The process of knowledge transfer

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ABSTRACT

There is a common agreement in literature that a company can create a sustainable competitive advantage by mastering knowledge and knowledge transfer. This requires to forward knowledge to other units at the correct time and in the right way.

The purpose of this research study is to explain in the first step general theoretical considerations related to the concept of knowledge, knowledge management as well as knowledge transfer. In a second step these concepts are illustrated with the help of four points of impact.

Some important aspects are discussed. First, the individual in the process of knowledge transfer is regarded: its behaviors, its interactions with its professional environment. Second, key tools are extended and finally the factors which influenced the process are presented.

Out of this a model is developed in an approach divided into three parts: the individual, social/collective and company perspective. This model also includes a process of knowledge transfer, the knowledge sharing achievement through a description of the main tools and actions which create a dynamic between the actors. In the last part we focus on a technical solution which can help companies to implement a knowledge transfer dynamic.

Key words: knowledge, knowledge management, knowledge transfer.

ACKNOWLEGEMENT

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PART ONE: INTRODUCTION

The introduction constitutes the first part of the paper and gives general information about knowledge transfer in the context of the research. The aim is to explain the motivation for the conducted research and to carry over the enthusiasm to the reader. The context and the background of the research are described to guide the reader to the research questions. Furthermore, the purpose and objectives are explained. The part is ended with giving the conception of the paper.

1. Context of the research

The observation of the recent practices of companies in terms of competitive strategies shows that all options of implementation contain an immaterial dimension: reconfiguration of tasks and processes, research for mechanisms to create competitive knowledge, trying to define a tool to memorize the created knowledge… more generally essay of reconfiguration of the nature of the competitive advantages on the market. In their approach to knowledge management, the authors touch different topics such as the importance to measure the value of intangible assets or to look at the creation of new knowledge.

Tom Stewart (1998, p.xx) defines intellectual capital as "*intellectual material - knowledge, information, intellectual property, experience - that a company can use to create value.*". The authors dealing with resources and their links to the strategy (Wenerfelt, 1984; Barney, 1991; Grant, 1991; among others) are numerous. However there is no unanimity on the identity of which resources to consider, even less on their hierarchy. However, four conditions must be fulfilled so that resources allow the creation of a competitive advantage: the resources must provide real value for companies, they must be unique to the company or present among only a few competitors, and they should be few or non-substitutable (Barney, 1991). In this way knowledge transfer takes all its means and justification. It is important to distinguish the notion of that capacity. For Grant (1991, p. 13) "*capacity is the ability of a combination of resources to perform certain tasks or activities. While resources are the main sources of the powers of the firm, skills are the main sources of competitive advantages of the firm*". This concept of capacity joined the "*center of knowledge*" developed by Prahalad and Hamel (1990), from the observation of success factors of NEC compared with the performance of its main competitors, as well as "*center of competence services*", as suggested by Quinn (1994). From an operational point of view, the strategic review process defined by Grant, from the approach based on resources, suggests that the concept

of competence can be defined in a functional perspective (R & D, production, distribution, etc.). The most important being the company's ability to integrate individual skills.

If we follow the work of Spender (1992), two generic categories of knowledge can be distinguished according to their objectives. So, he distinguishes knowledge which increases the stock of knowledge of the company and knowledge which implies the use of this stock (Berthon, 2001). If the first category refers to the problems of creation of knowledge or organizational learning, the second supposes the reproduction and the integration of the knowledge. In other words, it is the importance of knowledge transfer for a company.

The interest in problems of knowledge is relatively new in companies although it has been discussed theoretically since the 60s. In particular the works of Galbraith (1968), Drucker (1968, 1988, 1993), Bell (1973) and Toffler (1990) have to be mentioned as they have tried to demonstrate that the main source of wealth creation for companies comes from intellectual activities. Nowadays the activities based upon knowledge represent a central place in the activity of managers and strategists.

The amount of literature reflecting on research concerning the transfer of knowledge is numerous especially in the field of education, psychology and training. It is possible to find information about studies dealing with transferring learning from previous experiences with focus on an individual level. Tardiff (1999) wrote about the effects of experiences and learning concluded from earlier tasks on present performance. Bourgeois (1996) discussed the effectiveness of training measures. When thinking about knowledge and its communication, enforcement, preservation and transfer one question immediately comes to mind: how does the transition between individuals, knowledge and the company take place? Is it strategically important to care about this dimension?

Since some years, the dominant conception of the strategy concerns the acquisition and the mastery of resources, skills and knowledge which enables the firm to differentiate itself from its competitors and to develop its activities, to innovate or to have sufficient flexibility to be adaptable to the environment changes or the strategies of competitors. The constitution and the explanation of the competitive advantage of companies did not still resident in the choice of positioning towards the environment but in the exploitation of resources. Their relations with the competitiveness and profitability of the company are considered as patent.

In human resource management, the emergence of the knowledge logical is related to the awareness of the inadequacies of the Tayloro-Fordism model in a context of uncertainty. Serving the company to adapt itself to its environment, it is explicitly designed to increase flexibility and responsiveness of the organization thus a better matching of resources, redefining jobs and expected behavior, development and sharing of know-how. In strategy, knowledge is used to establish a competitive advantage. It stems from a different context: it is no longer to adapt to the environment or to position on a defined market but to build the market and to identify new competitive rules, imposing its own solutions as technical standards (Prahalad and Hamel, 1999). The emergence of competence in strategy is primarily used to distance itself from the traditional way to explain the competitive advantage.

Under these listed resources we find on the front line knowledge and the ability of organizations to use it to transform it into strategic skills, but also to produce it, to disseminate it and embody it in standards, procedures and behaviors, after individuals and/or groups learning which help the strategist to deal with knowledge management.

2. Background

By considering the different issues previously mentioned it could be interesting to discuss if a company can obtain knowledge as a whole unit, which opens the field to *"organizational learning"* through knowledge transfer.

Other authors such as Argote et al. (2000) look on transfer of learning as a process and defined knowledge as a product. A long time technology had been in the focus of knowledge transfer studies, for example Reddy and Zhao (1990). Nowadays, this changes and many researchers such as Kogut and Zander (1992), Conner and Prahalad (1996), Spender and Grant (1996) as well as Nonaka et al. (2000) tend to take a resource-based view on knowledge transfer. They evaluate knowledge transfer as one of the main tasks for the future. Hamel et al. (1989), Inkpen and Beamish (1997), Dyer and Singh (1998), Tsang (1999) and Simonin (2004) regard knowledge transfer in inter-organizational relationships as an issue which is central for the success of a company.

To go beyond the purely theoretical approach developed in the previous section, this paragraph deals with observations made in the professional context and what had direct our interests for our research in the field of knowledge transfer within a company.

It will be interesting to analyze and point at the challenges that underline the knowledge area. This affirmation takes all its sense in the view of the future of a company: in the view of the impact on the relationship between employees and in the view of the individual expectations. It directly impulses the dynamic of the company: its value, its performances, its efficiency, its internal atmosphere and finally the way to achieve the short and the long term goals.

The new defy of the board and of the managers will be to conserve, transfer, create and in the time generate new key workers through this mission. In our work we will find the input and the output of knowledge transfer and we will understand what this topic highlights for the company, the manager and, of course, the working force.

As we can see current companies have different points of enter to act on their knowledge transfer. In another hand, the new goals and challenges for companies, in terms of transferring knowledge are the following:

– To become aware of the role of each within the company,

– To define competence in terms of their activity,

– To program the transfer of knowledge and the methodology which will be the most adapted,

– To analyze the work situations in which this operation will take place,

– To develop a repository of expertise in the view of the activities,

– To define an action plan and define the main actors,

– To finalize the form and content repositories of knowledge,

– To plan management tools, monitoring, improvement, and result measurement.

For many companies the defy is to solve their specific situation so we have decided to limit our research around four main points of impact which will illustrate our research:

- **Senior employees to less experimented**

The danger in the retirement of the baby-boomers is that they take away their knowledge, experience and vital skills about managing customer relations and handling expectations for example. Companies and the public sector have to take action to manage the knowledge transfer process between younger talents and the elderly with a focus on knowledge workers. Peter Drucker brought up this term in 1959 to describe a person who can create new information to solve problems through owning existing information. Lawyers, managers and bankers are examples of knowledge

workers. Mainly this type of workers is able to find innovative solutions which can create a competitive advantage. But the white-collar have also an essential impact on this aspect, they are the first one who intervene on the quality of the production. In industrial case for example they are the keeper of the know-how.

The challenge for the upcoming years is to implement a system to transfer the knowledge from the experienced to the less experienced employees. The use of a coaching system could be one way to achieve this goal.

- **Team to whole company**

The concept of team work is present in a company in different ways: a team as a unit or a department of a firm and a team which has to work on a project coming from different backgrounds. The main characteristic of a team is that people have to work together to share, make sense and also create a common understanding to achieve the same goal. This dynamic also impacts the whole company and its effectiveness.

- **Consultant to client**

The job of a consultant bases on the ability to share data, information and knowledge with the customer. Without this mutual understanding the mission to help the customer cannot be a success. Moreover, a consultant company is often composed of many consultants who also have to share their experience and knowledge with their colleagues: this capitalization of knowledge will create the business advantage of the company.

- **Expatriates**

More and more companies invest a lot of money in sending their employees to workplaces all around the world. Many surveys about these expatriates demonstrate that these employees are often frustrated when they come back in their original company: their new position does not suit their new knowledge, they have problems to feel integrated in their "new" business center, and have the feeling that they do not use their new knowledge.

But this expatriation represents an investment for the company which unfortunately fails often so companies cannot benefit from it. The personal and professional gains in the view of knowledge or skills are evident. Expatriates gain in autonomy, both in terms of decision making and communication, especially through language. It is also adaptable to specific environments and cultures very different, availability, openness, or a step back from its own country. On his return, the expatriate may be sent to another country, or recalled in his office of origin. Expatriation may also be a springboard to change the company. "*People go to work abroad have a turnover rate higher. They often leave their company because it does not use their skills*" said Jean-Luc Cerdin, teacher at the ESSEC business school, and author of "*Expatriation"* (Editions d'Organization, 2001). It is also noted that managers who leave are often the best.

In another view which is more general, a survey of over 400 US and European firms (Ruggles, 1998) demonstrates that concerning activities needed for knowledge sharing within organizations, is distributed as followed:

- 50% oriented to people:
    - Establishing new roles to leverage knowledge
    - Enabling knowledge (training and education)
    - Making knowledge visible to the organization
- 25% oriented to process:
    - Mapping sources of internal expertise
    - Creating networks of knowledge workers
- 25% oriented to systems:
    - Implementing internets and collaborative systems
    - Data warehousing
    - Developing expert systems
    - Refining organizational routines

Companies are aware of the issues and have several levers to transfer the knowledge internally but also with external actors. This subject also concerns the interest of employees as we see will in this paper.

3. Research question

The focuses of this research study are knowledge transfer processes within and between companies in terms of significant knowledge. As knowledge transfer takes place on different stages of a

company and occurs in various ways that each imply their own challenges, we have decided to choose diverse specific points of impact to illustrate our research. The main emphases of the study are practices implemented by companies to facilitate knowledge transfer. Using illustrations such as cases gives examples of where it takes place in reality. Interesting points of discussion were identified in the field of knowledge management, knowledge creation, knowledge sharing, and knowledge learning.

That is why the following research questions have been defined:

1. Analyzing the process of knowledge transfer between and within companies.
2. Analyzing the role of the different actors of knowledge transfer and their interaction.

4. Purpose and objectives

The umbrella topic of our thesis is "Leading Knowledge Transfer and Organizational Learning". The purpose of this issue is clear even if we can find numerous and complementary tasks in it. In order to answer the research questions and as the chosen subject is huge we have decided to focus on some points of impact that were already explained above: knowledge transfer between teams and the whole company, knowledge transfer from senior employees to less experienced ones, knowledge transfer involved in the work of consultants with their clients and the issue of expatriates coming back home. The scope and the content of this research will permit us and the reader to analyze, to understand and to compare different theories in order to reconcile the needs of human resources that a company has. The goal is to illustrate the chosen cases and to give recommendations for companies that want to improve their knowledge transfer processes. The choice of our topic is motivated by a personal interest. As today's world is characterized by constantly changing data and rules so there is an importance for the company to create its competitive advantage; which requires of course the good knowledge in the right place at the good moment. The difficulties for managers are vast, varied and extended to all the components of the company. However, we can already mention a few examples that will help us to limit and define our goals. To deal with knowledge transfer managers have to consider the different aspects of their knowledge:

- Deal with facts: the know-what.
- Refer to causes and effects relationship: the know-why.
- Skills based on processes: the know-how.
- The area of interpersonal networks: the know-who.

