sharing are the ICT tools as travelling all the time and having meetings in person would cost a lot for the company. However, these teams have to have meetings often in order that members update each other about the status of projects or discuss about certain problems and solutions.

From the answers of respondents it turn out that by using only emails they are not able to transfer knowledge as recipients cannot react right away and they cannot give feedback immediately. In tacit knowledge sharing the continuous communication is needed and important in order that the knowledge would be transferred to the receiver successfully.

"The email is probably the worst tool you can imagine as you don't have any kind of feedback. If I talk to you on 'Sametime' or on telephone about something, which is not clear, you can say that I am sorry that I am lost."– Employee 2

People in IBM use email, instant messaging and telephone as the three main ICT tools in combination for transferring tacit knowledge. Mostly people receive the problems and requests, which need knowledge transfer in email as every action, problem has to be documented. Then people choose a second ICT tools in order the source could specify, explain and clarify the tacit knowledge. In some cases people

even have to use all the three tools in combination to success the knowledge sharing. How and which factors influences people's choice, it will be discussed with more details in the next section.

"We usually use email to discuss certain problems or give approvals for specific questions and problems, which have been analyzed before and behind all there is already some background knowledge belongs to the specific problem."– Manager 2

"I use emails for communicating different process changes to my team. (…) The possibility for using phone is the conference calls, where we usually discuss different problematic issues (…) so everyone in the conference calls brings their experiences into the whole and we can try to get a solution together."– Team Leader 1

"Sometimes it happens that I am chatting with somebody and expand the email with details at the same time. Or sometimes I cut a part of the email of the person and send it on 'Sametime'."– Team Leader 2

However, it is important to know that most of the remote workers are forced to use "Sametime" for sharing tacit knowledge with their colleagues as they do not have phone next to them. They have the telephone on their desktop in the office so that they have no other choice then using the telephone when they work from home.

"I needed to teach some people how to use a system. (…) If I am at home, they can contact me only on 'Sametime'."– Team Leader 2

4.3. Organisational Context

IBM provides ICT tools for communication and encourages people to use them in order that employees are able to share the needed knowledge. In this organisation people set a high value on these tools in order to use them for communication and knowledge sharing (De Long & Fahey 2000: 119.). Besides, they are able to develop trust on their colleagues when they interact with them (Kostova 1999: 318- 319.). In this study the master student focuses on email, instant messaging and telephone. IBM calls email as Lotus notes, the instant messaging to Sametime.

The organisation requires written documentations about every business activity. The easiest way that provides these backup documentations is by writing requests and all actions in emails. For that reason IBM forces people to write every confirmation, discussion about problems and solutions in email because they are easy to track and store them for a while. It is also an organisational routine that email is the most widely used tool to have backup documentations.

Interviewees in their response said that there are two ways to manage work and to achieve the right things in time: the aggressive and the friendly ways. Some people in the corporation approach their colleagues in scary and aggressive ways, however, they have to be sure to do the right things otherwise if they make some mistakes others will take revenge and go after them. Hence, it is important for people in IBM to keep their working environment friendly. Most of the respondents agree that they can open up themselves easily and share knowledge with their colleagues if they are friendly.

> *"As I always ask, I am living on people's favours. I have to make a limit on these so there are two ways. Basically, either people are scared or they like you. These are the two ways of doing. You can*

scare people but then make sure that you do the right things. Both work. So I do even go for the nice guy. As if you scare people and you do a mistake, they will go after you and take a revenge."– Employee 2

"[T]here is a big IBM thing, which is called escalation. Some people like doing this thing and it means that they say bad things about there colleagues. (…) Some people really like doing it, they send you an email and in 20 minutes later they send an escalation to your manager, and in an hour another one."– Employee 2

"[I]f you are a really rude person I will only email you, I won't even call you. If I like the person, I will call her and I even might stay a little bit longer on the phone for socializing (…) Well, if it is really urgent and I really do not like the person or I know that this person is really rude, I am still going to use the email."– Employee 4

As part of the organisational culture I analysed how people deal with mistakes. If people in IBM make mistakes they get accounted for them so that people always try to avoid them. To avoid mistakes people have to convince their colleagues who are in different roles in other teams as everybody defends their respective positions. To make clear their suggested solutions or problems and discussions an exchange of several emails and communication on Sametime or even on telephone is usually used. This makes the process longer and some employees believe that although necessary, it is time consuming.

"...if you make mistakes you get accounted for it. You do not want to do mistakes. So this is IBM. I think this is a very destructive policy

but you have to sacrifice. In order for me to make to understand something I have to exchange at least 10 emails and this is a time consuming. (…) But in a long term it is a secure for the company but it is a tiring for people who try to solve something."– Employee 3

The general practise in IBM is that if people have problems and requests first they send an email to teams or persons who might help them. Secondly, they go for Sametime, instant messaging program to clarify the situation. If the case is so complicated that they cannot solve the problem or the conversation takes time and typing is getting tiring, they will continue the discussion on telephone. As I have mentioned before, from the answers of respondents it turn out that through email they cannot transfer tacit knowledge however, the organizational practice is that every action every request and action has to be written to provide backup documentations. For that reason, the practise is that first of all people send an email about their problem. Sometimes it happens that the same time when people contact somebody to ask for help on other ICT tools, parallel they send the email too.

"We receive requests in email and after I answer to those problems in email, then they will contact me directly on 'Sametime' for clarification as in those replies my name is there."– Employee 1

In this company it is normal that people use these tools in combination like all tools together at the same time to solve a problem and it might happen that they do not even communicate with the same person on them. It is IBM working style, which works efficient for them. However, you have to focus on what you are doing and do not mix persons on tools.

"Then what happens, I am calling somebody at the same time, so it is one guy and (all the guys involved in the same group), the other guy I am chatting with and to the third guy I am sending an email and these two guys are on the cc. So the multiple communications sometimes happens." – Manager 1

"Well, it happened one time that I was phoning one person, chatting with somebody on Sametime and writing email that I was responding." – Employee 4

On the other hand, in IBM and especially in the Accounts Payable Center home office and remote work are popular ways of working. This remote work gives a barrier to employees as they do not have office phone next to them on their desks. It is in the organisation culture that people use Sametime for clarification, discussion or in urgent case due as they work dispersed locations and they also can see when the needed persons are online, available and sit in the front of their computers. Then again, when they communicate with people on Sametime, they have already had something written or even the whole solution and they only need to structure the text and organise it in document, mostly in email. So that means that the instant messaging program has a high value in this corporation although it is only an internal tool. On the other hand, on "Sametime" people can call each other if it is needed. There is a possibility for voice transfer on this program in order that people could use it as a phone.

"When I came here, somehow in this culture I saw people use more Sametime and email and I got used to that one." – Manager 3

People believe that it is not the tool that is important to solve problems. However, the practise is that employees use simpler and less technological tools, which is more personal when problems gradually become more serious although the confirmation always comes on email. In difficult and magnificent cases the personal communication is significant. On the other hand, on "Sametime" people can call each other if it is needed and use this tool as a telephone. All the respondents refer to the priority and urgency of a task is critical factor that influence their decision which ICT tools to use for communication so much. Although one of the respondent, the Manager 2 said: "Not the tool is important", all of the respondents agree with that if a task has priority, then they will choice the less technological and personal tool, which works in real time. Consequently, the speed of problem solving will become important as well. The priority of the task and the speed of the problem solving have an impact on each other and vice versa. If a task or request has priority then it automatically becomes urgent. The following persons said that his/her choice on ICT tools depends on the situation at hand.

"There is nothing like best or worst. It basically depends on the situation and which tool I use. Sometimes, when it is a big situation, you have to talk a lot on the telephone. (...) But sometimes, there is a situation when you can do it without using the phone." – Manager 1

The result of this study is that people go for the telephone if they have an urgent task. Respondents also said when a task has high priority; they are more likely to use the simplest tool from the technology point of view. In an emergency, the technology has an effect on people's choices too.

"I think, the bigger the problem, more you should use the telephone and actually the less technology you should choose. If it is a really big issue, take the telephone." – Employee 2

"The telephone is for more urgent cases, when it cannot wait and needs immediate information change."– Team Leader 2

"The telephone has a quicker manner of communication."– Employee 3

"When I need something to do fast, I usually do 'Sametime' people because it is the faster way to get in touch with them. I use email when there is no time pressure as when I send an email I do not expect that the person will sit next to the computer on the end of the line and write back right away. So when I send out an email I assume that the person will response only in the next day, so I do not require response right away. 'Sametime' and phone I use when I need to find out something faster."– Manager 3

Respondents' explanation as to why the use of telephone in urgent cases is important is that it speeds up the process. As I mentioned before the backup documentation of taken actions are needed. These are mostly coming by email format. In this way, participants of the problem solving and knowledge sharing have already discussed about the particular case on telephone before, emails exchange is just a necessary formal step.

The other factor is the time difference, which influences the choice of employees in IBM. In a global company's environment, it can happen that employees have to contact their colleagues who work for another company in another continent on the opposite side of the Globe. Obviously, it is very impropriate to call somebody when she/he is sleeping or not working. They cannot even chat with the person on

"Sametime" as she/ he is not online. The only ICT tool is the email, which can be used in this situation.

> *„Of course, if you are dealing with the United States , India or China, you have the time differences so you will start the process with emails, which is bad because you have to be sure that you are perfectly clear, perfectly understandable by everything in it.–* Employee 2

On the other hand, if there is a possibility to choose between experts in different places so that there are people working in the same position with the same responsibilities although in different locations, you can pick up people who are working at the same time when you need to contact them.

> *„So depending on the time, I choose the person. Now (afternoon around 6pm) I would not choose the guy in India or China, now I would choose the one is USA or South America."–* Manager 1

However, when workers contact managers or who are in higher positions they also do not use Sametime either, as these managers do not have much time for typing. Besides, these managers usually older people who might not like using modern, fancy technological tools. Moreover, when people write email to them to ask for confirmation or advice, the practise is that they always write a summary of what the case is about and what is important from all of the previously discussed details and emails.

"Well, I have to work with a lot of executives and managers whose are usually over 50 years old. Those people like being called so then I switch and call them."– Employee 2

4.4. Social Context

This factor is observed in different country-level effects on the success of the knowledge transfer (Kostova 1999: 313- 314.). National cultural differences were appeared in the analysis of the interviews. It was one of the criteria used when I selected respondents to the interviews that all of them had to have different cultural backgrounds. All together they had 9 nationalities from all over the world although some of them had two nationalities or they were marginal people and internalised to two national cultures. The regulatory, cognitive and normative nature of culture could not be separated clearly and sharply in the responses of interviewees as the typical characteristics of these categories appeared slightly and overlapped among the answers. None of the nature, values, stereotypes or other rules of national cultures was particularly emphasised in the responses although all together generally they occurred to be main effect on people's choices about ICT tools.

In some interviews the respondents talked about how they act and approach people according to the stereotypes of countries where their colleagues are from (Kostova & Roth 2002: 217). In most of the teams, members are separated to regions and everybody is responsible for different countries. They usually have to contact their colleagues from their respective designated countries and deal with their requests and problems in order to find the best solution. Some of the respondents are flexible on which tools to use to contact these people especially when they do not know their colleagues whom they have to contact and it is the first time, they choose tools according to the stereotypes of their colleagues' nationalities or act according to

these stereotypes. The conclusion is that the cognitive component of cultures was slightly appeared in the answers.

"So usually I try with the telephone first when I have to deal with people in Europe because European really love phone calls…"– Employee 2

"…when you use telephone, you have to be sure, especially if you deal with people from foreign countries in foreign languages that you actually know people's cultures, the way of their thinking, if you start joking on phone for example. Well, everybody says not to joke with Germans. I do it every day. But if you joke with Germans, you do jokes with French as well but not in the same way and either in the same moment of the conversations. But you can and they actually take it really seriously and then you have a good laugh of Germans and they are not supposed to be funny people but they are."– Employee 2

"And basically there are people in countries who liked to be contacted via emails and there are other ones who are liked to be personalised. And those countries who I work with, they like to be personalised. So I prefer a warm call and explain them and then you are reinforced to write email and what then you got back. (…) The first step or the first aim is the introduction should be heard in personal."– Employee 3

However, the following examples shows that the normative component of cultures turns out in the answers of respondents basically only in explicit knowledge transfer.

Generally, even if Hungarians talk on the telephone, at the same time they put names on "Sametime" as Hungarian names are really hard to pronounce so that people help their colleagues in this way. They believe that foreigners will not able to write the name in the right way. That is the reason that they prefer using instant messaging program to prevent communication misunderstanding and language problem due to pronunciation.

> *"When I am sometimes on the telephone I find that I am 'Sametiming' the person with an expression that is not easy to understand and prevents some communication leading to misunderstanding for example when I am on the telephone and say some names on Sametime that are as hard to pronounce such as Hungarian names. "*– Manager 3

There was a unique example where one person handled every request, which was coming from abroad with priority. It might be only a bad habit or another serious reason could be behind this behaviour that people are afraid of escalation and they believe that foreigners have a higher status even if they are at the same level in the hierarchy. Another reason for this behaviour might be that people has the feeling that a foreigner turns to APC in Hungary only in urgent cases. They evaluate the foreigner departments higher than their offices and they do give priority to foreigner requests. This study is not extended to investigate this reason behind the action. Moreover, it was a unique example however, a very interesting phenomenon.

> *"What I wanted to mention so much is that my bad habit is that when I see that I have received any email from abroad, I want to answer this email and solve the problem in it as soon as possible. So it has a priority, which is not always good."*– Team Leader 2

One of the respondents talked about the Hungarian stereotypes, their general mentality, behaviors and status (Kostova and Roth 2002: 217). This person said that for Hungarians the status matters when people contact somebody to ask for help as for them it is a shame to admit when they do not know something due to the mentality. It is an observed fact that people prefer to contact somebody who is at the same level in the hierarchy than they are. This phenomenon appeared only to one respondent's answer from nine of them although I experienced as well that employees contact their coworkers easier and they hardly go to ask their managers for help when they have complicated problems or issues. They keep this step as a last option. They choose this option only when nobody could have previously answered their questions. The status as an influencing factor slightly appeared in another format in the answers of other two respondents. They gave examples of how they write a summary for managers about the case before they contact them or schedule a meeting or telephone conference call in order to save their time. When people contact managers they are more likely to use telephone and email as communication tools as managers do not have too much time to type on "Sametime".

"When I need to write to a manager, I always write a summary first and try to summarize the problem. (…) For example when I ask my manager for help, I write the summary so that she could help me immediately when she reads it, and she would not need to read the whole email and spend hours with understanding the problem. In that case she could give me advice quicker." – Team Leader 2

The language is an important part of the communication. The lack of linguistic skills of people influences the comprehension and fluency of their communication. They hardly can communicate if they do not understand each other very well. Part of the knowledge will be lost in the communication channel. (Taylor & Osland 2003: 221-222.) Because IBM is an international company, the official language is English. However, many people work for the company all over the world who do not speak

Engish very well or have prounanciation problems. In IBM ISSC, Budapest the practice is that these people often use "Sametime" as a communication tool beside email and do not use the telephone at all. One of the reason is that during a "Sametime" conversation they do not need to react right away so that they can have couple of minutes to check unfamiliar words in the dictionary. When they are typing, they have a little time to think over what and how they answer. For that reason "Sametime" works as a telephone for these people as they can make synchronized conversation with their colleagues although this talk is slower than the communication on phone due to the time spent typing.

"On emails and on sametime you have everything written so if you do not understand it right away you can still go to the dictionary for advice."– Manager 3

"So 'Sametime' is a kind of telephone, but mainly for people who might not speak English so well. So it is a better tool for them than telephone."–Team Leader 1

There are several other reasons why people choose "Sametime" to communicate with their colleagues. On the other hand it is one of the most informal ICT tools. People use it when they want to share something with each other quickly and it is not a huge amount of knowledge. In this way they can pop up on other person's computer and exchange some information and parts of the whole combined knowledge in a short time. This communication tool is even used in combination with telephone as a complementary appliance to share pictures, files or basics information beside phone calls.