5. The conception of the paper

Figure 1 shows the conception of the paper which delivers the structure for this research project.
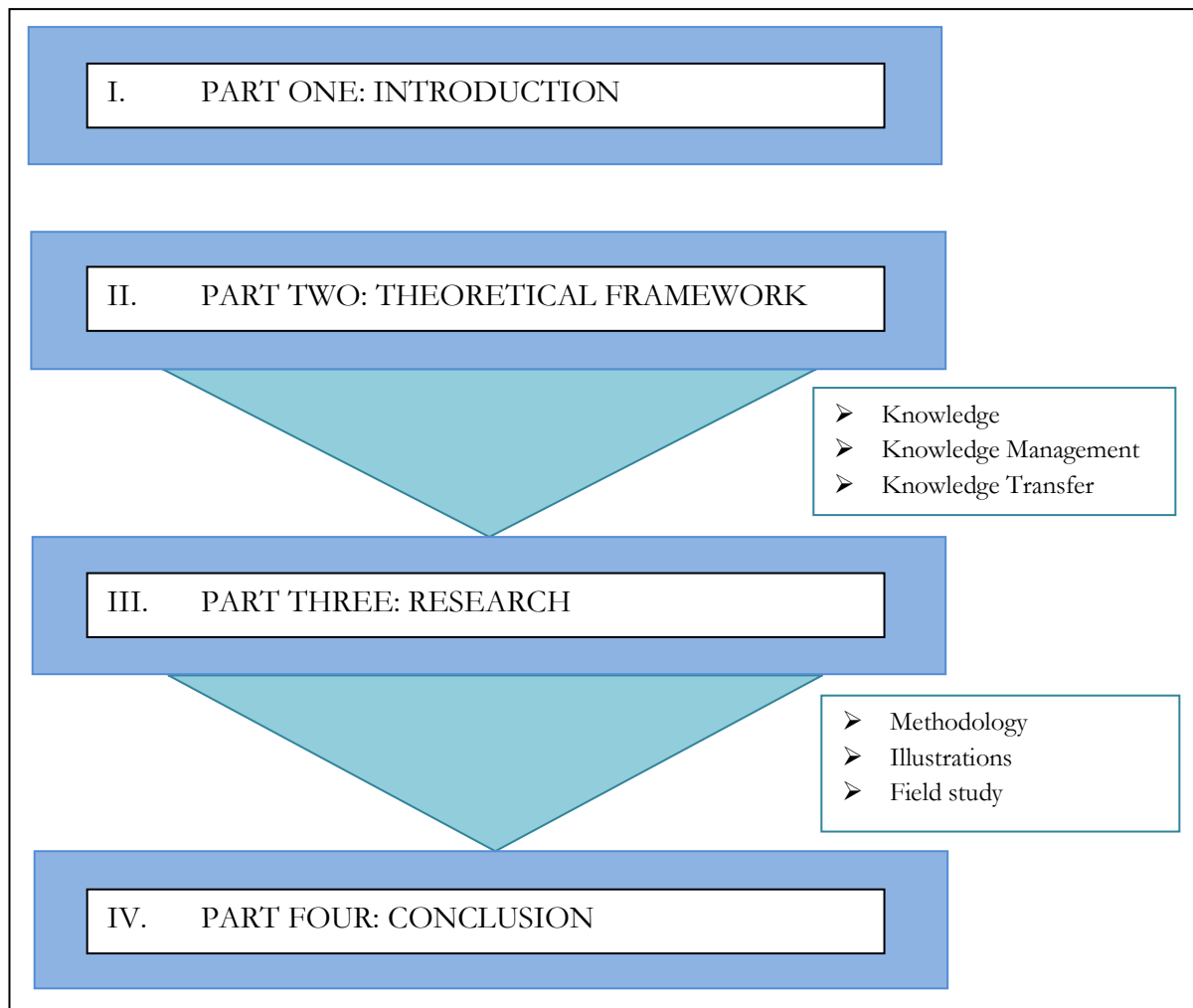
Figure 1: The conception of the paper

PART TWO: THEORETICAL FRAMEWORK

The second part of the paper summarizes the current theory about the concepts of knowledge, knowledge management and knowledge transfer. After presenting definitions of each concept more details about them are given.

6. Knowledge

To define the term knowledge is not as simple as it may seem at first sight. A common definition does not exist. That is why we want to converge on the topic of knowledge by distinguishing between data, information and knowledge as well as giving an overview of established definitions and forms of knowledge.

6.1 Data, information and knowledge

To find a definition for knowledge it is essential to define and delimitate the frontier between data, information and knowledge because these terms are connected to each other but do not mean exactly the same. Davenport and Prusak (1998) stated that researchers developed numerous definitions of knowledge in the literature but they all agree that data, information and knowledge are concepts that are not identical.

It is complicated to find an ostensive definition of knowledge because knowledge is not a clearly bounded and "simply located" entity. In the contrary, the term knowledge refers to the input or output of complex emotional, intellectual, perceptual, and political practices. (Kalling and Styhre, 2003)

Acquiring knowledge could be considered as a process which goes from collecting information to validation of the findings through experimental activities. In this approach information represents the basement of the knowledge and often data builds the foundation of information.

Data is characterized by being a series of objective facts that are structured but do not include any hint about how to utilize them in a given context. Modern organizations store their data in information technology systems. Organizations have to pay attention to the data they store because a large number of data without any remark about their importance can lead to a lot of problems. (Davenport and Prusak, 1998)

Information can be described as data that contains certain significance. In other words, information is data that has a value for the user. This value emerges when the data gets a meaning that depends on and is specific for one system. (Chini, 1998)

Knowledge results from the combination of different pieces of information including their interpretation and meaning. As the combination is made with focus on the target group of the knowledge, knowledge goes together with insecurity, paradoxes, and a certain level of ambiguity as well as subjectivity. That is why knowledge is a unique good that varies from individual to individual. The process of combining the information has to be seen in the process of sensemaking and sensegiving where individuals use different frames of reference and thereby develop different perceptions about their surroundings. (Chini, 1998)

According to Nonaka and Takeuchi (1995) knowledge, in contrast to information, is about actions, beliefs and commitment as it is dependent on the perspective or intention of individuals. Knowledge and information have in common that they are about meaning. They always need to be seen in a specific context and relations as they depend on particular situations and evolve dynamically through social interactions of individuals. (Nonaka and Takeuchi, 1995) The major difference between information and knowledge is the individual, knowledge belongs to the individual although information can be independent of people. As written in The Social Life of Information (Brown and Duguid, 2002) knowledge refers to a knower which is able to offer it to its direct environment (team, network and other surroundings). Moreover, knowledge is built on the reflection emergent from the individual's experience and the own analysis of it. So it submits to the people's opinion, perception and feeling which occur during this action. To sum up we can affirm that information deals with the "what" whereas knowledge refers to "how" and "why".

The process of transforming data into knowledge is given in figure 2. In short, pure data turns into information when the data is put into a context and knowledge evolves when meaning is given to the information.
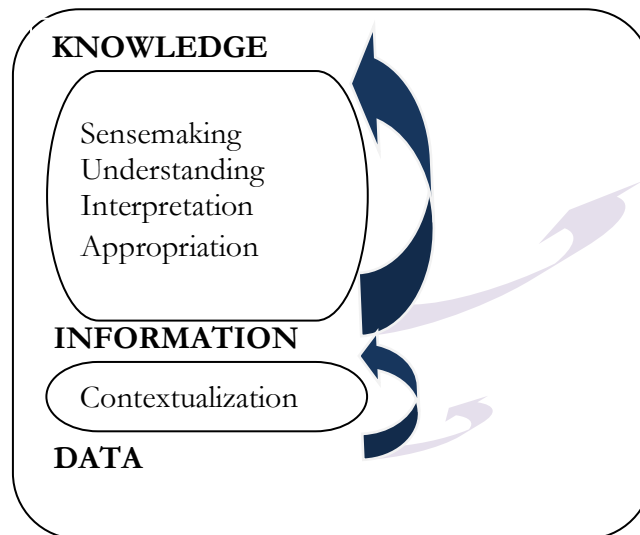
Figure 2: From data to knowledge

Probst, Raub and Romhardt (1999) state that managers need to be aware of the difference between data and knowledge. Instead of a strict separation between data, information and knowledge, they regard the transaction process as a continuum. This continuum demonstrates in figure 3 the developing process of combining an interpreting numerous information over a longer period of time.

Data	Information	Knowledge
Unstructured _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _		Structured
Isolated _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _		Embedded
Context-independent _ _ _ _ _ _ _ _ _ _ _ _ _		Context-dependent
Low behavior control _ _ _ _ _ _ _ _ _ _ _ _ _		High behavior control
Signs _		Cognitive behavioral patterns
Distinction _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _		Mastery/Capability
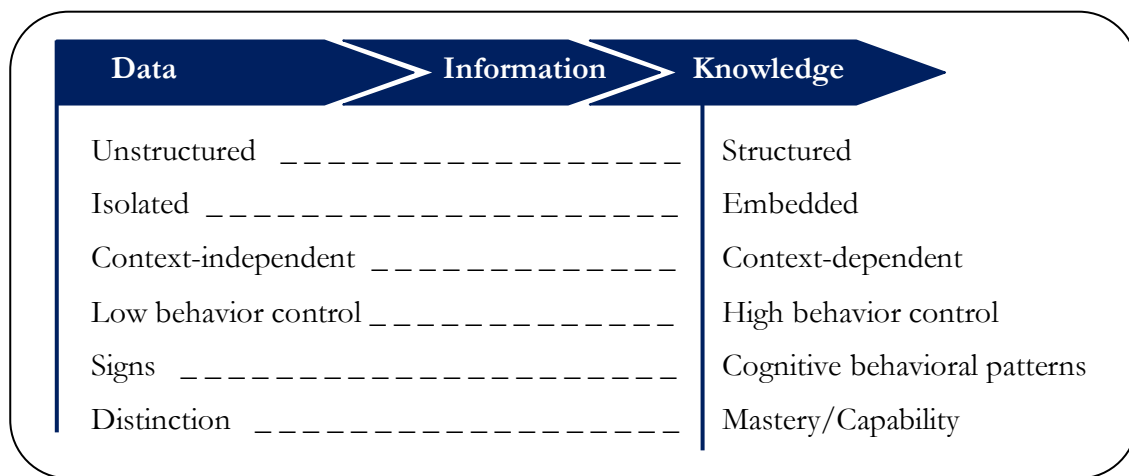
Figure 3: Continuum of data-information-knowledge (Probst, Raub and Romhardt, 1999; Chini, 2004)

According to Davenport and Prusak (1998), data is located in records of an organization and information in messages. Knowledge is included in documents, databases, organizational processes, norms and routines. It can be attained from organizational routines, teams or individuals by structured media or by the contact of individuals with each other.

6.2 Definition of knowledge

The previous section provides the frame for definitions about knowledge. As the concept is not as easy to grasp as one might think at the beginning, there are various definitions based on the ideas of numerous scientists. In the following some of the most well-known explanations can be found.

In their book "Working Knowledge: How Organizations Manage What They Know" Davenport and Prusak define knowledge as *"[…] a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories, but also in organizational routines, processes, practices and norms."* (Davenport and Prusak, 1998, p. 5).

In "The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation" Nonaka and Takeuchi regard knowledge as *"[…] a dynamic human process of justifying personal believe toward the truth."* (Nonaka and Takeuchi, 1995, p. 58).

Sveiby describes knowledge as *"[…] dynamic, personal and distinctly different from data (discrete, unstructured symbols) and information (a medium for explicit communication). Since the dynamic properties of knowledge are most important for managers, the notion individual competence can be used as a fair synonym to a capacity-to-act."* (Sveiby, 2001, p. 345).

6.3 Forms of knowledge

There are different classifications of knowledge available in literature. In the following we focused on explaining the most common approaches. First, the distinction between tacit and explicit knowledge is introduced. Afterwards, social, individual, collective, and organizational knowledge are explained. The section is finished by presenting different visions of knowledge of employees of an organization depending on their position in the company.

6.3.1 Tacit and explicit knowledge

The most common distinction of knowledge goes back to the philosopher Michael Polanyi (1966). He stated that knowledge can be arranged in two categories: explicit knowledge and tacit knowledge. The differences between these two types of knowledge will be explained in the following.

Explicit (codified) knowledge can be easily understood because it can be codified and carried out through formal and methodical language in books, archives, databases and libraries (Lahti & Beyerlein, 2000).

Tacit (implicit) knowledge can hardly be formalized and transmitted because it is closely connected to individuals as it bases on intuition, values and viewpoints that were developed through experiences (Lahti & Beyerlein, 2000). Nonaka and Takeuchi (1995) also stress these characteristics as they state that tacit knowledge is personal and context-specific depending on acquired knowledge, beliefs, emotions and personal skills. Organizations incorporate tacit knowledge in organizational routines. Zack (1999) argues that tacit knowledge is the foundation for sustainable competitive advantages of an organization as it is difficult to formalize and thus hard to be imitated.

Nonaka and Takeuchi developed a famous model (explained in the after next chapter) that is based on the distinction between explicit and tacit knowledge. Included in this work is the differentiation shown in table 1.