"Normally I don't have any issue which requires telephone. Just quick questions to somebody that is much easier manageable via 'Sametime'."– Team Leader 1

"So compared to other tools you can share on 'Sametime' only basic information, you cannot share lots and lots of information like attachments, files and documents. You can, but it takes time."– Manager 3

The most informal communication tool from three of them is the telephone. This is the only tool from the examined ones where people can use some parts of the non-verbal communication manners such as tone of voice, pause and silence (Taylor & Osland 2003: 219). You can make jokes and speak in a friendly way on telephone, people do not need to use official and formal style then in email as it will not be saved anywhere. This conversation is not written and nobody will check what was exactly said. However, this is the main disadvantage of a phone call as the conversation cannot be recall and what has said, it was said and the receiver can easily forget it. Additionally, if there is a good, previously established relationship between the source and the receiver of knowledge, they often chat about topics, which are not related to the knowledge transfer. Respondents' opinions about telephone were different. Most people, who are coming from high context culture and have elaborate or exacting communication styles, use the telephone when they want to share knowledge with their colleagues.

Respondents, who love talking, mostly use the telephone as a communication tool. One respondent said that the telephone is a "killer" tool when you have to convince somebody, calm them down or just basically clarify something. It is the best tool from these three if people need to share big amounts of knowledge in the fastest way. Moreover, receivers of phone calls are able to react right away, which makes the

communication clear and easily understandable. However, in this case the best way to use it to combine with other tools, even all of three tools together, by that people can share files, screenshots or documents to verify and make the knowledge more transferable by completing with visual demonstration the explanation on the telephone.

"..you have to be really careful about your voice and what kind of message your voice sends because actually people do not listen to your words, they listen to the way you speak. (...) The other big thing is about the telephone that actually you can hear people's voices. When you hear their voices you also feel that they are confident or angry or impation or happy. You even can make jokes on the telephone. And it is really a good one when you get somebody who is angry. At that point the telephone can be a killer. Well, call the person, spend 10 minutes with him on the phone, make him laugh and then the problem is solved already. "– Employee 2

In one interview, an extremely different opinion from other respondents appeared. She said that the reason was that she did not like using the telephone because she felt that the telephone was as informal communication tool as she used it only for contacting her family. People contact her on telephone although she has never initiated communication on telephone.

However, the main disadvantage of this tool is that the context of the discussion is verbal and what was said was said and cannot be recalled. When something has already been written down, it is easier to verify and summarise to make backup documentation for taken actions. The backup documentation is needed for audit reason, to provide information about the taken business activities in the organisation to check if everything were taken according to the organisational processes.

On the other hand, the other disadvantage of the phone is that it is easy to misdirect the conversation. This behaviour is especially peculiar for people from high context cultures. When people use non-verbal communication and writing, the information and knowledge that they would like to convey down to each other they communicate in a more direct style.

>"On the phone you can try to turn the communication from one side
>to another one, so we can start talking about business and then we
>can end up that I invited you for a dinner or talking about weather
>or anything."– Employee 3

The reason is that some people even prefer using "Sametime" to using telephone as it has already written down and then simply they track the instant messaging conversation to email. For most people the "Sametime" is an informal tool as the telephone; however they use it for sharing with their colleagues some information quickly.

>"[T]he telephone is a direct communication tool, not like the email.
>It is direct and personal at the same time. This tool provides direct
>and warm communication. (...) The advantage of this
>communication is that it belongs for a long time, it is fast and can
>close up any kind of negotiation or misuderstanding directly. The
>disadvantage of it is that it does not always keep track somewhere.
>Unfortunately, on telephone you cannot get any confirmation. "–
>Employee 3

>"The other part of the telephone is that you do not have personal
>contact. Of course, you do not really have personal contact on the

other two tools either, but at least you have something to read anytime."– Manager 2

The email is the most formal communication tool. People in IBM use it for asking for approvals, provide backup documentations or when they need to distribute information, knowledge to several persons at the same time from anywhere in the world. It makes a bridge over time and geographic differences. The communication in email is not person oriented at all. When employees track the conversation into email, it is emphasizes the formality and concentrates on the role of the individuals and their responsibilities (Taylor & Osland 2003: 221).

The conclusion is the most important country level effect is the culture in the communication plays important roles in knowledge transfer through ICT tools in this international organisation and in how people use these tools although the non-verbal communication could not be observed. It was only the telephone on which the non-verbal communication style could appear; however due to the nature of the work, the lack of language or the pronunciation problems in APC prevents people from using the telephone so much. There were several sender-related factors explaining as well why they prefer and do not prefer to use telephone. These are high versus low context differences, direct versus indirect verbal styles and succinct-exacting-elaborating communication behaviours.

On the other hand, on different ICT tools people use different ways of communication. For instant, they use mainly formal styles as email and more informal on "Sametime". There is much more informal communication on telephone as the telephone is the most human tool from three of them. Stereotypes about national cultures influence the way of communication of people only when they approach their colleagues for the first time. At the first time every respondent writes emails to their colleagues when they ask for information or knowledge sharing. For

the next step, it is the stereotype of the nationality of the knowledge of the receiver that influences how they continue the communication; such as most of the people make a call on telephone when they speak to French clients.

Other receiver related communication factors such as marginality and from the style differences the self-enhancement versus self-effacement did not appear in the interviews.

Moreover, receiver related communication factors such as cosmopolitanism and satisfaction do not appeared in this research as well. However, the appeared receiver related factors influence the people's choice about ICT tools when they have to contact their colleagues.

4.5. Relational Context

The relational context was mostly observed in responses of interviewees when they were talking about whom they contact to ask for help. Most of the factors from the literature review, which influence the knowledge transfer from the relationship between the source and recipient view, appeared in the interviews. On the other hand, almost none of the "stickiness" factors, which influence the characteristics of the recipient and the source of knowledge, were observed in the response. (Szulanski & Cappetta 2003 and Szulanski 1996) For instant the NIH syndrome was not recognised moreover, the opposite of this phenomenon appeared in these interviews. However, this phenomenon was related only to the inside organisational knowledge and this research were focused on one multinational company and internal knowledge transfer of that particular organization. (Szulanski & Cappetta 2003: 524. and Szulanski 1996: 31.)

"Well, when I got a new problem I started looking for the documentations whether somebody else had already had that. So basically, for everything there is a contact person inside the company…"– Manager 3

To find the best solution to problems people use their network. Both, the weak and the strong ties were perceptible in the interview answers (Hansen 1999: 82.). Weak ties are also observed in people's networks and they use these ties to get contact names, which might help to solve their problems. Besides, people also contacted those who they have not known before as they heard that these persons might help them to solve their problems.

"I would not do a procedure or put my hand into the system or use the system, which I do not know. For this I look for a person who knows it. If I do not know I will contact one or two or ten people who I might ask for help."– Employee 3

"And sometimes it is like that I don't know that person and I have to contact him for the work because I got his name from somewhere else. And that's why I have to contact him as well. I don't know anything about him but I have to contact him to get the work done. So it is an unknown person. And then in the end we have to work together. It sometimes happens."– Manager 3

In IBM when people usually contact somebody with their problems, questions and asking for help at the first time, they contact this unfamiliar person on 'Sametime'. Even if they only want to ask him/ her whether he/ she lets them to call, first of all they start the conversation on "Sametime". These people have already known the

contact persons' name from previously received emails or somebody recommended him/ her to contact this expert. In these cases, on "Sametime" they can check if the person is available and he/ she is the expert whom they look for.

> *"If somebody contacts me on Sametime with their problem at the first time, she has already known my name or somebody told her to contact me with this problem."*– Employee 1

When people contact colleagues who are among their colleagues with whom they have strong ties, especially previously established relationship from their past and they have experience to work together, people use more informal ICT tools such as Sametime or telephone and also they even stay longer on these tools for socialising. These tools are good for developing their relationship and making it deeper. In these cases, people contact each other on the same way that they used to it.

> *"People who I know for a longer time and I have a good relationship with them I use more verbal communication and when it is more official then I use mostly writing. So I would rather go for Sametime or email when they are more official or they are new to me, to take a slower approach."*– Manager 3

The relationship between people influence the choice of ICT tools so much as if they would like the person to contact them in a more informal way. It might happen that if people need to contact somebody from that special team they always contact the person who they like the most. If the person needs to contact his or her colleagues who are rude, aggressive or just simple she or he does not have good relationships with them, they prefer to use email even if the case is urgent.

"If you are a really rude person I will only email you, I won't even call you. If I like the person I will call him/her and I might even stay a little bit longer on the phone."– Employee 4

People usually contact their colleagues according to professionalisms and how much they belong to the tasks, cultural similarities and homophile do not occur obviously in responses (Makela et al 2006: 7-8.). The homophile appears between people who are responsible for the same regions, and they find and contact each other easier even if they do not work in the same locations. Among interviews it turns out that if they need to contact people to get works done, they do not contact managers, as it is usually not the manager who helps out only if they need confirmation or approval or the contact person's name who deals with the specific tasks.