Explicit knowledge (objective)	Tacit knowledge (subjective)
Knowledge of rationality (mind)	Knowledge of experience (body)
Sequential knowledge (there and then)	Simultaneous knowledge (here and now)
Digital knowledge (theory)	Analogue knowledge (practice)

Table 1: Explicit and tacit knowledge (Chini, 2005, p. 9)

According to Polanyi (1966), all pieces of knowledge consist of explicit and tacit elements. Lahti and Beyerlein (2000) complain that a lot of more recent works do not pay attention to this statement and regard knowledge either as explicit or tacit. They introduce a knowledge continuum which is shown in figure 4.
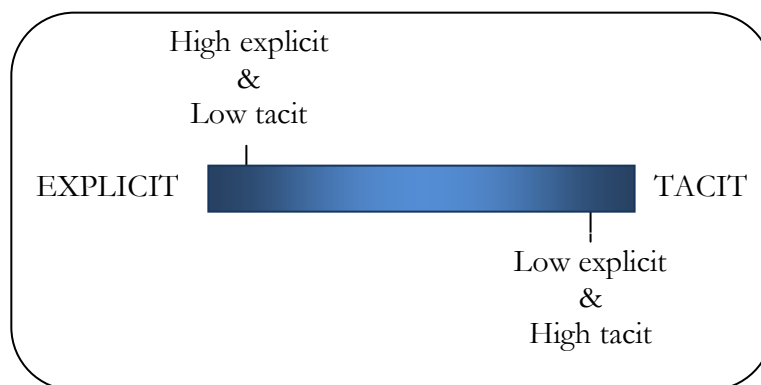

Figure 4: The Knowledge Continuum (Lahti and Beyerlein, 2000, p. 66)

In accordance with the idea of the continuum, knowledge is defined as explicit when it stems more from the explicit end of the scale of the continuum which means that a high degree of explicit and a low degree of tacit knowledge are involved. Vice versa, knowledge is defined as tacit when it stems more from the tacit end of the scale of the continuum which implies a low degree of explicit and a high degree of tacit knowledge. (Lahti & Beyerlein, 2000)

6.3.2 Social knowledge

In the prior paragraphs we have seen that knowledge is often defined as an object that is closely connected to individuals in the way that it is produced by an employee in a professional situation. This is the right approach considering the fact that an organization cannot create knowledge on its own, the organization is dependent on the individuals (Nonaka and Takeuchi, 1995). Beyond, there is another dimension that takes into account that new knowledge in an organization is also created by the combination of knowledge of the individuals. This refers to a creation of knowledge through social interactions within groups of people. (Chini, 2005)

To explain the concept of social knowledge two aspects are important. First, social interactions between people in the company in terms of their function, level of education or service have to be mentioned. Regarding this fact allows the presumption that there are some specific interdependences and exchanges with other kinds of employees working in different departments in a company. Moreover, employees will collaborate internally with people with whom they have common elements, goals and tasks and thereby create, share, and transfer knowledge in an unconscious way which leads to an effective way of working.

Second, employees also belong to their own social groups according to their nationality, age, and religion. Employees prefer to spend their time – also for recreation - in these groups. This facet is important too because it has a direct impact on the manner how people will interact with each other and make sense of what could be presented to them.

6.3.3 Individual, collective and organizational knowledge

An organization exists to accomplish missions entrusted to it. To be effective in action companies have to mobilize collective production levels and sizes (project groups, working groups, teams focused on a production process etc.) which have to develop products or provide specific services. The different teams participate in the implementation of the organization's strategy and are composed of a number of agents, each occupying certain knowledge. At each of these three levels

which are organization, collective production, and individuals there are specific skills available as shown in table 2. Therefore, the manager has to master the challenge to be most effective in action.

	Definition	Examples	Types of competence
Corporation	Social organization with missions, facilities, employees, rules and internal administration. It is composed of sub-systems (districts, unit, offices, subdivisions...) interdependent. The ensemble is in dynamic relationship with an environment and can evolve in relation to this environment.	Firms in general, administration, government, institute...	Organizational competence
Collective production or team working	Group of individuals working together to achieve a particular result within a specified time with specific means. These collective productions may be internal to a subsystem (a subdivision, a service ...) or transverse (team of multidisciplinary work or working on a comprehensive project ...).	Working groups, project teams, research teams, HR department...	Collective knowledge (of production for example)
Individual	Person (internal or external to the organization) into a collective production for specific skills. Most people in this group are employees of the structure, each with a specific job.	Manager, engineer, accountant, employee, worker ...	Individual knowledge

Table 2: Skills according to the organizational level

Organizational knowledge represents what the entity can do. This includes the organization's status quo and what it must be to be more efficient. Organizational knowledge allows the company to exist and to develop a competitive advantage compared to other organizations which arises from the diversity of abilities and skills of the employees as well as collective work and resources mobilized in a given context by an organization to produce a benefit or outcome to meet the needs of external partners. This creates a mobilization of know-how to act, which is specific to the organization that holds it. To get to the point, *"Organizational knowledge is embedded knowledge and comprises belief systems, collective memories, references and values."* (Chini, 2005, p. 10)

Collective knowledge result of a group process where individuals of a group holding complementary knowledge federate at a certain point of time and in particular context their potential and their efforts to achieve a clearly identified result together. This creates a mobilization of know-how to do which is particular to a specific group or unit which owns it.

Individual knowledge is produced by an employee in a given work situation. It corresponds to a mobilization and a combination of a number of personal resources (background, operational expertise, know-how, relational skills etc.). Moreover, it is defined and validated by the direct environment and refers to a result. To sum it up, *"Individual knowledge reflects individual experiences and constitutes the basis for the development of organizational knowledge."* (Chini, 2005, p. 10)

As shown above, organizational, collective, and individual knowledge are linked to each other. Figure 5 displays this dynamic link between the different kinds of knowledge which permits to go from the individual to organizational level. The figure also makes clear that organizations cannot create knowledge on their own. They need the individual employees and the interactions among these employees in the group, as Nonaka and Takeuchi (1995) already stated. Simon (1991) supports this idea. He declared that learning happens in the heads of the individuals and the organization can only learn in two ways. The first one is learning by its members and the second one is to ingest new members who possess knowledge that the organization does not have so far.
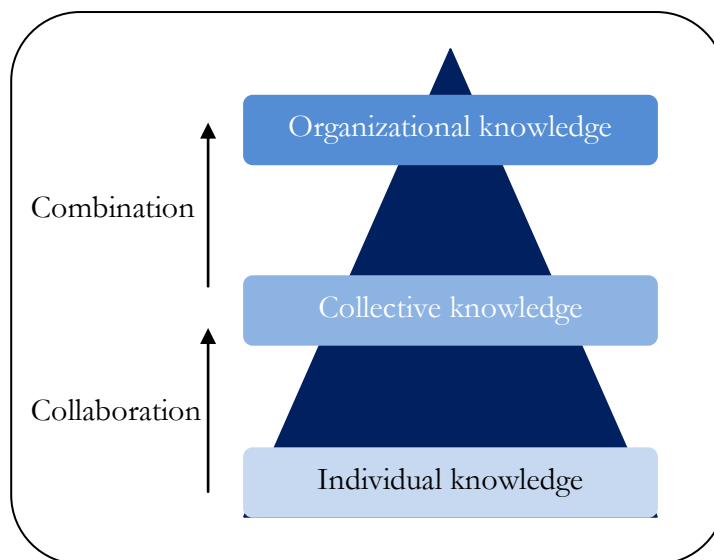
Figure 5: Dynamic link between different kinds of knowledge

6.4 Visions of knowledge depending on the organizational level

To examine the contribution of knowledge management (more information about this in the section 7) into the creation of value and the capitalization of knowledge, we propose to tackle an interactive process involving three levels of action, mobilizing actors and different rationalities. Distinguishing these three levels allows reflecting on the complexity of the issues and logics of action at work expressing skills to take into account that the systems for the representation and the interpretations.

That contribute to the emergence of organizational configurations and managerial logics considers creating value to examine the interaction between skills and work activities, and between explicit and tacit knowledge.

The following table (Table 3) reflects the representation of the management skills:

	Actors	Process	Purpose	Production
1st level	Board Direction Human Resource Director	Rationalization	Modeling Formalization organized action	HR management tools (references, assessment procedures) Behavioral norms, Classifications, Wage rules, Rationale managerial
2d level	Intermediate Management	Interaction Negotiation	Cooperation Trust	Devices and rules of action Employee Appreciation
3d level	Working team Employees	Experimentation Heuristics	Professionalism	Know-how Knowledge Skills in action

Table 3: Three levels of management skills

1) The first level focuses on the logical competence as a device management initiated by the management of human resources for strategies to adapt to its environment. Its purpose is primarily economically, to improve business performance.
2) The second level concerns the achievement of objectives in organizational situations. It is taken to supervisors and work teams.
3) The third level looks at the facts of skills and knowledge themselves and their conditions to emerge.

When thinking about knowledge transfer we have to keep this dimension of the levels in consideration. In fact, for each level, knowledge and knowledge transfer can be defined in different ways taking into account that in practice the output of work varies from level to level.

7. Knowledge management

In the literature there is a general agreement that a sustainable competitive advantage will be achieved by realizing effective knowledge management. The awareness of large organizations for the importance of knowledge for competitiveness and efficiency in business processes increases more and more. The main reason why companies are paying more attention to knowledge management is the thought that knowledge and its appliance are the ways by which innovation can be facilitated (Hargadon, 1998; von Krogh, Ichijo and Nonaka, 2000), creativity fostered (Nonaka and Nishiguchi, 2000; Nonaka and Takeuchi, 1995), and competencies pulled in a way whereby the organizational performance can be increased. That applies to the performance in the private, public and non-profit sectors (Pitt and Clarke, 1999).

Below different definitions of knowledge management are given. This is followed by explaining the role of knowledge transfer in the concept of knowledge management. Finally, the chapter is finished with considerations about knowledge enactment which means to turn knowledge into action.

7.1 Definition of knowledge management

Knowledge management represents a conscious strategy whereby organizations are trying to bring the right knowledge to the appropriate employee at the correct time. Moreover, employees should be supported to share and to put information in action in a manner that the organizational performance will be improved. Knowledge transfer implies the use of processes, structures and tools to increase, improve, renew, and share the utilization of knowledge in the structural, human or social element of intellectual capital (Seemann, DeLong, Stucky and Guthrie, 1999). With the help of knowledge management employees should be supported to communicate their knowledge to each other. Therefore, environments and systems for sharing, organizing and capturing knowledge within the whole organization have to be created (Martinez, 1998). The main objectives of knowledge management are:

1) Facilitating intelligent organizational actions that ensure the organization's survival and success.
2) Realizing the highest values of the knowledge assets (Wiig, 1997). Hence, the purpose of knowledge management is to use the organization's intellectual assets in a way to sustain a competitive advantage.

To bring all these ideas together for one definition of knowledge management is not easy. One can find a multitude of definitions for this term because knowledge management is applied for a broad

spectrum of activities which are designed to create, enhance, exchange, and manage intellectual assets within an organization. There is no common agreement shared by a number of scientists on what knowledge management really means (Haggie and Kingston, 2003). Table 4 shows an overview over the ideas of prominent researchers in the field of knowledge management.

Source	Definition
Birkinshaw (2001, p. 12)	Knowledge management can be seen as a set of techniques and practices that facilitates the flow of knowledge into and within the firm.
Buckley and Carter (1999, p. 82)	Knowledge management contains "the internal mechanisms for coordination, that is, for pooling the key information garnered by managers whose task it is to monitor external volatility and discover new opportunities".
Davenport et al. (2001, p. 117)	Knowledge management is "the capability to aggregate, analyze, and use data to make informed decisions that lead to action and generate real business value".
Demarest (1997, p. 379)	"Knowledge management is the systematic underpinning, observation, instrumentalization, and optimization of the firm's knowledge economies".
Leonard-Barton (1995, p. xiii)	"The primary engine for the creation and growth and of technological capabilities is the development of a new products and processes, and it is within this development context that we shall explore knowledge management … The management of knowledge, therefore, is a skill, like financial acumen, and managers who understand and develop it will dominate competitively."
Malhotra (1998, p. 59)	"Essentially, it embodies organizational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creative and innovative capacity of human beings."
Stewart et al. (2000, p. 42)	"The premise is that knowledge assets, like other corporate assets, have to be managed in order to ensure that enterprises derive value from their investment in knowledge assets."
Tsoukas and Vladimirou (1996, p. 973)	Knowledge management "is the dynamic process of turning an unreflective practice into a reflective one by elucidating the rules guiding the activity of the practice, by helping give a particular shape to collective understanding, and by facilitating the emergence of heuristic knowledge".

Table 4: Definitions of knowledge management (Chini, 2005, p. 11)

7.2 Stages of knowledge management

To gain sustainable competitive advantages is essential for the long-term success of an organization. Knowledge management forms such an advantage and companies can benefit from it when they master the four key stages of knowledge management. These stages are knowledge generation, knowledge representation, knowledge accessibility, and knowledge transfer. They are closely linked to each other. (Lahti and Beyerlein, 2000)

7.2.1 Knowledge generation

Knowledge generation refers to different activities such as creating or developing new concepts and ideas, identifying so far unnoticed trends and external knowledge and integrating different concepts and practices. Cohen and Levinthal (1990) named the ability to generate new knowledge as the absorptive capacity of an organization, which means that the access and use of knowledge is determined by prior knowledge because prior knowledge enables an organization to identify new valuable data and information as well as to convert them into knowledge.

Nonaka and Takeuchi (1995) state that knowledge can only be generated by individuals and not by the organization itself. As soon as knowledge is developed the company will integrate, enlarge, and solidify it. Social interaction might give the right impulse for that.

Knowledge generation is closely connected to the concepts of organizational learning and the learning organization whereby a learning organization is what the organizations wants to be and organizational learning is the way how this goal is achieved. New knowledge will be expanded into the culture, memory and structure of the organization which will be more adaptive and flexible to its surrounding. Synergies bring about that the organization learns more than solely the sum of the learning of its members. It may be noted that knowledge management is enabled by organizational learning and that it turns learning into action by formalizing processes, strategies, and structures. (Lahti and Beyerlein, 2000)

7.2.2 Knowledge representation

Knowledge representation means to understand what the organization's employees know and transform this into an advantage or a benefit for the company by implementing the knowledge within the whole organization. Measures that can be used to achieve knowledge representation are

for example expert-system software, operation manuals, training modules, and video presentations. (Lahti and Beyerlein, 2000)

7.2.3 Knowledge accessibility

Organizational knowledge needs to be available to the members of an organization otherwise knowledge representation is useless. Accessibility can be attained in different ways. Networks of employees can be used to connect the individuals that are searching for a certain expertise with the people who possess it. Another possibility are computer systems which include databases with search tools. (Lahti and Beyerlein, 2000)

7.2.4 Knowledge transfer

The fourth and most important stage of knowledge management is knowledge transfer. In this section only a basic explanation of the concept of knowledge transfer is made. Further information can be found in the following chapters.