People's attitudinal relationships affect on the success of the knowledge transfer (Kostova 1999: 318). For instant people can also develop trust on ICT tools as well, although they agree that it is most likely on telephone as this is the most human tool from all. During a conversation on telephone people can hear the other person's voices and the tone of their voices on the other side of the line and they can have and put a lot of pressure and power on the receiver of the call by their voices. On the other hand a telephone call conversation can calm people down or make the receiver nervous. Some people use it for introducing and establishing the relationship as warm calls make people get positive impressions. This tool is very effective and has the power when you need a favour as people rarely dare to say no. The rule is that people do not allow taking action based on Sametime conversation and they always have to send their request on email as well even though they first initiate the communication on telephone or Sametime. This does not mean that people do not trust on each other, it means that having a written documentation is compulsory for taking any action. Here is a really good example that people can develop trust even on instant messaging programs very well.

"There is one guy, who I am not able to call because he is always on the telephone just like me, so I contact him on Sametime and he tells me what to do and asks me to sending him an email. And I know that one hour later it is done, and I am sure that it is done. It is not even a question. I mean, he has never even answered to my emails or very rarely. So that is also like, you can send emails and then if you don't get an answer it doesn't mean that nothing is done."– Employee 2

On the other hand, when people contact somebody from their team or belong to the same projects, they go for Sametimes as this internal tool has the incredible character of showing when the needed person is available or not when actually she or he sits in the front of her or his computer. This feature gives the opportunity to contact and reach people easier.

4.6. Characteristics of ICT tools

During the analysis of my data some characteristics of ICT tools was obviously turn out as the main influencing factors of people's decisions when they make their choice which ICT tools to use for the knowledge sharing. The digital communication technology categorized ICT tools according to point-to-point communication system and point-to-multipoint one depending on the number of recipients who is able to receive the transmitted message at the same time (Yeung 2008: 2). Before I have already mentioned that people cannot transfer tacit knowledge only in email and they need to use the instant messaging programme or telephone as an auxiliary asset. From the interviews it turned out that people use "Sametime" always only to share their knowledge only one person. In case, they have to do knowledge transfer to several recipients at the same time, people in IBM arrange a telephone conference where more people can join to the call or even sit next to a telephone.

"'Sametime', I use it as one to one, not to communicate with more colleagues at the same time."– Manager 3

From the time point of view the ICT tools are categorized to asynchronous and synchronous systems. The email is an asynchronous tool as after the source sent the message to from his/ her terminal, the receive will get it only when he/ she longs in the system (WordNet 2006.) The instant messaging programme and telephone are able to provide continuous availability for their users in order to supply permanent connection between users so these tools are synchronous ones. By using these tools there is a constant communication provided between source and recipients of the knowledge and they can react right away and ask for clarification until the tacit knowledge comes through mediums successfully.

"Email is easier to use as I can write email whenever I want."– Manager 3

"Basically it is the telephone conference where we put the customer, the clients or requester on one side and the sourcing buyers, ops buyers and me on the other line so there are people at the same time in 2 different locations, so we solve the problem in real time."– Employee 3

"Email is good because you can send it anywhere and anytime even if people are sleeping as it will remain and they are going to get it in the next day."– Employee 3

Other characteristics of ICT tools were not mentioned unambiguously in the interviews so that I made the consequence that these factors do not influence the tacit knowledge transfer and people's decision which tools they use for sharing their knowledge. On the other hand, according to the answers of respondents the most representative theories on how employees in IBM make decisions in practice about which ICT tools they use to share knowledge with their colleagues are the following: fluid or constructed regarding to the categorisations and mainly garbage or re-theorising/ postmodern considering Fulop, Linstead, Lilley and Clarke organisational models.

After analysing the answers and finding out the typical characteristics of the respondents in decision-making behaviours, I identified that most of their choices are predicable due to the few sources of information (Fulop et al 2004: 466.). People use their network to find the experts on the area where they have their questions. Due to the few sources, respondents' decision-making processes have a quick manner (Fulop et al 2004: 466.). The fastest decision-making category is the constructed one. In this case people deal with familiar matters so that they have already known from their previous experience whom to contact to ask their technical questions (Fulop et al 2004: 466-467.).

Most of the respondents based their decisions on routine and there were a clear linkage between goals, experts and solutions (Fulop et al 2004: 475.). These characteristics are typical natures of the garbage model. On the other hand, the features of the re-theorising decision making model appeared in the interviews as well. The organisational culture and specific nature of the department that people work with invoice numbers play role in the decision process (Fulop et al 2004: 482-498.).

5. DISCUSSION

In this chapter I discuss the results of my collected data. I discuss and give the reasons why those influencing factors turn out to have strong or weak influence on people's choice on ICT tools when they make their decisions about which tool they use for sharing tacit knowledge with their colleagues and about the factors, which do not turn out in the results although I expected them.

First of all I have to admit that I was not surprised when respondents claimed that basically the email is the worst tool to use for knowledge sharing and it is disable to transfer tacit knowledge by own. The reason is why the email cannot use for tacit knowledge sharing that this complicated, combined and codified knowledge cannot be successfully transferred without active and continuous interaction between sources and recipients who are participating in the knowledge sharing process. However, due to the organizational policy every action and request has to be documented and written so that when people have problems, they look for the right persons, the experts on that problematic area and they write their needs of knowledge sharing. The written documents are important to provide backup documents and avoid mistakes, prove discussions. After finding the right persons who have the eligible knowledge and writing their problems and requests, the next step is that they will start the communication and interaction on "Sametime" and the transferring knowledge is very complicated, hard to understand or people feel more comfortable to use telephone, the participants of knowledge sharing will continue the process on telephone. Due to the organizational culture of IBM and the fact, that 40% of IBM employees are remote workers and you have never known where they work from at the actual moment and whether they have telephone next to them or not, people always start the interaction on instant messaging programme. Basically, they contact people on "Sametime" to check if they are available or even to ask for the possibility of having telephone call. When at the first time people contact somebody, they also

check if this person is the right expert whom they were looking for. On the other hand, people try to avoid personal interaction, informal contact situation, non-verbal communication with this unknown expert where their fears, lack of self-confidents or feelings could go through on ICT tools. Moreover, on telephone people can put easily pressure on the partner. However, the other reason is why people use "Sametime" for starting communication to verify the situation after receiving the problem in email that all the respondents were young, under 40 years old and most of them have spent already more than 3 years working for this organization. It means that they had enough time to adopt the organizational culture and habits of IBM employees. Besides, only 3 respondents were managers who do not usually work from home and use telephone often to save time by not typing. However, even they said that they would start the communication on "Sametime" and they would change the communication tool to telephone only at the point when typing gets to be tiring.

The friendly environment has a huge affect on the success of tacit knowledge transfer and how people contact each other and which ICT tools they choose for communication. They said that they are able to open and accept knowledge much easier from somebody whose behaviour is friendly. However, some people and mostly people with higher status, managers try to use their power and pressure people to success knowledge sharing. When people feel being under pressure and that somebody approaches them in an aggressive way, they start look for mistakes in this person's work and some people are really willing to use these mistakes as revenges. When this behaviour turned out during my analysis of the interviews it surprised me a lot. It turned out that some people do not even call this aggressive or rude person in urgent cases either and it seems that this factor influence people choice stronger than the urgency character of tasks. They would talk to this person only on "Sametime" to share knowledge and they would not call him/ her on telephone.