Key knowledge of a company has to be disseminated, shared, and used within the whole company so it can become an asset whereby the performance can be enhanced. Knowledge transfer means to convey and to diffuse knowledge among different organizations or within one organization. Regular meetings, training, and personal contact are ways to convey knowledge. The manners to diffuse knowledge differ depending on the form of knowledge that should be transferred. Explicit knowledge can easily be transferred by archives, books, databases, and groupware technology. Whereas transferring tacit knowledge involves personnel movement and individuals that collaborate with each other. Collaboration can take place in many ways such as on-the-job-training, job rotation, and building structures such as cellular organizations and teams. (Lahti and Beyerlein, 2000)

7.3 Turning knowledge into action

Collecting and possessing ideas about the own business is the first step to be economically successful. However, managers know that sole knowing about these ideas is not enough. They invest a lot of money in buying books and organize training hoping to translate gained knowledge into organizational action. A lot of these training measures are based on timeless knowledge and principles. Nevertheless they are repeated quite often because they prove to be ineffective in influencing the organizational procedures. Some managers are also open to spend a plenty of money for management consultants but most of the times they fail to implement their advices in the own

company. In other words, the problem facing numerous organizations is that they have certain knowledge but do not do something with this knowledge. This problem can be named as the knowing-doing gap. (Pfeffer and Sutton, 1999)

There are many examples that illustrate that there is a big gap between knowing about the importance of something and really doing it. To cite one example one survey conducted by the Association of Executive Search Consultants will be mentioned. According to this survey 75 % of the answering CEOs claimed that companies should implement "fast track" programs but less than 50% of them had one in their own company. It is quite obvious that a lot of CEOs fail in implementing what they know. (Pfeffer and Sutton, 1999)

To implement changes it is necessary that all relevant departments of an organization possess the knowledge of how it is possible to enhance the performance. Industry studies show that this can be a challenge for an organization as the transfer of this knowledge between as well as within firms is complicated. There can be big performance differences within in company. A reason for this can be that the communication between the diverse departments of the company is poor. (Pfeffer and Sutton, 1999)

It is needless to say that there are also big performance differences between the companies on the market. This raises the question of if the knowing-doing gap really matters or if the differences result from what these companies know. There are some reasons which testify that not the ability of translating knowledge into action but the knowledge itself is the basis for the differences. Nevertheless, according to Pfeffer and Sutton (1999) the knowing doing gap is the influencing factor for the differences in organizational performance. First, there are many actions and organizations involved in the process of acquiring and distributing knowledge which shows that there are significant performance "secrets". As we can see in practice, it is impossible that better ways of doing business remain secret forever: there are companies that focus on transferring performance knowledge, most managers cannot resist telling other firms or the business press how they achieve their success and managers of well-performing companies are interviewed frequently. Secondly, the success of interventions improving organizational performance is reliant on implementing simple knowledge that a company is already familiar with rather than on new ways of working. Most measures that would influence organizational performance positively are common sense but, nevertheless, not implemented everywhere. Pfeffer and Sutton (1999) state that benchmarking,

knowledge creation and knowledge management are important, but to turn knowledge into organizational action is even more important. (Pfeffer and Sutton, 1999)

Moreover, knowledge management can increase problems of a company with the knowing-doing gap. The current interest in knowledge management and intellectual capital might give the impression that the knowing-doing problem does not exist at all. This is a false conclusion because many consultants, management writers and organizations take a wrong view of knowledge. They think that knowledge is acquirable, measurable and distributable. There are some problems with this assessment of knowledge. Companies started to build a stock of knowledge and acquired or developed intellectual property thinking that if possessing, they will use the knowledge in an appropriated and effective way. Mostly this is not the case. A survey conducted by the consulting company Ernest & Young in 1997 showed that most of the firms invest in intranets, data warehousing and building networks so people can find each other but they miss the chance to launch new products or services based on new knowledge. Knowledge management systems are often far away from companies' every-day activities because the persons who are responsible for implementing them do not understand how people use knowledge in their work. These systems ignore the fact that knowledge is transferred between people by gossiping, stories and observing others. There are studies saying that up to 70 % of learning at the workplace happens in an informal way. Unfortunately, formal systems mostly based in technology are unable to store tacit knowledge. According to Pfeffer and Sutton (1999) the success of knowledge management systems is highest when the person, who generates, stores, explains and implements knowledge is the same. (Pfeffer and Sutton, 1999)

With the previous statements we showed that a knowledge doing gap exists and that knowledge management practices can even extend this gap. Harlow Cohen (1998, as quoted in Pfeffer and Sutton, 1999, p. 94) called this gap the performance paradox: *"Managers know what to do to improve performance, but actually ignore or act in contradiction to either their strongest instincts or the data available to them."* According to Pfeffer and Sutton (1999) there are various reasons for the existence of this gap. It is necessary that managers understand this reasons to be able to turn knowledge into organizational action:

1) "Why" not only "how": most managers tend to be only interested in "how" companies are successful which means that they want to learn appropriated behaviours, practices and techniques instead of focusing on "why" success occurs which implies to get to know general guidance for activities and philosophy. Well-performing companies use general

business and operating principles and not detailed plans which allow them not to be stuck in the past.

2) Knowledge acquisition by doing and teaching others: in times of distance learning we can observe that people sit in seminars and listen to different ideas and concepts but managers forget that you can learn many things only by firsthand experiences. Employees have to experience how to do things and teach others how they did it to develop a deep and profound level of knowledge. Thereby the knowing-doing gap can be reduced.

3) Action not only concepts and plans: decision making, meetings, planning and talking are central activities in companies. Unfortunately, companies often forget the implementation of their outcomes. Without taking action it is more difficult and less efficient to learn new things.

4) Accepting failure: learning involves failure. Managers have to start to regard failures as opportunities to learn or to continue to learn. Reasonable failures should not result in disciplinary measures.

5) An atmosphere of fear increases the knowing-doing gap: fear should not be a common organizational principle because it causes a lot of problems. Fear can lead to managers behaving inconsistent or irrational. No employee will try something new if they have to fear bad consequences. Even failure can lead to learning. To drive out fear is a strategy that is followed by companies that can better turn knowledge into action. Leaders of these companies inspire admiration, affection and respect. Hierarchy and power differences are less visible because status markers are removed.

6) Interorganizational cooperation instead of competition: collaborating and caring about each other's welfare reminds a lot of people to socialism that is why cooperation has a bad reputation. Employees have to fight against competitors but not against their own colleagues. Furthermore, some leaders believe that because competition is a successful concept to triumph over rivals, competition within the company will higher the economic result. The opposite is the truth, motivation and cooperation instead of competition will be helpful for turning knowledge into action.

7) Asking the right questions to turn knowledge into action: normally organizations collect a lot of data to measure the past but they do not give information why results occurred as they did. Instead of measuring organizational processes the organizational outcomes are evaluated. Knowledge implementation is measured only by few organizations although collecting data about the knowing doing gap and taking action about it is needed to turn knowledge into action.

8) Task of leaders: leaders have to focus on their task to guide the company to economic success. They have to understand that if they discover knowing-doing gaps they do not necessarily have to make strategic decisions. They do not need to decide nor know everything. What they have to do is to actively create an environment where people know and do things. Success will come if the leaders follow a philosophy that fosters action and learning by testing new things. (Pfeffer and Sutton, 1999)

Nevertheless, leaders also have to realize that knowing in action has another dimension. "*There are actions, recognitions, and judgment which we know how to carry out spontaneously; we do not have to think about them prior or during their performance. We are often unaware of having learned to do these things; we simply find ourselves doing them. In some cases, we were once aware of the understandings which were subsequently internalized in our feeling for the stuff action. In other cases, we may never have been aware of them. In both cases, however, we are usually unable to describe the knowing which our action reveals.*" (Schön, 1999, p. 54)

8. Knowledge transfer

The previous capital shows that it is not enough that a company owns certain knowledge. It has to be turned in action which means that it has to be transferred between the individuals, groups, teams and the whole company as well as to external interested parties. That is why we want to explain in the following the knowledge transfer itself and the processes by which it takes place. Beyond, we examine the relation between knowledge transfer and building a competitive advantage. The chapter is ended by reflections about influencing factors and barriers for knowledge transfer.

8.1 Definition of knowledge transfer

For knowledge transfer it is the same as already before with knowledge and knowledge management. One definition accepted by wide groups of scientists does not exist. Nevertheless, a definition delivered by Argote and Ingram is used by a lot of other researchers. They describe organizational knowledge transfer as *"the process through which one unit (e.g. group, department, or division) is affected by the experience of another."* (Argote and Ingram, 2000, p. 151). On the other hand, the following explanation is possible: *"Knowledge transfer is seen as a process in which an organization recreates and maintains a complex, causally ambiguous set of routines in a new setting"* (Szulanski, 2000, p. 10). Kalling states *"Knowledge transfer within an organization may be thought of as the process by which an organization makes available knowledge about routines to its members, and is a common phenomenon that can be an effective way for organizations to extend knowledge bases and leverage unique skills in a relatively cost-effective manner"* (Kalling, 2003, p. 115).

The distinguishing between external and internal knowledge transfer can also be found in the literature. External knowledge transfer refers to processes of exchanging information with other groups than those who belong to the own organization. Internal transfer of knowledge refers to intra-organizational processes and means units that belong to the organization.

8.2 Processes of knowledge transfer

The process of knowledge transfer can be regarded as quite complex. Inkpen and Dinur (1998) made clear that there are two general theoretical approaches to knowledge transfer: the communication model based on the ideas of Shannon (1948) and the knowledge spiral model proposed by Nonaka and Takeuchi (1995). These two models will be explained first in this section. Afterwards other concepts are regarded that explain how knowledge can be transferred. These concepts are in particular knowledge elicitation, the Kolb learning cycle, knowledge learning, and knowledge leading.

8.2.1 Communication model

C. E. Shannon developed a communication model which describes the process of sending and receiving a message. This model is shown in figure 6:
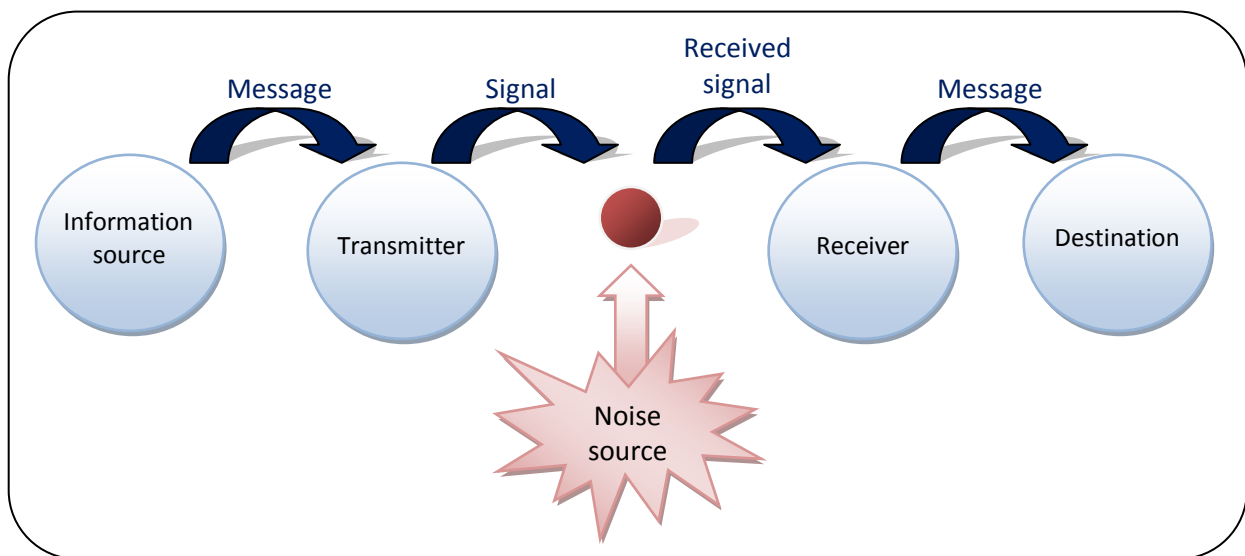

Figure 6: The communication model by Shannon (Shannon, 1948)

According to Shannon (1948) a communication system consists of five crucial parts that a send message has to go through:

1) An information source: the information source generates a message or at least a sequence of a message which will be communicated to the receiver.

2) A transmitter: the transmitter functions as a system that produces a transmittable signal.

3) A channel: the channel is responsible for transmitting the signal from the transmitter to the receiver.

4) A receiver: a receiver turns back the transmission done by the transmitter. As a result the original message is reconstructed from the transmitted signal.

5) A destination: the destination is the person or group of persons for whom the message is designed.

The knowledge transfer process can be influenced by the occurrence of noise. Generally, noise can be anything that hampers the transmission of the message. The more differences between the information source and the destination, the more likely that the received message deviates from the original message. (Rogers and Steinfatt, 1999) According to Chini (2004) noise can transform or even destroy a message that is why the encoding and decoding phase are the two critical stages.

Szulanski (1996) was one of the first scientists who applied the concept of the communication model to the field of knowledge management. In his article "Exploring internal stickiness: Impediments to the transfer of best practice within the firm" he described knowledge transfer as a transmission of a message from the source to the recipient which takes place in a given context. (Chini, 2004) Inkpen and Dinur (1998) used Szulanski's ideas and extended his model. They identified four groups of related factors that influence the transfer of knowledge:

1) Source-related factors.
2) Recipient-related factors.
3) Factors related to the relationship and the distance between the source and the recipient.
4) Factors related to the nature of the transferred knowledge.