In urgent cases when the tacit knowledge sharing is important to get done as soon as possible, people usually start using telephone and change "Sametime" almost immediately. This way of working speed up the communication and the knowledge transfer. The telephone has a quicker manner as people save time by verbal communication instead of typing. On telephone people easier make themselves understandable and convince the recipient of the knowledge faster. The reason is that this tool is more human by making the possibility that personal feelings come through on the tool by hearing them in the other person's voice. On the other hand, on telephone people can transfer huge quantity of knowledge in shorter period. However, this works for the opposite way as well as for that reason people do not like being contacted on telephone as it means that something is urgent and they need to concentrate 100% on the contacting person as huge amount of knowledge will be transferred in a short time. Additionally, on phone what has said, it was said and it cannot be recalled, as it was not documented word by word. So it is easy to distracted and some part of the conversation will be simple forgotten in couple of minutes. Moreover, in a telephone conversation people easily get distracted and end up talking about personal topics or weather or anything else. On the other hand, by this way telephone provides a good opportunity to develop relationship and as well that this tool let the contacted person get positive impression about people participating in knowledge sharing. From the relational context point of view, the trust is the most important factor to make successful knowledge transfer and on phone it is easier to develop trust compare to instant messaging programme. On instant messaging programme it is possible to develop trust although by missing the feelings of the other person in the end of the channel and not hearing the tone of other person's voice (if this person is joking or speak with sarcasm) make the process definitely slower. When you know somebody better and have already trusted on him and the strong tie has already evolved between you, you will have no trust problem in "Sametime" conversation and the knowledge transfer process will go much more smoothly. As the relationship has already been established between partners, the environment will be friendly, which provide an extra for knowledge transfer. At this point the organizational culture and relational context will link to each other.

Respondents said that they could not bridge over certain time differences. This result made me astound so much. Remote workers work in quite flexible hours and sometimes in later or early hours. They are able to join to the network basically anytime in order to reach people. Most probably this working attitude is not in promoted by the organizational culture and basically in some cases people do not able to work always for family and personal reasons.

However, characteristics of relational context were mainly observed when people contacted somebody asking for help. I expected that NIH syndrome would be recognized in the organization and how people accept the new tacit knowledge. The explanation why NIH does not exist in this organization might be that all the respondents work for the same department and internal employees. Only some of the interviewees are in touch with the customers, the clients and also quite rarely. Consequently, people use their strong or weak ties from their networks and contact others on "Sametime". Then they might change the tools to telephone if they have already a good and strong relationship with somebody. In these cases, they prefer the telephone as nobody could check what they talk about and most probably they stay longer on the tool for socializing and making their relationship stronger and deeper by talking about not work related issues. The homophile, the cultural and professional similarities between people determine people's networks. It determines how people build their networks and expend them. In most of the teams employees' responsibilities are separated to regions and areas and they contact people when they ask for help, the contacted experts responsible for the same regions as they do. As most of the time these people speak the same languages and have already some common topics and experiences about their responsible regions, they make relationships and connection easier, which make the tacit knowledge sharing on ICT tools smoother.

From the characteristics of social context the languages and cultures of people were that influence the choice of ICT tools of employees. One of the main criteria was the

different nationality when I chose people for making the interviews with. 9 nationalities participated in this study as I was counting the Hungarians from other Hungarian speaker area outside of the Hungarian boarders to another nationality too. They are marginal to another culture beside Hungarian and internalized to two national cultures. People mentioned that they consider the stereotypes of nationalities of their partners when they contact them and influence their choice how they contact them for example on the style of their communication, how they make jokes or not make jokes at all during the communications or they will use formal or informal styles. The Hungarian mentality and stereotypes appeared as effecting factors on tacit knowledge transfer through ICT tools. However, my opinion is that the reason is that all respondents work for the department located in Hungary. If the interviews could be taken with people working for a department situated in Finland for instant, the Finnish mentality and stereotypes would have appeared as slightly influencing factors in the study in the same way. The international communication factors and styles have influence on how people communicate and contact receivers on ICT tools however, making the decisions which tools to use it is only the organizational culture that influence them. My opinion is that the organizational culture is a stronger influencing factor on people's choice than cultural factors. I was surprised that the intercultural communication characteristics of tacit knowledge receiver such as marginality and satisfactory do not appeared in the results at all although I expected people to talk about them in their answers. The language ability, the language skills of people have a very strong effect on people's choice. Employees with not excellent languages skills prefer to use "Sametime" to communicate with their foreigner colleagues in foreign languages. They use the instant messaging programme as the tool provides synchronized conversation and users have a little time to think over what and how they want to answer and say although this communication is slower. It takes couple of minutes for people to look at unfamiliar words in the dictionary and understand what their colleagues tell them exactly. For these people with not excellent languages skills the instant message programme works in the same way as the telephone as this ICT tool is able to provide synchronized communication. People always have to choose synchronized ICT tools for tacit knowledge sharing to create continuous interaction between sources and recipients although they use the email,

this asynchronous tool, for providing written and backup documentation. From the characteristics of ICT tools the most influencing factor was that people have to transmit their knowledge only to one user or several ones at the same time. People do not choose instant messaging programme to transfer their knowledge to several users. They might use this tool for organizing a conference call that all of them can join to however, they do not chat with more than one person at the same time as it causes a chaos between participants. Other characteristics such as quality of service or error were not recognized in the collected data. However, these characteristics of digital communication and ICT tools are very specific and the semi-structured questioner for making interviews and collecting data for the research did not include any question related to this specific technological area.

As people could contact only few experts on the same regions as theirs and usually their questions are technical, task and region specific related, they are able to make quick decision about which ICT tools they use for communication. In people's choice the clear linkage between goals, experience and solutions are easily recognizable. First people write their problems in emails and contact experts and then at the next stage the organizational culture and specific nature of the problem influence if they use only instant messaging programme for knowledge sharing and when the point is that people change the tool to telephone or use all of them in combinations. The organizational context, the language skills of communicating people so that the social context and some characteristics of ICT tools have the strongest influence on people's decision-making process and according to the decision-making theories these characterises are the typical representatives of garbage and retheoristic models.

6. CONCLUSION AND RECOMMENDATIONS

This final chapter gives a summery of the empirical case study by reflecting the results of the inductive research and answering to the research questions. In the end there is a short suggestion for future research and implication for practise.

6.1. Conclusion

The aim of this study was to analyse how people use ICT tools in a multinational working environment to share knowledge, especially tacit knowledge; analyse which factors influence theirs decisions to which tools they use and answer to the research questions by building up my own theoretical framework. For the empirical part of the study, I made the observation through case study. (I found IBM the best example for analysing the multinational settings. On the other hand, for me this company was the easiest to reach as in the data collection period I was working for them.) I made interviews with people working for IBM Hungary in the APC department of WSSC. In this study I was focusing only on email, instant messaging and telephone from all the ICT tools. The reason is that I choose only these, as according to my experiences in APC office, they are the most frequently used tools in IBM.

Before making the date collection, Riusala and Suutari's framework about the international stickiness factors provided the main part of the theory of this study and the classification of ICT tools in digital communication as I expected those factors appearing in the empirical part to influence the knowledge transfer process. I used this framework for finding out questions for the interviews and making the questioners. After analyzing carefully the answers of respondents, I built up the following framework.
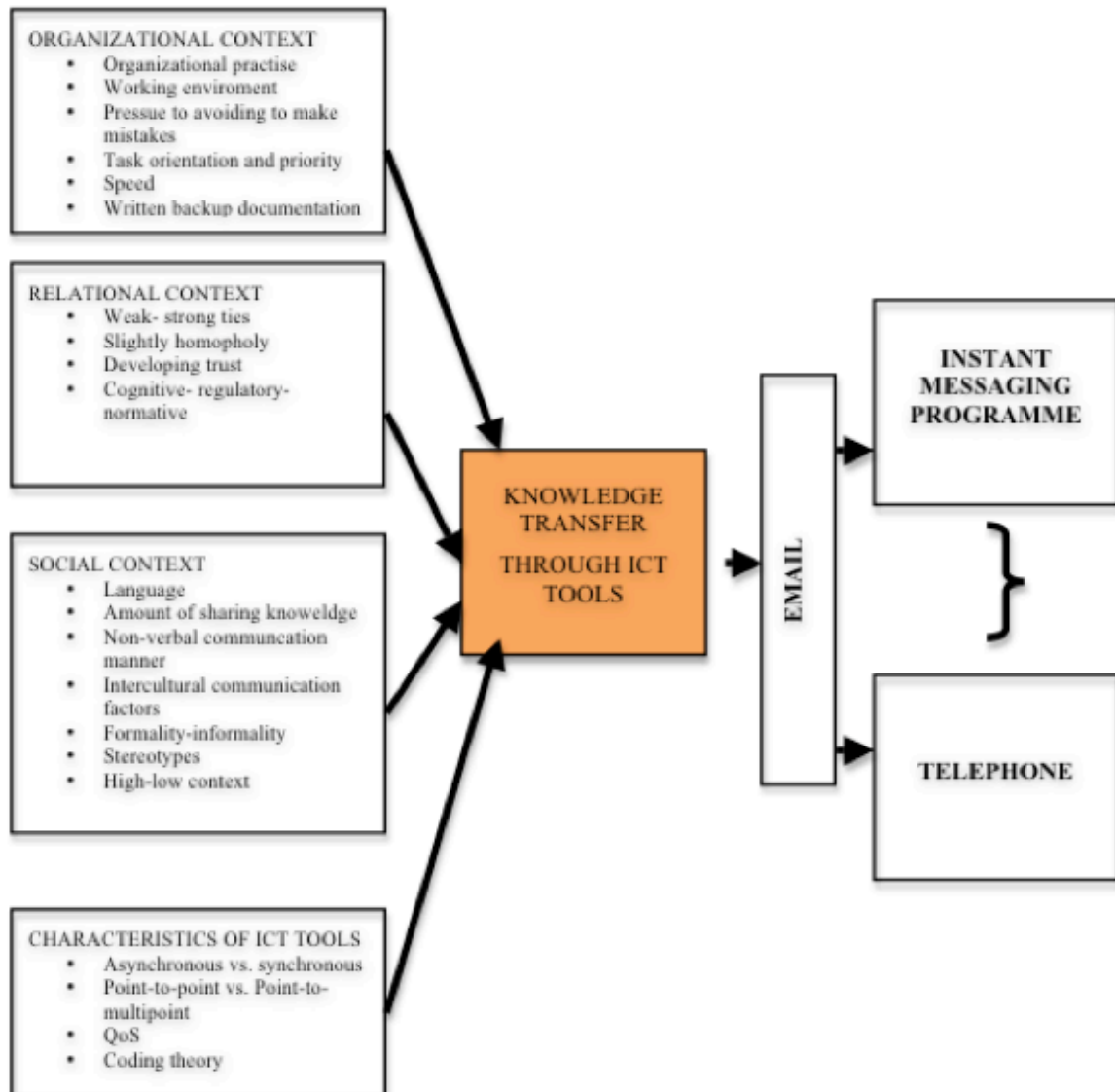
Figure 5. The framework of the study

During the analysis of the collected data the characteristics of ICT tools, organizational context, relational context with the weak and strong ties and social context, mainly the intercultural communication factors were recognized as strongly influencing characters of tacit knowledge sharing within this multinational organization. All the factors are appeared although in some situations some of them linked or were recognized as stronger influencing character.

The fundamental goal of this study was firstly to describe how tacit knowledge shared through ICT tools in multinational settings by answering to the first research questions.

- How is ICT (especially email, instant messaging and telephone) used to share tacit knowledge in a multinational setting?

From answers of the respondents the need for knowledge sharing obviously turn out although it appeared as well then only on email people are not able to share tacit knowledge due to the complicated and codified manner of this specific knowledge. In order to success the knowledge sharing they have to use instant messaging programme or/ and telephone to be able to provide interactive communication between the sources and the recipients of tacit knowledge. So that means that they have to use synchronous tools to be able to create continuous communication. In IBM most of the business activity processes are separated to regions. It means that activities in the value chain of this company are separated to regions. Most of the team in the business processes has their experts in some specialized regions or the team by itself already specialized to the particular region. These teams are not always situated in the same locations especially that 40% of IBM employees are remote workers and most of the time working from home although they need to share their knowledge with each other. To overcome geographical difficulties in IBM most frequently people use email, instant messaging and telephone.

The organizational requires written backup documentations for every taken action. The easiest way to provide this document is via email that later on can be sent to the databases or archive after solving the problems and requests. For that reason every request arrives in email in the beginning of the tacit knowledge process and as well after continuous interaction of participants on instant messaging programme or/ and telephone every approval, confirmation or discussion about problems and solutions comes in email in the end of the process. In APC people like using the instant

messaging, "Sametime" for verifying and clarifying what emails were included. After or sometimes parallel receiving the emails about the problems fits to all they go for this tool to use in order to clarify, explain and make the tacit knowledge possible. One of the reasons is that high percentage of IBM employees is remote workers and not all of them have telephone on their desks at home next to their computer. So in the beginning it is a check up mechanism that the other persons are available for call or not although most of the cases people try to success the transfer on "Sametime" and combine the process with telephone when the knowledge transfer gets to be complicate, take long time and impossible to be shared on "Sametime". When it is a really urgent case and it is important to find solution for the problems as soon as possible, the tacit knowledge has to be shared in short time and people change instant messaging programme quite fast to telephone. On the other hand, when something is really urgent usually some managers have already got involved into the knowledge sharing process whose have never had enough time. Moreover, when more people get involved to the knowledge transfer process so that the knowledge sharing have to be done one point to multipoint, people also prefer to organize telephone conference. Nevertheless, they could use the "Sametime" program for phoning each other although this usage of instant messaging program is not popular in this particular IBM office. How people deal and try to avoid mistakes also pressure them to use "Sametime" for their work. Their conversations and discussions are already written there, so that it is easier to track and organize them into emails. Besides, on telephone what was said, it was said and cannot be recalled anymore.

On the other hand, some people prefer to use telephone or in some situation it is the best and most suitable tool to use. However, these people evaluate the telephone higher from instant messaging in particular situations such as urgent cases or when people need to have more personal and informal contact. Stereotypes or nature of their nationals, cognitive, regulatory and normative nature of cultures influence how they use ICT tools for sharing knowledge. For instant, people from Latin countries or French love talking. Then again Hungarians even if they talk on the telephone they will types invoice or document numbers or names on "Sametime" at the same time to

avoid misunderstanding. However, these are just complementary information, which are transferred on instant messaging programme during telephone calls.

When people in IBM face to problems first of all, they start looking for already existing written documents in case that, somebody else could have already had same problems and found solutions. After finding the right experts with the needed knowledge, people start communicating to these persons. In this organization people really do use their weak and strong ties to find the right persons with the needed knowledge. If there are strong ties, especially previously established relationship between people, they contact each other easier and they even start using most informal ICT tools, the telephone. They have an already developed trust so that the knowledge transfer between them is smoother. In this research it turn out that people can develop trust also on telephone and slowly make better relationships. It is not impossible to establish trust between people through instant messaging programme though it definitely takes longer time. On telephone people can use non-verbal communication tools such as the tone of their voice or pauses, or emotions, which make others to get impressions about the contacting persons. When they contact somebody to whom they belong with weak ties, it is the "Sametime" that they use for communication. In every problem solving case when knowledge transfer is needed, people use their network. People's networks play important role to get tasks done. On the other hand, homophily, cultural similarities influence which experts they pick up to contact.

One of the most important factors is, that influences how people use ICT tools to share tacit knowledge, the communication styles, behaviours and culture. The characteristics of international factors appeared in the answers of respondents very much. First of all the lack of the language skills influence the communication, it makes harder to understand through ICT tools due to the unclear nature of the context. If the sender and the receiver are not at the same level from languages abilities point of view, the receiver hardly can understand the (for her or him unclear)

transferred knowledge and it will be lost in the communication channel. People from high context culture like using the telephone to clarify the situation. Although they are easily misdirect the conversation and they end up with talking about something else so it influence the knowledge sharing process. When people use ICT tools for tacit knowledge sharing, they have to use direct communication style and to be as clear as possible to make the knowledge transfer successful.

Nevertheless, the instant messaging and telephone has quicker communication manner, which provide fast tacit knowledge sharing in a multinational environment.

The second research question this study tries to answer is:

- Which factors most influence the decision which tool to use in tacit knowledge sharing?

The organizational culture influence very much which tool people use in knowledge sharing, as in the beginning the practise is that people choose "Sametime" to clarify something what they have received in email. Later on if transferring the special tacit knowledge takes time or complicate people change this tool to telephone or even use these tools in combinations. Additionally, in a friendly environment people prefer to use more informal tools. The urgency and priority of knowledge transfer force employees to use the telephone due to the quick manner of this ICT tool. In emergency case employees always go for the simplest communication tool, the telephone to make sure that their messages will go through the communication channel and as high percentage of transferred knowledge as possible the receiver can adopt smoothly.