Beyond the groups of related factors Inkpen and Dinur (1998) pointed out that there exist four stages that are essential for the process of transferring knowledge:
1) Initiation: recognition of the transferred knowledge.
2) Adaption: changing knowledge at the source location to the detected needs of the recipient.
3) Translation: occurrence of alterations at the recipients unit due to the general process of problem solving because of the adaptation to the new context.

4) Implementation: institutionalizing of knowledge to become an integral part of the recipients unit.

8.2.2 Spiral model (knowledge creation)

In the book "The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation" Nonaka and Takeuchi (1995) elaborated a theory of organizational knowledge creation, which is referred to as the model of the knowledge spiral (Figure 7). The authors claim that Japanese companies are more successful compared to Western companies because they are more effective in creating knowledge through intuitional applying the basic idea of their model.

The basis of this theory is the distinction between tacit and explicit knowledge which was developed by Michael Polanyi (1966). According to Nonaka and Takeuchi (1995) these two types of knowledge cannot be separated from each other. They are interchanged into each other through activities of human beings. These interactions are called knowledge conversions whereas the mobilization and conversion of tacit knowledge is regarded as the key to create knowledge in an organization. The result of the conversion process, which takes place between and within individuals, is a knowledge expansion in terms of quality and quantity. (Nonaka & Takeuchi, 1995) *"A spiral is created when the conversion of tacit and explicit knowledge results in higher epistemological and ontological levels."* (Chini, 2004, p. 18)

Nonaka and Takeuchi identified four modes of knowledge creation which contribute to the knowledge creation process of a company:

1) Socialization: from tacit to tacit knowledge.
2) Externalization: from tacit to explicit knowledge.
3) Combination: from explicit to explicit knowledge.
4) Internalization: from explicit to tacit knowledge.
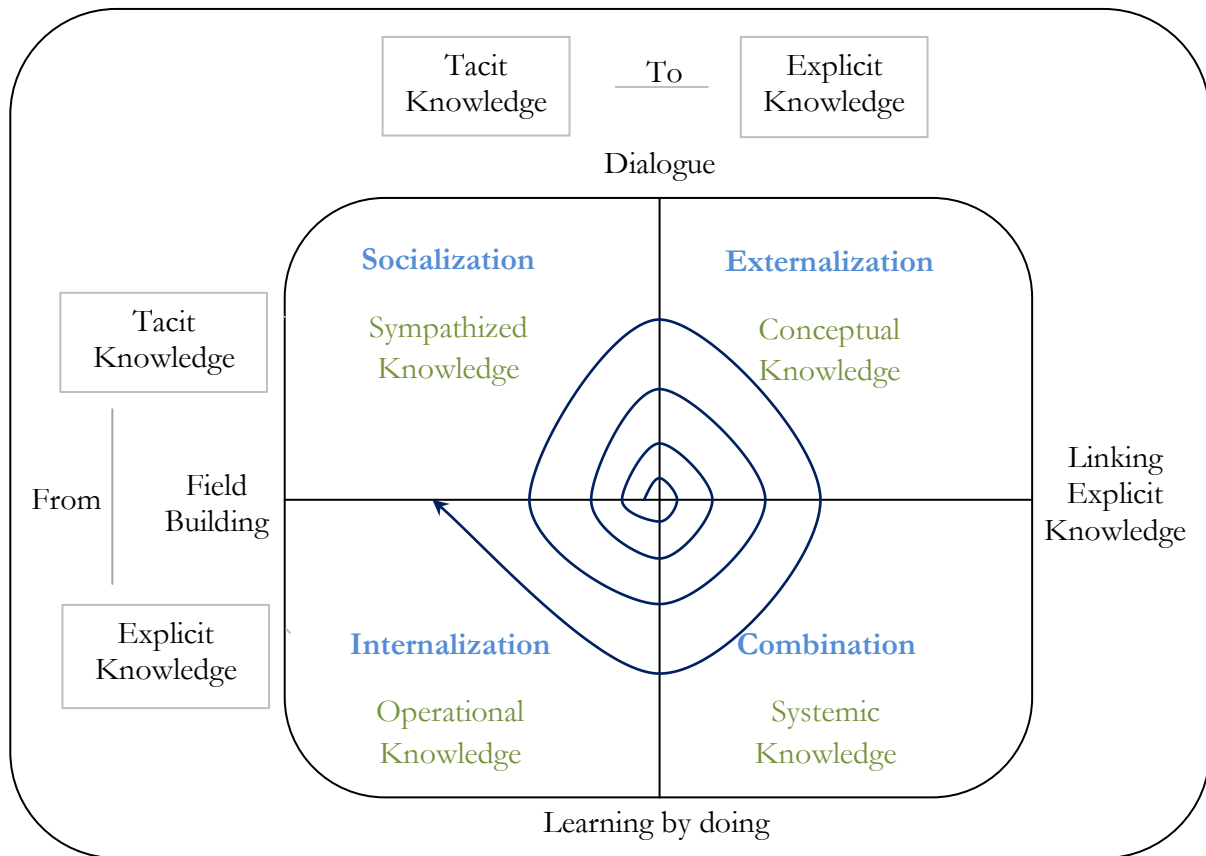
Figure 7: Knowledge spiral (Nonaka and Takeuchi, 1995, pp. 71-73)

In the following the four modes of knowledge creation will be explained.

- **Socialization: from tacit to tacit**

"Socialization is a process of sharing experiences and thereby creating tacit knowledge such as shared mental models and technical skills." (Nonaka and Takeuchi, 1995, p. 62)

To acquire tacit knowledge experiences are the key. People have to share some kind of experiences otherwise it is difficult to learn from another person's thinking process. Without shared experiences the transfer of information hardly makes sense.

In order to explain this mode of knowledge creation Nonaka and Takeuchi (1995) take an apprenticeship as a typical example. The apprentice can acquire tacit knowledge without the use of language. Language is replaced by observing and imitating the master and later practicing

what has been seen. On-the-job training in business settings works according to these principles as well.

Another example given by Nonaka and Takeuchi (1995) for the occurrence of socialization is interactions between product developers and customers before developing a new product and after the market introduction of a new product. These interactions constitute an unlimited process of transferring tacit knowledge and giving ideas for product improvements.

- **Externalization: from tacit to explicit**

"Externalization is a process of articulating tacit knowledge into explicit concepts." (Nonaka and Takeuchi, 1995, p. 64)

In this process tacit knowledge becomes explicit in the shape of analogies, concepts, hypotheses, metaphors and models. Human beings use language to express the essence of an image but often there is a discrepancy or gap between the image and the spoken or written expression. Nevertheless, using these expressions makes sense because they encourage reflections and interactions between people. Typically externalization can be found while creating concepts for example through combining deduction and induction. Dialogue and collective reflection trigger this mode of knowledge conversion.

Externalization is the most important mode when it comes to knowledge creation because new, explicit concepts are created from tacit knowledge. Now, the question is how the conversion process is organized effectively and efficiently. The sequential use of metaphors, analogies and models is the answer: Metaphors help people to understand things by symbolically imagining another thing. If there are contradictions within a metaphor they are harmonized by analogy. Later, models can be formed from created explicit concepts.

- **Combination: from explicit to explicit**

"Combination is a process of systemizing concepts into a knowledge system." (Nonaka and Takeuchi, 1995, p. 67)

People combine and exchange knowledge through different canals such as conversations, documents and meetings. Modern communication and information technologies such as

computerized communication networks and large scale databases support these interactions as well. Through adding, categorizing, combining and sorting of existing information explicit knowledge is reconfigured and new knowledge can emerge. Formal education and training such as a MBA program is a typical example of knowledge creation in terms of combination.

Through networking of codified knowledge and information it is possible to create new concepts. In a company the middle management is a critical success factor in this process.

- **Internalization: from explicit to tacit**

"Internalization is a process of embodying explicit knowledge into tacit knowledge." (Nonaka and Takeuchi, 1995, p. 69)

For internalization to take place, explicit knowledge has to be spread and absorbed by the members of an organization into their own tacit knowledge bases. Learning by doing is strongly connected to internalization. Internalized experiences gained in the processes of socialization, externalization and combination become valuable assets. According to Nonaka and Takeuchi (1995) the results of a successful internalization process are shared mental models and technical know-how. Therefore, it is helpful if the knowledge is available in documents, manuals or oral stories because documentation at the one hand facilitates internalization and on the other hand makes it possible that individuals can learn from the experiences of others indirectly. (Nonaka and Takeuchi, 1995)

For organizational knowledge creation it is necessary that the individuals of the organization share their tacit knowledge with other organizational members. Thereby, a new spiral of knowledge creation is started. (Nonaka and Takeuchi, 1995)

As show above, organizational knowledge creation takes place if there is a constant and lively interaction between explicit and tacit knowledge. For that reason, all four modes of knowledge creation are important. The content of knowledge of these modes is different. Sympathized knowledge such as shared mental models and technical skills results from socialization. Conceptual knowledge emerges from externalization for example through metaphors and analogy. New component technologies and prototypes are examples of systemic knowledge which derives from combination. Internalization gives rise to operational knowledge concerning new product usage,

production processes, project management, and policy implementation. These different contents of knowledge are important because they interact with each other in the knowledge spiral and thereby create new organizational knowledge.

It is essential to keep in mind that it is impossible for an organization to create knowledge on its own. Organizational knowledge creation rests upon tacit knowledge of the members of the organization that was created and accumulated by these individuals. Hence, the spiral of organizational knowledge creation starts with the individuals and rises through expanding the interacting communities by crossing the boundaries of sections, departments, divisions and the whole organization.

Nonaka and Takeuchi (1995) elaborated five conditions which enable organizational knowledge creation. These conditions which are necessary at the organizational level will be discussed in the following.

- **Intention**

Intention can be described as the organizations' ambition to achieve its goals. Usually formulating strategies is done by an organization to reach its objectives. In doing so, organizations have to pay attention to the vision they conceptualize in terms of the kinds of knowledge that should be created and how the vision is operationalized into an implementation system.

- **Autonomy**

All members of the organization should be allowed to work as autonomously as possible because of several reasons. First, autonomy increases the opportunities of setting up unforeseen business options. Second, it is possible that autonomy will higher the personal motivation of individuals to create new knowledge. Third, innovative ideas evolve from individuals which are allowed to work autonomously. These ideas spread within the team and thereby turn into organizational ideas.

- **Fluctuation and creative chaos**

Fluctuation means an order whose design is hardly predictable at the beginning whereas creative chaos refers to total disorder. Both specifications are necessary because they encourage interactions

between an organization and its environment. If organizations are open toward signals from the environment it can lead to improvements of their knowledge systems.

- **Redundancy**

According to Nonaka and Takeuchi (1995), redundancy does not mean unnecessary duplication. What they understand by this term is that there also exist information in the organization that are not directly needed for operational activities of the organization's individuals. They mention overlap of information about activities in the business, responsibilities of the management and the whole organization.

- **Requisite variety**

Ashby (1956) stated that the complexity and variety of the organization and the environment need to be in a balance. If there is a requisite variety in the organization members can deal with a lot of contingencies. To achieve a maximum of variety, the organization should assure the fastest access to all necessary information by going through only few steps.

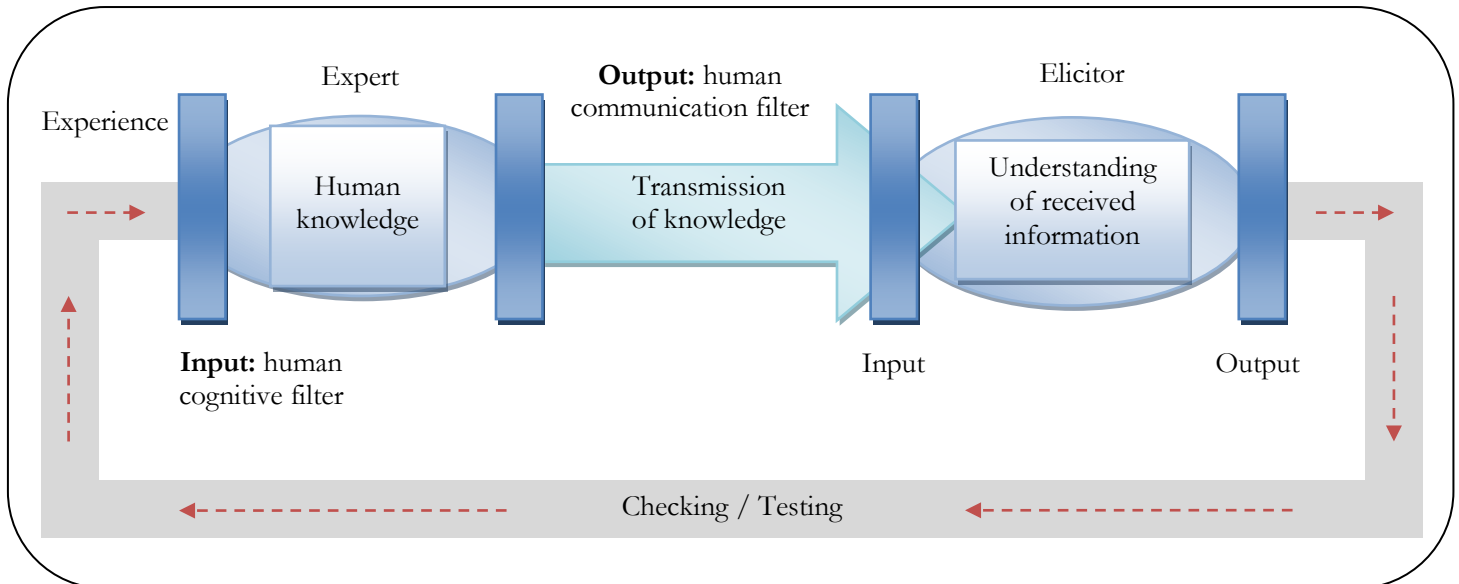### 8.2.3 Elicitation model (knowledge sharing)

Figure 8: Knowledge transfer through elicitation process

capture the knowledge of an individual so that it can be shared among others and usually finishes up stored in a knowledge base. The idea behind the activity is to provide a capability to replicate human knowledge in areas where it could not previously move. This tie-up could be caused by different

reasons: the knowledge was highly specialized, about to be destroyed, or the environment it needed to be used in was hostile to humans but not to computers, such as in deep space, toxic environments for example. The person performing the knowledge elicitation task is usually working with a particular paradigm which assists in the process of representing the knowledge at a later stage. The auditor will be keen to identify knowledge which belongs to key individuals in the company and finds ways of capturing and replicating it so that it can be shared throughout the company. Many knowledge elicitation methods have been used to obtain the information required to solve problems. These methods can be classified in many ways. One common way is by how directly they obtain information from the domain expert. Direct methods involve directly questioning a domain expert on how they do their job. In order for these methods to be successful, the domain expert has to be reasonably articulate and willing to share information. The information has to be easily expressed by the expert, which is often difficult when tasks frequently performed often become "automatic". Indirect methods are used in order to obtain information that cannot be easily expressed directly.

8.2.4 Kolb learning cycle

The elicitation model gives us an idea of a knowledge transfer process which is focused on the expert of the company. It is furthermore pertinent to have a look on the work of the American theorist who had centered his research on professional skills evolution and developed different approaches of leaning in a company. Kolb's work has shown that, to learn from experience, four phases must be linked in individual learning. Of course, a knowledge process underlines the fact that one of the actors has to learn.

According to Kolb, who works on experiential learning, learning is a process consisting of four phases, which form a cycle as we can see in the following figure 9.

To comment this figure we can note that after the experience comes the reflective observation: the person made comments on the experience and reflects on their meaning. It can then, from an inductive reasoning, form concepts (conceptualization phase): it generalizes the properties to a class of situations. In the active experimentation phase, the person can check the assumptions it has made in new situations. Each employee, following his own learning style preference, will be able to learn on one of these phases.
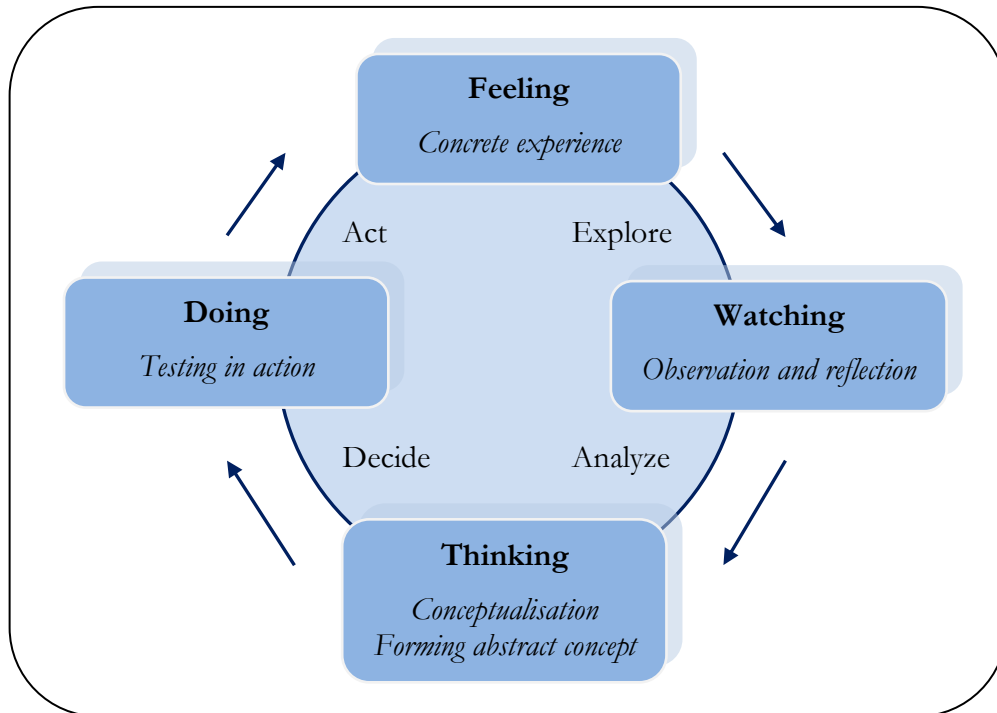
Figure 9: Kolb learning circle *(http://www.infed.org/biblio/b-explrn.htm)*

The second highlights of this model are that we can identify different kind of people:

1) The action one who puts himself at once in action, what is often a strength but the stake in actions without planning or period of reflection can also turn out a weakness.

2) The reflexive who spends a lot of time to think and reflect, what is another strength, when the situation need it, but what can become a weakness if the analysis does not lead to appropriate actions in the best time.

3) The theorist who understands the links between all what happen in the company, but who can limit itself by the lack of taste for the concrete action or by the refusal to accept information coming from the experience of his co-workers, who could seem to prove the opposite of its models.

4) The pragmatist who likes everything which concerns the planning and the elimination of the obstacles but who can also collide with more sensitive persons than him through his concerns of results. The short-term pragmatism can be seen to be in contradiction with the needs of durability of the company or the long-term relations between co-workers, or with buyers and suppliers.

Obviously not everybody is classified just in one section. The ideal situation is when a person is able to switch between these descriptions depending of the situation. Some people unconsciously follow

a satisfying cycle: action - reflection - theory - pragmatic reiteration. Others have a personal strategy, such as: thinking - action - and then repeat pragmatic development of a personal theory. If success is to go all rings and any favorite loop that is a whole are good. But problems arise when the loop learning does not occur. Stress or frustration may come from the fact that a person is stuck in one style or because it freezes between two styles.

These dimensions reflect the emphasis of the individual in knowledge transfer. And this is true by considering the transmitter and the receiver.

A test, from the work of Kolb, makes it possible to situate their learning style. However, to learn from experience, we need all four phases. From then on, the one who organizes the training or transfer of knowledge from the working situations, the trainer, the tutor, the manager, must accommodate the possibility for the person who learns to live these four phases, while relying on its personal strategy of learning to benefit from it. A step of analysis of the transfer will be essential to be sure that it will be efficient in the view of the individual need, waiting and personal methodology (process of reflection, way of thinking, comportment…).

8.2.5 Knowledge learning

A lot of the literature which deals with the topic of knowledge learning tends to focus on the individual aspect but it is also essential to speak about what the organization can learn. Of course, it refers to the previous discussion which took place in the section 2.3. "*Proponents of organizational learning advocate that although it is individuals that go through the learning process, this takes place within the context provided by the organization (Argyris and Schon, 1978). The organization as a whole continuously accumulates knowledge through the individuals who generate and transfer new solutions (Nonaka and Takeuchi, 1995).*" (Giannakis, 2008, p. 64)

This knowledge accumulation allows the company to enjoy the use of knowledge afterward to survive the departure of individuals and to absorb and to nurture new employees. In this way it is logical to debate that in order to limit the research of how organizations create and transfer knowledge but to extent it to the significance of considering the learning process that individuals go through.

Knowledge in this view has to be considered as the conscious or unconscious interpretation of the information of the environment through the accumulated experience. This process also underlines

the fact that the employee develops a mental and physical knowing. Knowledge transfer is by definition the transfer from one actor to another when we can consider that the knowledge is acquired. However this approach occurs when people share their capabilities or routines that take place in their daily work. In organizations this scheme happens often in different situation such as personal interaction, daily collaboration etc.

These explanations highlight that knowledge is not only an aggregation of information. In fact, information is connected to a meaning through an individual interpretation process which is itself a process of learning via the appropriation and internalization of specifics. So information which is sharing contribute to this concept of knowledge learning through the application, the adoption, the retention and as a final point the assimilation. This last step is undeniably the most significant stage of knowledge transfer as it symbolizes the process of cumulative learning that involves changes in individuals' skills and attitudes and organizational routines as a direct result of the use of acquired knowledge.

This idea has to be balanced by the necessity to distinguish the value and scope of information that is exchanged. We cannot associate simple information with information which directly has the goal to develop individual skills but the notion of knowledge learning follows the same implementation.

8.2.6 Knowledge leading

The challenge of knowledge leading is to stimulate the employee's personal commitment to a better answer for the requirements of the collective performance. In other words, the individual knowledge is not an end in itself. It should serve a collective mobilization which is measured in terms of efficiency, performance and adaptation to change. The question then for the framework is to untangle the skein of teamwork, to recognize the knowledge of each employee without discouraging the participation of others. These knowledge reflections and actions are based on close evaluation of personalized devices that encourage individualistic strategies. Cooperative attitudes may lose their spontaneous nature if the benefit calculations affect the functioning of a community over time. Management skills as well just inflame tensions surrounding the individualization of the employment relationship: the individual is a mean to serve the collective momentum but the risk is perceived as an end in itself well exist. Knowledge leading permits to increase and to enhance human capital by creating a unique competitive advantage. The company which manages the knowledge also displays

strong values in terms of human resources policy, namely that it aims to develop skills of all employees fairly.

Knowledge leading can be summarizing as:

- Employees are considered as learners.
- The learner is at the center, not the instructor.
- Knowledge drives success.
- People are more important than technology.
- The quality is more important than quantity and quality could be achieved through the right knowledge.
- People are really listening so are not considered as a data set.

To conclude knowledge leading put the knowledge and the employee at the center of attention. By acting on the individual, the management acts for the collective and for the company.

8.3 Knowledge transfer and competitive advantage

According to Porter (1985) an organization has a competitive advantage when it is able to achieve a return on investment that is much higher than the average of the industry. Argote and Ingram (2000) found out that organizational knowledge is regarded as a basis to build a competitive advantage by recent strategic management trends.

Developing and leveraging the value of intangible assets of a company is an ability which forms a core competence for an organization, especially when assets which provide financial and professional services are involved. In knowledge-intensive organizations it is essential for business success to process knowledge (Drucker, 1988; Prahalad and Hamel, 1990).

Drucker (1993), Stewart (1997), and Toffler (1990) agree that knowledge transfer as a component of knowledge management can form a competitive advantage for organizations; in fact for them it is the most important one. Research more oriented to the practitioner also makes clear that a competitive advantage and greater operational effectiveness are based on knowledge (KPMG Management Consulting, 1998). From there, it can be concluded that a lasting competitive advantage is dependent on intellectual capital and not anymore on financial capital or physical assets.

Grant (1996) assents by stating that knowledge possessed by an organization is its significant competitive asset.

To identify ways how companies gain a lasting competitive advantage a resource-based theory on the firm has been developed. Researchers within this view believe that an organization consists of capabilities and resources that can hardly be copied by other organizations (Conner, 1991) and differences in competitiveness, distribution, and size of organizations result from their individual potential to build up, organize, and expand their capabilities and resources to apply and create strategies that higher the value of the organization. Knowledge is regarded as an asset which has the potential to create a sustainable competitive advantage for a company. (Halawi, Aronson, McCarthy, 2005) Argote and Ingram (2000) agree with that, the resource-based view on the organization puts its knowledge in a high position and makes it to the main source of competitive advantages. According to them, organizational knowledge explains the organization's performance. Unfortunately, research focuses on identifying knowledge as the source of competitive advantages but misses to explain how knowledge can be retained, developed and transferred.

On the other hand, a knowledge-based view on the firm exists which has its origin in the resource-based theory. The knowledge-based view extends the resource-based theory. It includes the different modes of knowledge integration which are efficiency, flexibility and scope as well as the primary mechanisms that coordinate knowledge. These mechanisms are decision making, rules and directives, routines and group problem solving, and sequencing. (Halawi, Aronson, McCarthy, 2005)

Like knowledge itself also knowledge management is regarded as possible factor for creating a sustainable competitive advantage for an organization (Drucker, 1993; Toffler, 1990).

8.4 Influencing factors and barriers of knowledge transfer

The internal transfer of knowledge aims to deliver local knowledge throughout the company. It helps to facilitate coordination by defining a common basis of knowledge (Nonaka, 1994). It is also the means to enhance knowledge. The transfer indeed allows to multiply the potential applications of knowledge and to generate new opportunities to create knowledge by synergies. Argote et al. (2000, p. 3) define intra-organizational transfer in the following way: "*Knowledge transfer is the process through which one unit (e.g. group, department or division) is affected by the experience of another. [...] Knowledge transfer in organizations manifests itself through changes in the knowledge or performance in the recipient unit*". The

transfer of knowledge thus implies learning on behalf of the receiver. However, the determiners of its success do not limit themselves to the capacities of learning of the receiver. Indeed, knowledge transfer involves the transmission of an organized set of relationships between components of this knowledge. It implies an adaptation at three levels: the transmitter, receiver and knowledge itself. These adaptations involve the creation of relationships between the receiver and transmitter in a context conducive to transfer. This complex aspect of the transfer is emphasized by the definition of Szulanski (1996, p.28): "*The exchange of organizational knowledge consists of an exact or partial replication of a web of coordinating relationships connecting specific resources so that a different but similar set of resources is coordinated by a very similar web of relationship*".