The relational context and strong/ weak ties of people have effect on the decision-making process of people very much. When there is weak tie between knowledge transfer participants, they start the communication on instant messaging. If there is strong tie between them, after checking the availability of the other person, employees change the instant messaging programme quickly to telephone. In this case they have already a well-established relationship and due to the informal nature of these tools this would rather suited to the communication. Moreover, people use telephone to develop relationship and trust between their partners, as this is the most human ICT tool from three of them. The telephone provides facility for non-verbal communication by transmitting the tone of users' voices or pause or emotions, which are necessary to make trust evolve.

Secondly, the social factors, especially the international communication factors have main influence on decision about which ICT tools people use for knowledge sharing. The telephone is the only tool where people can use partly the non-verbal communication characteristics. On the studied ICT tools gestures, mimics cannot be utilized. People with lack of languages skills are likely to decide to take the instant messaging to complete the email conversations. The reason is that by using this tool they have enough time to check unfamiliar words in the dictionary and think over what and how they want to say. The amount and complication of transferring knowledge have effect on decisions also. These are elements of the succinct versus exacting versus elaborate communication styles. Who have elaborate communication style, they likely to choose the telephone for sharing their knowledge as when they use this ICT tool, they do not get fed up with typing and the other person can react right away if she/ he did not understand something. Or in complicated cases people combine tools together, for example sharing files, or any kind of additional information, knowledge on "Sametime" or in emails and at the same time talking on the telephone in order to provide better and more complete explanation. Additionally, the formal and informal nature of the communication determines which ICT tools have to be used for knowledge sharing. Email is the most formal assets due to the tracked, organized and structured characters of it. Every backup document,

which has to be written for audit purpose such as in the last step of the knowledge sharing process, finalizing real version of necessary documentations at the integration stage and approvals, confirmations comes via emails. The "Sametime" has the benefit that the conversation through instant messaging has already been written. After the "Sametime" conversation the receiver can easily track discussion and write the needed backup documents. The telephone has the disadvantage that if something has already been said, it was said and cannot be recalled.

Last but not least, the characteristics of ICT tools have effect the knowledge sharing and people decision which tools to use for tacit knowledge transfer. As in email the tacit knowledge cannot be shared successfully due to the lack of interaction between participants, people would rather used synchronous tools such as instant messaging programme and telephone. On the other hand, when the source has to transfer the knowledge to more then one person, he/ she organizes a telephone conference where everybody can join and participate actively in the tacit knowledge sharing. The source does not chat in one window more then one person on instant messaging programme as it would cause chaos.

6.2. Limitation

First of all the main limitation of this study is the single case study methodology. As this research was made in one organization so that from the results the theoretical framework is clearly built on the knowledge transfer mechanism in IBM although it might not work in the same way in other organizations. The organizational culture influence very much how people use ICT tools for their daily works and how they make decisions which tools to use in the actual situation.

As all the interviewees were working for the same department in the same country, this also gives a limitation on the cultural and social factors although all together nine nationalities were participated in this research. The data for the analysis were collected by semi-structured interviews. The results of this study must be provide more valid and reliable theoretical framework if I used multiple source for collection data.

6.3. Suggestion for future research

There are so many similar alternatives and perspectives on knowledge sharing to study and so many the same or similar research questions can exist. This research can be extended to other locations, departments or units or further to other companies in the same or different industries and either involved more ICT tools to the research. The methodology can be changed and the developed theoretical framework could be tested on other units or companies and check if they work and use ICT tools in the same way. The typology could be extended to include the communal practise for further investigation of inner relationship within departments of a company (or IBM).

As this single study was based on IBM, additional research would provide a clearer picture on the examined phenomena and make wider view on knowledge sharing through ICT tools, examine deeper what are the main factors that influence people's decision which tools to use for knowledge transferring. The same research questions could be studied in different organizational settings. Moreover, this study could be extended to the direction, which analyse how people make decisions and observe the decision making process more accurately.

6.4. Implication for practise

In this organization managers and management encourage their employees to open communication and do knowledge transfer. Moreover, they provide tools when face-to-face communication and meetings are hardly achievable in order to create common places for knowledge sharing. To harmonize common directions and goals in the whole team and department level instead of each individuals and teams working separately towards their own goals and aims, the department would need a more frequent and global communication structure and strategy. Now individuals and teams concentrate on tasks and problems in order to solve different requests (what they have received).

As the telephone has not seen used so often and IBM has not provided facility for videoconference yet, it would worth trying. IBM would need to provide the possibility for videoconference as well, as it would give a more personal and human touch to people by increasing the feeling of togetherness, emotions and human and creating opportunity to see participants of the meeting. This tool would be great for people who do not like telephone so much as seeing somebody in the end of the channel gives better impression of persons they are interacting with compare to telephone. The results and process of problem solving perhaps would improve, as everybody would have a chance to see how their colleagues look like.

The language seems to be a problem in this department. Management would try to offer language trainings internally and it would worth trying to create recruitment opportunities to people by providing facilities to them for working on abroad for short period. These kinds of recruitment positions also would improve other skills of people such as cross-cultural one.

The organizational policy is that every action, solution of problem requires written backup documentations. People send these documentations to databases however, management could create a special database where people would be able to upload their problems, solutions and their contact information. This platform would provide to people to find the needed expert persons easier whose they are looking for. However, management interaction is highly recommended and needed otherwise people would never check and use this tool.

7. REFERENCES

Argote, L, McEvily, B and Reagans, R. (2003). Managing Knowledge in Organizations: An Integrative Framework and Review of Emerging Themes. *Management Science* 49: 4, 571-582.

Bouwman, H., van den Hooff, B., van de Wijngaert, L., & van Dijk, J. (2005). *ICT in organisations: Adoption, implementation, use and effects.* London: Sage Publications.

Cavusgil S.T., Calantone R.J., Zhao Y. (2003). Tacit knowledge transfer and firm innovation capability. *The Journal of Business & Industrial Marketing* 18, 6-21.

Cohen, M. D., March J. G. and Olsen J. P. (1972). A Garbage Can Model of Organizational Choice. *Administrative Science Quarterly* 17:1, 1-25.

Conner, K.R. and Prahalad, C.K. (1996). A Resource-Based Theory of the Firm: Knowledge versus Opportunism. *Organization Science* 7:5, 477–501.

Davenport, Thomas H. & Prusak, Laurence (1998). *Working knowledge- How organizations manage what they know.* Boston, Massachusetts: Harvard Business School Press.

De Long, D. W. And Fahey, L. (2000). Diagnosing cultural barriers to knowledge management. *Academy of Management Executive* 14:4, 113-128.

Dewulf, G., and van Meel, J. (2002). User participation and the role of information and communication technology. *Journal of Corporate Real Estate* 4:3, 237-247.

Fahey, L. and Prusak, L. (1998). The Eleven Deadliest Sins of Knowledge Management. *California Management Review* 40: 3, 265-276.

Fiol, M. and Lyles, M. (1985). Organizational Learning.*The Academy of Management Review* 10:4, 803-813.

Fulop, L., Linstead, S., Lilley, S., Clark, R.J. (2004). Decision making in organizations, in Linstead, S., Fulop, L., Lilley, S. (Eds),*Management and Organization, A Critical Text.* London: Palgrave, 462-94.

Gallupe, B. (2001). Knowledge Management Systems: Surveying the Landscape. *International Journal of Management Review* 3: 1, 61-77.

Grant, R.M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal* 17 (Winter Special Issue), 109-122.

Haas, M. R. and Hansen M. T. (2007). Different knowledge, different benefits: Toward a productivity perspective on knowledge sharing in organization. *Stratefic Management Journal* 28, 1133-1153.

Hammersley, M. (1990) *Reading Ethnographic Research: A Critical Guide.* London: Longman.

Hansen, M. T. (1999). The Search-Transfer Problem: The Role of Weak Ties in Sharing Knowledge across Organization Subunits. *Administrative Science Quarterly* 44, 82-111.

Harley, R. V. L. (1928). Transmission of Information. *Bell System Technical Journal,* July 1928.

Hedberg, B. (1981). "How Organizations Learn and Unlearn." In P. Nystrom & W. Starbuck (Eds.) *Handbook of Organizational Design* 1, 3-27. Oxford: Oxford University Press.

Holden, N.J. (2002). *Cross-cultural Management. A knowledge Management Perspective*. Prentice Hall: England

Huber, G.P. (1991).Organizational Learning: The Contributing Processes and Literatures. *Organization Science* 2 :1, 88-115.