The transfer can be observed through the changes it induces in the receiver. Argote and Ingram (2000, p. 151) expressed the following: "*Knowledge transfer in organizations manifests itself through changes in the knowledge or performance of the recipient unit. Thus knowledge transfer can be measured by measuring changes in knowledge or changes in performance.*" Based on this definition, these authors make a logical study of the transfer. They firstly show that the measure of the transfer, although possible, is difficult because knowledge is embedded in various reservoirs of knowledge. The organization has three types of reservoirs that form a network with knowledge: the actors (members of the organization), the tools they use (the technical components of the organization) and the tasks they perform (that reflect the objectives of the organization). These three elements are combined to form networks that constitute the organization. Argote and Ingram (2000) show that to achieve a transfer, you must either change the reservoirs of the receiver (for communication or training) or move the tanks of the transmitter to the receiver.

So it is normal to say that knowledge transfer is generally complex, lengthy and expensive. However, it is necessary to consider the difficulties not as anomalies but as elements of the transfer. It is so advisable to know how to measure the difficulties to understand and estimate the available solutions within the framework of the organization of the transfer. Barriers to transfer can be identified at five levels:

- The cost of the transfer (Teece, 1976).
- Difficulties related to the type of knowledge transfer (Winter, 1987; Kogut and Zander, 1993).
- Difficulties related to the characteristics of the issuer (Szulanski, 1996; Argote et al., 2000), those of the receiver and those of the organizational context (Szulanski, 1996).

- − A significant barrier is, of course, the willingness on the part of the issuer to transfer his knowledge.
- − At the organizational level, culture and reputation have an influence on the commitment of individuals in the transfer; however, incentives have little effect (Leyland, 2006) because the commitment in the transfer must be a voluntary decision (Watson, Hewett, 2006).

The activity of the company directly affects the transfer of knowledge. As Darr and Kurtzberg (2000) have isolated in their research about fast-food stores, the common value and way of working straightly impacts the transfer of knowledge whereas the direct environment does not. But for some companies this affirmation is false, which demonstrates that firms which want to transfer knowledge have to be aware of the need of its activity and sectors.

The actors of the knowledge transfer, transmitter and receiver, are of course an important factor which impacts the quality and the efficiency of a transfer of knowledge. Indirectly the perception of knowledge is modified by the abilities and the motivation of the actors (Baldwin and Ford, 1988) whereas motivation for the transfer is one of the most important. We can stop the review of impacts arising from the individual stating the dimension represented by the interaction mode using during this sharing.

At these different internal aspects we can also add the external vision of some barriers. Liu (2007) identified the impacts of external circumstances which affect knowledge transfer such as cultural, environmental differences and distance which can differ between giver and receiver. This gap blows the individuals as actors of the transmission but often deals with the fact that other companies also intervene in this process. Thence, the intellectual properties which are transferred could represent a restraint for the company. This problem can also be found between individuals themselves. Transmitters are sometimes afraid to share their knowledge because they think that it is their own property and creation of value; if they transfer this to somebody else the receiver could undertake the job for example. Of course, the last focus that we can make on barriers concerns directly the knowledge and the way which is used to share it. It is essential to be sure that the receiver and the giver will have the same frame of reference or at least will be able to have a common language to exchange.

In the opposite way it is interesting to deal with some aspects which help to boost the transfer of knowledge. The following table 5 will detail and divide this vision into three main parts:

Company	Employee	Knowledge
Goal and result of the company have to be clear	Receiver and transmitter have to be motivated	Both actors have to be able to make sense
The management has to explain the ins and outs	The trustability has to be "strong" (personal/professional credibility) (Cohen and Prusak, 2001)	The degree of explicity (i.e., accessible in an articulated form) (Zander and Kogut, 1995)
Be sure to give a sufficient time	Legitimacy (experience, background, degrees of expertise…)	Using the same language (technical…)
Using the right methods and tools	Institutional credibility when external partner intervene	Has to be in adequacy with the context, the culture and the wishes
Encouraging exchange between employees	Relationship and communication have to be efficient and adaptive	
Considering the organizational environment	Being aware of the professional obligation of the other one (role, function, pressure, incentives…)	Absorptive (Cohen and Levinthal, 1990) and retentive (Druckman and Bjork, 1991) capacity
Grant the necessary budget	Need to analyze the knowledge gap	

Table 5: Focus on the important aspect for a successful transfer of knowledge

PART THREE: RESEARCH STUDY

This third part presents the methodology that we have used to collect and analyses the following data of the research study.

9. Methodology

This chapter describes the methodology that is used for this thesis, it contains four parts. The first one deals with the research philosophy and the second one with the research approach. The third part includes a description of the data collection process which also means that a distinction between primary and secondary as well as quantitative and qualitative research is made. In a last step the trustworthiness of the research examined.

9.1 Research philosophy

By taking a look at the literature different research philosophies can be found. The positivistic and the hermeneutic approach seem to be important to be explained in the context of research.

The positivistic approach concentrates from the very beginning on setting research questions, hypotheses, and possible methods and strategies for conducting a research study. A study made containing a positivistic approach aims at finding quantifiable results that can be used in statistical analysis. According to Remenyi et al. (2002), the positivistic approach is not the right choice for business and management studies because a deep understanding of complex issues will be denied.

Instead of the positivistic an interpretive/hermeneutic approach has been selected for the present research study. One characteristic of this approach is that a detailed research design from the beginning on is not necessary. The opposite is the case, the research should not be determinated like this because this might set barriers and new understandings might be missed. Of course, even with a hermeneutic approach it will be necessary to follow a certain kind of plan but this one is more flexible. As the researcher can always adopt unexpected empirical findings the insight in the whole research subject will probably be higher.

The choice of the hermeneutic approach is self-evident because it is almost impossible to measure knowledge on an enumerative scale. Moreover, this approach allows more flexibility in the realization of the interviews. For the whole thesis study flexibility is very important because it helps

to adopt the way of conducting the research depending on the findings in interviews and questionnaires.

9.2 Research approach

There are three different research approaches that allow building a connection between theory and empirical findings. First of all, the deductive approach has to be mentioned. This research approach starts with a certain general rule grounded in theory. After a hypothesis evolved, it is either verified or rejected by investigations of a particular case. The second research approach is the inductive approach which works in the opposite way then the deductive one. Beginning with the observation of empirical cases the researcher tries to find a new theoretical model deriving from the collected data. The abductive approach is a combination of the two above mentioned approaches. One particular case is analysed and further research of other examples is expected to back-up the interpretation.

For this thesis the abductive approach has been chosen. This implies that the work starts from the theoretical ground. Through implementing continues progress, including the consideration of unexpected empirical findings, an interpretation of the empirical findings will be delivered.

9.3 Data collection

In this section it is necessary to distinguish the different kinds of data - primary and secondary data - that have been collected during the research process. Besides, explanations about quantitative and qualitative research approaches will be delivered.

Data coming from primary sources is collected directly by the researchers. The data is unique to the researchers and the research study. Although there are different research methods to gain primary data such as questionnaires, interviews, observations, and case-studies the research for this thesis is restricted to collecting data with the help of questionnaires and interviews.

Data that has been collected by others with a purpose that differs from the own research project is called secondary data. This includes raw data such as numbers and figures. The use of secondary sources involves the use of analysis, evaluations, generalizations, interpretations, and synthesis made by other researchers based upon the original information. Secondary data for this thesis is reported

in its original form and placed in the introduction as well as the literature review to support the main ideas.

Collecting data can be carried out with two different approaches that cannot be separated completely from each other. Depending on the kind of data that is aimed to be found and the methods that are used researchers follow a quantitative or a qualitative approach of data collection. Quantitative research includes numbers or data that can be transferred into numbers. Data measurement takes place in a standardized and systematic way. On the other hand, qualitative research does not involve numbers. It measures attitudes, beliefs and motivations. Strauss and Corbin (2008) argue that the qualitative approach has to be used to when human behavior and functioning is the object of the research. As the process of knowledge transfer can hardly be measure in numbers and concerns human relationships, the qualitative approach appears to be the right way of conducting the research study for this thesis.

9.4 Applied methods and conducting the research

The goal of this thesis is to analyze knowledge transfer and how it takes place in four typical situations that are used to illustrate the theoretical findings. As already mentioned, the chosen illustrative situations are:

1) Knowledge transfer from senior employees to less experienced ones.
2) Knowledge transfer within a team and to the whole organization.
3) Knowledge transfer between consultants and their clients.
4) Knowledge transfer problem related to expatriates.

According to our goal we have divided the data collection into two steps. The first one is to ask for general information concerning knowledge transfer and the second one focuses on data about the different cases. In the following our method of using questionnaires and interviews with company representatives will be explained. Beyond, we want to add that we have also benefited of the vision and the advice from our direct network. In fact different non formal discussions enabled us to talk about and debate about knowledge transfer. Even if numerous people of this network were composed of our family and classmates (and other students) their opinion about this topic was interesting to analyze. Indeed, most of them are workers so they are part of the daily process of knowledge transfer. Furthermore, this network is composed of professionals with who we had the

opportunity to work. Their testimonies were plenty of advice and rich in add value for us, due to the nature of our relationship.

As we will see in the two next sessions the sample that we have choose give us the possibility to deal with companies which work in different markets and sectors (industrial, service, institution), their size also varies (from 12 employees to 118 000 employees) and they intervenes nationally and internationally. This mix will permit us to have a large scope of the professional uses. In the same time the choice of the interlocutors follows the same idea: cover a huge scope as we have CEO, human resources managers, and team and project managers. We have taken the option to concentrate on the management and the board view because they are the direct decision-makers for the implementation and the generation of knowledge transfer.

9.4.1 Questionnaire

A questionnaire is a set of survey questions given to a respondent with the goal to extract certain information from this person. It can either be realized pre-coded or open. Pre-coded questionnaires consist of questions that have to be answered in tick boxes. Open questions where the respondents have to formulate their answer in their own words are the main kind of questions in open questionnaires. (Fisher, 2007) As the concepts of knowledge and knowledge transfer are a wide study field where an investigation of the experiences of different companies should be realized it suggests itself to use open questionnaires. Moreover, open questions increase the possibilities to discover unexpected aspects in the everyday business life.

The first step in the empirical research was to design an open questionnaire for companies that have already developed some kind of awareness of the importance of knowledge and knowledge transfer in their business. This questionnaire has been sent to companies that seemed to work in at least one of the relevant illustration cases of this thesis. Because of time and resource limitations in the contacted companies as well as the amount of questions in the questionnaire the response rate was low. Only three questionnaires have been sent back. That is the reason why the method of collecting information from companies has been changed and also telephone interviews have been conducted.

Representatives of the following companies have answered the questionnaire:

Name of the respondant	Function of the respondant	Company	Activity	Number of employees
Christer B Jansson	CEO	BelBin Svenska AB	Consulting in human resources (knowledge, career…) and management	500 consultants in the north of Europe
Marina Le Page	Recruiter	Altran	Engineering Consulting	18 500 employees in 20 countries
Ferdinant Riot	Human Ressources Director	Chromalloy	Repairation of airplane engine	300 employees factory of St Ouen L'Aumone

Table 6: Company profiles

As we can see our sample gives us the opportunity to analyze the different views of people who are part of administrative department. It will be interesting to compare the view of a CEO, a Human Resources Director and a recruiter. All of them could be responsible of the transfer of knowledge, but their function makes them thinking with a different approach. Moreover, the fact that we have diverse activities will give the occasion to compare production to consulting.

BelBin Svenska AB is a company composed of 500 consultants who are split all over the north of Europe (Sweden, Norway, Finland, Denmark…). The main activity of the company is to accompany and to train trainers. This firm also helps their customers to improve or to solve some human resources and management problem.

This company represents for us a specific interest because employees form trainers, and by definition these professionals are part of our theme. In a second hand the CEO view will be large and it will be possible to analyze how the change of consideration of knowledge has taken place there. This company has an international approach what is directly linked to one of the cases on which we want to focus. To conclude, this company can share its experience on all the different points of impact that we want to underline.

Altran is the biggest company with which we have some relations in this sample. The vision of this kind of international firm is very interesting to us because the board and the manager have to find global solution. In fact, their business units always find new ways to improve their habits which means that they continually try to innovate. Moreover the vision of a recruiter will give us the vision

of somebody who is actor of the human resource department, which supposes to take care of the employees and also anticipate at the mutation and the need of the company in terms of knowledge. Thanks to informal discussions with this practice, it has been possible to go further in some explanations. Altran is developing tools and methods about knowledge transfer since a couple of years. This company will help us to develop ideas on all our cases.

Chromalloy France is part of the international American company Sequa. The French subsidiary is divided into two parts: the factory in the West of France produces new airplane engine products and the factory which is based next to Paris repairs some other parts of airplane engines. As we understand this firm is an industrial one. The transfer of knowledge is particularly important in this very specific activity. The firm is already confronted with the problem of penury on certain competence. Of course, the process of knowledge is an aspect which the company had to think about. This company also helps us in our entire cases. We have to note that we had some informal exchanges with this person.

9.4.2 Interview

An interview can be described as a formal conversation between two or more parties with the goal to exchange and extract data. Interviews can be designed in between of two opposite ways. First of all, it is possible to make interviews that are totally formalized. On the other hand, a more open approach can be used which allows to interview the other person in some kind of lose conversation that is determined by the individuals and their answers.

Patton (1990) suggests three ways of conducting interviews: the informal conversational interviews, the general interview guide approach, and the standardized open-end interview. Informal conversational interviews can be best compared with normal conversations. For interviews following the general interview guide approach the interview is conducted by following a checklist of questions but still it is comparable to normal conversations as the wording of the questions is quite rudimental. A standardized open-ended interview has a strict questionnaire with pre-formulated questions that has to be answered by each respondent in the same order.