IBM (2009). Available from internet: ‹http://www.ibm.com/hu/hu/› and ‹http://www.ibm.com/us/en/›

Inkpen, A. (2000). Learning through Joint Ventures: A framework of Knowledge Acquisition. *Journal of Management studies* 27:7, 1019-1042.

Janz B. D. & Prasarnphanich P. (2003). Understanding the Antecedents of Effective Knowledge Management: The Importance of a Knowledge-Centered Culture. *Decision Sciences* 34(2): 351-384.

Jäväjä, P. (2007). Knowledge Management, Information Technology and Learning in Construction Projects. *Master thesis, Vaasa University.*

Kalling, T. and Styhre, A. (2003). Knowledge sharing organizations. Malmö: Liber.

Karlsson, B. & Kappen, P. (2005). International Inter-Organizational Knowledge Transfer. A case study of conformity and change. *Master thesis, Uppsala University.*

Kogut, B. & Zander, U. (1992). Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology. *Organization Science* 3:3, 383-397.

Kostova, T. (1999). Transnational Transfer og Strategic Organizational Practise: A Contextual Perspective. *Academic of Management Review* 24, 308-324.

Kostova, T. and Roth, K. (2002). Adoption of an organizational practice by subsidiaries of multinational corporations: Institutional and relational effects. *Academy of Management Journal* 45:1, 215-233.

Lusting, M. and Koester, J. (1999). *Intercultural Competence: Interpersonal Communication across Cultures.* New York: Longman Addison-Wesley.

Makela, K., Kalla H. K. & Piekkari R. (2006). Interpersonal similarity as a driver of knowledge sharing within multinational cooperations. *International Business Review* 16: 1-22.

Maylor, H and Blackmon, K. (2005). *Researching Business and Management.* Palgrave MacMillan.

Mintzberg, H. and Waters, J. A. (1990). Studing Deciding: An Exchange of Views Between Mintzberg and Waters, Pettigrew and Butler. *Organization Studies* 11:1, 1-16.

Nonaka, I. & Takeuchi, H. (1995). *The knowledge creating company- How Japanese companies create the dynamics of innovation.* New York: Oxford University Press, Inc.

Nonaka, S. (1994). A Dynamic Theory of Organizational Knowledge Creation. *Organizational Science* 5: 1, 14-37.

Peuhkuri, M. (1992). IP Quality of Service. Helsinki University of Technology, Laboratory of Telecommunications Technology. Available from Internet: ‹http://www.netlab.tkk.fi/~puhuri/htyo/Tik-110.551/iwork/iwork.html›

Polanyi, M. (1966). *The Tacit Dimension.* Chicago, IL: The University of Chicago press.

Riusala, K. And Suutari, V. (2004). International Knowledge Transfer through Expatriate. *International Business Review* 46:6, 743-770.

Saint-Onge, H. (1999). Tacit Knowledge: The Key to the Strategic Alignment of Intellectual Capital. In: *Knowledge and Strategy,* 231-250. Ed. Michael H. Zack. Boston: Butterworth- Hienemann.

Saunders, M., Lewis P. and Thornhill A. (2007). *Research Methods For Business Stundents.* Third Edition. Harlow: Prentice Hall.

Silverman, D. (2000). *Doing qualitative research a practical handbook.* London: Sage.

Simon, H. A., (1984). On the behavioral and rational foundations of economic dynamics. *Journal of Economic Behavior & Organization, Elsevier* 5:1, 35-55.

Spender, J.-C. (1994). Knowing, Managing and Learning: A Dynamic Managerial Epistemology. *Management Learning* 25, 387-412.

Spender, J.-C. (1999). *Organizational knowledge, collective practice and Penrose rents.* In: Knowledge and Strategy 117-132. Ed. Michael H. Zack. Boston: Butterworth- Hienemann.

Szulanksi, G. & Cappetta, R. (2003). Stickiness: Conceptualizing, Measuring, and Predicting Difficulties in the Transfer of Knowledge within Organizations. In: *The Blackwell Handbook of Organizational Learning and Knowledge Management,* 513- 534. Ed. Mark Easterby-Smith and Marjorie A. Lyles. Malden, MA Oxford: Blackwell Publishing Ltd.

Szulanski, G. (1996). Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal* 17 (Winter Special Issue), 27-43.

Taylor, S. and Osland, J. S. (2003). The Impact of Intercultural Communication on Global Organizational Learning. In M. Easterby – Smith *&* M. A. Lyles (ed.): *Handbook of organizational learning and knowledge management.* Malden: Blackwell Publications.

Ting-Toomey, S. (1999). Communication across Cultures. New York: Guilforld.

Toften, Kjell *&* Olsen, Svein Ottar (2003). Export market information use, organizational knowledge, and firm performance. A conceptual framework. *International Marketing Review* 20:1, 95-110. Available from Internet: ‹http://www.emeraldinsight.com/Insight/›

Tsai, W. (2001). Knowledge Transfer in Intraorganizational Networks: Effects of Network Position and Absorptive Capacity on Business Unit Innovation and Performance. *Academy of Management Journal* 44-5, 996-1004.

Tsouksas, H. (1996). The firm as a distributed knowledge system: a constructionist approach. *Strategic Management Journal* 17 (Winter Special Issue), 11-25.

Wilson, T.D. (2002). The nonsense of 'knowledge management. *Information Research* 8:1, 144. Available from Internet: ‹http://InformationR.net/ir/8-1/paper144.html›

WordNet (2006). Available form internet: ‹http://wordnet.princeton.edu/›

Yeung, R. W. (2008). *Information and network theory.* New York: Springer Science + Business Media, LLC.

Yin, R. K. (2003). *Case study research design and methods.* Thousand Oaks: Sage
Publications.

APPENDIX 1

INTERVIEW QUESTIONS (semi-structured questions)

- What is your brief work description and status within IBM?
- Could you please describe how you use the email, "Sametime" and telephone at your work to share tacit knowledge with your colleagues? (example for tacit knowledge; what I mean under tacit knowledge)
- Describe one-by-one (first emails, then same time and telephone)
- How often do you use these tools? (to verify tasks or only just special occasions or projects case?)
- Could you please tell me why do you use these tools for your work? (like what is the reason, what factors influence your choice or decision to choose these tools?)
- Do you use these tools in combination like two or even all of them together to solve a task? Could you please give me an example?
- Could you please tell me the advantage and disadvantage of these tools one-by-one?
- When do you use these tools in your work? Please give me an example! Influence the answer in the 5.
- How do you choose ICT tools when you have to talk with people (from another culture or somebody from abroad)?
- Could you please describe a typical situation where you usually interact with your colleagues?
- Could you please describe how you solve a task or problem when you come across it for the first time?
- What kind of knowledge do you share with your colleagues on emails, "Sametime" or telephone?
- Do you use these tools because everybody uses them or why?

- Do you use different tools when you communicate with a person you're familiar with, have recently been acquainted or with whom you are newly introduced?

- What factors influence you to choose whom to ask for help? Please describe the process by which you contact a person?

- Do you easily share knowledge with somebody who is in the same kind of position as you? (I mean he or she has the same kind of status in the hierarchy or other similarities for example?)

APPENDIX 2

Brief introduction to the topic for the interviews

Dear Respondent,

I am a Master's Degree student at University of Vaasa on International Business program. I am doing my thesis on knowledge transfer topic and I would like to ask you to support my thesis work by allowing me to make an interview with you. This interview is intent to be the part of the case-study of IBM. In the last few years knowledge became significantly important source of companies as consequence that economy changed from industrial based to knowledge-based. Companies can be seen as institutions for integrating knowledge from the knowledge-based aspect and the main managerial task is to create organization environment for sharing knowledge.

The aim of this study is to examine how the knowledge is transferred through ICT (Information and Communication Technology) tools, through non-face-to-face tools. This study focuses mainly on email, "Sametime" (instant messaging programme) and telephone from all knowledge transfer assets. The main goal is to explain how individuals operate and share their knowledge with their colleagues when they are situated at geographically dispersed locations.

The empirical part of this qualitative research will be conducted from collecting data by using semi-structured interviews. The interviewees are chosen to represent all levels and board areas of IBM APC, Budapest Office. The interview will take about 30-40 minutes. I can ensure that all your responses and information would be kept confidential. In addition, special precautions would be taken for not disclosing your personal identity while using your responses for the analysis.