For this thesis a more open approach has be chosen to be able to react spontaneously on the answers of the respondents which allows to go more in detail with certain aspects when the respondent is able to offer deeper information. It goes without saying that a structured interview

where all company representatives answer the same questions had to be declined in order to achieve this kind of flexibility. According to the classification of interviews developed by Patton (1990) the interviews for this thesis are best characterized by the general interview guide approach. The questionnaire that has been developed in the beginning has been used as the guideline for the interviews with the company representatives. The order of the questions has been varied during the different interviews according to the answers that the respondents offered in the course of the conversation.

Interviews can be made by direct face-to-face contact or by telephone. Although the researchers would have preferred direct interviews the time restrictions of the respondents and the own budget restrictions only allowed telephone interviews.

Company representatives of the following firms answered our questions via telephone:

Name of the interviewee	Function of the interviewee	Company	Activity	Number of employees
Klaus Æ. Mogensen	Project Manager	Copenhagen Institute for Futures Studies	Consulting	28
Maria Hall	Managing Director	Embedded Artists AB	Development of electronic devises	12
	Team Manager	IKEA	Furniture and interior equipment	118 000
Dag Larsson	Managing Director	Ekan AB	Management Consulting	34

Table 7: Company profiles

The presented sample contains different employees working on the management level of their companies. Managers are considered as the main actors for coordinating knowledge transfer between people when they are working together on a project in a team. It will be interesting to contrast their views on knowledge transfer. First of all, there is a project manager who works together with different teams. This means that he always has to take the new dynamics and working styles into consideration. Thereby, a broad view on knowledge transfer and connected problems can be developed. Second, there are managing directors that means that they work in two different kinds of teams: the team of subordinate employees and the team formed with other managing directors. They can contrast their experiences from two angles. Furthermore, a team manager works together with the same kind of team over a long period of time and thereby gets to know each team member

better. Furthermore, this sample is interesting because data about the knowledge transfer in the consultant and client relationship can be gained. It is worth to mention that the interview with Maria Hall was very useful because she could as a former employee of IKEA and present staff member of Embedded Artists AB make experiences in a very big and a very small company.

Copenhagen Institute for Futures Studies is one of the largest Scandinavian and the biggest Danish futures studies think-tank. The aim of this non-profit institute is to help organizations to understand and take future trends in consideration when planning for their business. To collect data from this organization is from special interest for us as they are operating like a consultant company and work with companies on different projects. Their vision is to contribute with inspiration and knowledge in the decision-making process of organizations. As this institute works like a consultant company two kinds of knowledge transfer can be examined: 1) the transfer of knowledge between the institute and their clients and 2) the transfer of knowledge within the institute itself. Furthermore, to conduct an interview with this organization is interesting for us as the clients are not only operating on the Danish and Scandinavian market. The client base also includes companies that are working internationally.

Embedded Artists AB specialized on the development of embedded systems. Their idea is to give the customers the appropriated experience, services and tools to build complex functions in embedded systems. They work according to the slogan that their competence helps the customers to create new opportunities for their businesses. To achieve this goal it is essential for the company to transfer knowledge to their customers and as they, of course, want to minimize their costs this transfer has to take place efficiently.

IKEA as an international operating furniture and interior equipment purchaser faces special challenges in knowledge transfer. To make an interview with a former representative of this company was very valuable for us because at IKEA knowledge transfer takes place at different stages. First, all kind of knowledge needs to be transferred within the company to make sure that the standards of the organization are carried out to the settlements in the whole world and the employees work according to the same values worldwide. Second, IKEA employees also have to operate with external companies which intervene in the daily routine from a consultant point of view. Third, as the company does business in currently 36 states they also face the problem how to deal with expatriates that come back from another country to their old workplace.

Ekan AB is a management consultant company. They could offer insight in the knowledge transfer between consultants and clients as well as the transfer within their own company between the different consultants. It is remarkable that the CEO of this company believes that there is no resistance anymore to share knowledge with other people. This and the fact that they have different kinds of clients that work in various sectors increased our interest in this company.

9.5 Trustworthiness of the research

The criteria that have to be applied to judge the trustworthiness of a research study differ depending on the approach that has been chosen for the data collection. According to Remenyi et al. (2002) the criteria for studies with a positivistic approach are called generalizeabilty, reliability, and validity. These factors have to be transformed when it comes to the non-positivistic approaches. Credibility, dependability, transferability, and confirmability are the criteria that need to be investigated in order to evaluate a research study with an interpretive/ hermeneutic approach. In the following an examination of these terms is done.

If credibility in a research study is achieved this means that the methods were built in the appropriated way to investigate and answer the research questions. By this the findings and results of the study become believable. As this thesis is based on a theoretical framework credibility of the work is given. It might be reduced by the fact that data collection could only take place with companies that answered positively on our request for an interview. Furthermore, restrictions in time of the respondents and the budget caused that interviews where only be done via telephone. Compared to face-to-face interviews telephone interviews have slight disadvantages because they should not be that long and complex.

The criterion of transferability refers to the fact if the results are based on enough information which allows other researchers to use them in other research settings. Due to the fact that only three questionnaires were returned by companies and just three interviews could be realized the transferability of the research results is relatively limited.

Dependability is the third criteria to assess the trustworthiness of a research study. A constantly changing world causes that business setting are developing over the time. This means that the findings of a study are (only) valid in a certain context and a certain time. Past trends make clear that the awareness of the importance of mastering knowledge and knowledge transfer in a company

increase more and more. That is why it has to be taken into consideration that the findings of the study are useable today but as the business surrounding will change the dependability of the findings might decrease.

Confirmability refers to the extent to which the findings derive from personal experiences of the researchers and the collected data. This criterion is evaluated as being given.

10. Results of the research study

The following chapter deals with the research study that has been conducted for this thesis. First of all, its results are presented in which two parts can be found. The first one deals with general information about knowledge and knowledge transfer and the second part focuses on the results of the illustrative situations. Afterwards a discussion of the main idea and our vision of a structured process are presented.

10.1 General information about knowledge and knowledge transfer

In the survey which was done for this thesis, of course, the answers of the interlocutors differed. Nevertheless, there were a lot of aspects that they all had in common and these aspects are presented first.

The definition and the vision about knowledge is the same for them. They describe it as "what the employees are able to do in the company"; it is what makes them professional. The notion of knowing and knowing-how is also underlined by everybody.

At the question of "what must be known" they point of the following:

- Skills to achieve their mission.   - Requirements.

- Internal processes.   - History of the company (evolutions, projects…).

- Standards of the company.   - Collaborative team issues.

- Tools.   - Customer issues.

- Templates.   - Culture of the company.

- Policies.   - Communication ways.

When they talk about the importance of knowledge transfer it appears that these six companies are aware of the importance to manage it, but in the same time, surprisingly only one really act on it with a politic of knowledge transfer; the other companies do not use specific tools or methods.

However, the justification for the interest of this topic is evident for them as it conducts employees to be more effective and efficient. Companies take this problem of knowledge transfer seriously because it directly impacts the production, the quality and in the same way the cost and the time which impact the relation with the suppliers and the customers. Knowledge transfer helps manager to be sure that people exchange and share competences which in fine could create a synergy. Knowledge transfer maintains a good level of knowledge in the company in a present situation but also holds up the future evolution. It consults to analysis, action, and anticipation.

Knowledge transfer is discussing as something which takes place informally in the daily work through classic tools:

- Meetings.
- Discussions.
- E-mail exchange.
- Power point presentations.
- Spontaneous sharing.

Of course, trainings and tutoring are mentioned as tool to transfer the knowledge. Those trainings could be done by somebody who is also an employee or by an external help (supplier, consultants, training company and customers).

To continue in this way of informal transfer in the view of people who work in an office, such as administrative people, interviewees affirm that the knowledge transfer is part of their job. They continually share information. Open space are, for example, the best place to see that in action. This category of people does not hesitate to ask question and to interact together to face an unknown situation, or to fill a delta, or to ensure the needs of the person who will deal with the same folder.

This research demonstrates the prominence of the manager in this process. He is part of the knowledge transfer and has to encourage this action through its team. He is an essential lever. And this affirmation takes all its explanations in the fact that there is nobody really responsible of knowledge transfer (just in Chromalloy).

Internally the notion of communication cannot be circle as we have underlined previously, but for example, internal newspapers are a way to share some information, but over this idea it is a way to invite people to discuss about different part of the company's life.

Everybody knows things, and has some knowledge in the company, but not everybody is able to transfer the own knowing to somebody else. It is essential, to have a successful transfer, to select people who are motivated to do it, people who have some abilities to communicate and have a good relationship.

After having presented the common aspects above it is also important to have a look at the answers that differed from each other. As the first step of our data collection for this research study was to distribute questionnaires to company representatives and the second one to conduct telephone interviews, we have divided the presentation of the results of this survey into two parts representing the fact that the answers were gained with different methods. The respondents answered questions such as "Do you have a special politic for knowledge and knowledge transfer?", "Is there a special person in your company in charge for the transfer of knowledge?", "Which factors influence the success or failure of transfer processes in your company?" and "How do you get the attention of your employees for the problem of knowledge transfer?".

Table 8 shows the answers which were found with the help of questionnaires. As the design of the questionnaire allowed to articulate the answer in own words the information went in different directions depending on the respondents of the questionnaire.

Christer B. Jansson	Marina Le Page	Fernand Riot
The importance of knowledge emerges by the use of it	Every kind of knowledge can be transferred but the right way to do it has to be identified	Knowledge can be described as everything thanks to what employees can produce their working output
Politic for knowledge and knowledge transfer exist but they are not implemented intentionally	No one in particular in charge of knowledge transfer but managers have to take care of it	Training (external companies, suppliers), evaluation (individual meetings, questionnairs) and tutoring are the most important measure to increase the knowledge base
Knowledge transfer is important for the motivation of employees as it helps them to enlarge their personal knowledge and skills	The most important factor that influences knowledge transfer is the motivation to learn new things and to "grow"	Getting the employees' and managers' attention for knowledge transfer by promotion and assigning responsibilities
Realizing an effective knowledge transfer within the company forms a competitive advantage that can boost the whole company	Opportunities to improve knowledge transfer are seen in taking actions to improve the communication among the employees	Knowledge transfer forms a competitive advantage in short and long term, the opportunities arising form knowledge transfer are the survival of the company as well as the imporvement of quality, cost

Table 8: Overview of answers collected in the questionnaires

In the following table 9 the ideas gained in the interview separated in accordance with the person who expressed them can be found. The structure of the interview was also designed in an open way. Depending on the experience of the interviewee the collected data differs. Every one of them focused on different aspects of their everyday working life.

Klaus Æ. Mogensen	Maria Hall	Dag Larsson
The impact of new technologies (emergence of new tools, information, ...) will increase the need of transfering knowledge	Setting the transfer of information as one of the company goal and encourage it (positive feedback, ...)	Identified turnaround: years ago knowledge transfer was regarded as loss of power but nowadays people are willing to transfer their knowledge
"Beer time" to talk about current projects in a less formal atmospher	Assignment of mentors according to the protégé' needs and the knowledge base of the mentor	Most important tool to facilitate knowledge transfer between the consulting company is the involvement of the client's staff
Online-based "Creativity Bank" to leave interesting links, images, graphs and so on for colleagues	Motivating people to transfer knowledge by actively involving them in meetings and reducing the information overload	Affirmation that staff in client company owns some kind of group knowledge that need to be transferred to the whole company
The question of knowledge transfer form senior to less experienced employees is not applicable, it is not a question of age but of expertise.	Measurement of knowledge by annual web-based survey including questions about knowledge transfer	Evaluation of success of a project with communication measures (follow up, ...)

Table 9: Overview of answers collected in the telephone interviews

10.2 Cases

To go deeper in knowledge transfer we have decided to use some points of impact which take place in companies. As we have already mentioned in this paper we want to develop the aspects of knowledge transfer by observing this process in the following situations:

1) Knowledge transfer from senior employees to less experienced ones.
2) Knowledge transfer from a team to the whole company.
3) Knowledge transfer between consultants and clients.
4) Expatriates.

The next section will deal with these dimensions. First, we will present the data collection and after confront it to secondary data. Before doing so, we want to mention some problems that we were facing in the data collection process for the illustrative situations. Thanks to the interview and the questionnaire we hoped to collect some data and information about what happen in companies such

as the vision of knowledge and actions for knowledge transfer. For the first part of our research study which focuses on general questions about knowledge and knowledge transfer it was easy to discuss and collect information with the companies. Our interlocutor did not keep their knowledge and really shared it with us. However, for the illustrative part of the research study it was more difficult, and unfortunately we are confronted with a weak view of what happens in companies. The companies could not give a full picture of how they are handling the different situations. This is a general problem that most companies face because they are aware of the importance of knowledge transfer but do not implement specific strategies or politics to deal with it. Selecting other interlocutors would probably not help to eliminate this problem. That is why we use secondary sources to reflect about these illustrating situations to improve our analysis of it.

- **Knowledge transfer from senior employees to less experienced ones**

Demographic developments in the next years will cause that employees older than 50 years will form the largest group of employees in many companies. This development will take place in most countries of the Western world and companies will face the retirement of a lot of their employees. Knowledge of the older employees cannot easily be replaced because over the years of their working life they acquired a lot of different knowledge and their expertise is closely connected to themselves.

A survey conducted by the Novations Group in North America in 2008 discovered that at the moment employers are not concerned by the expected retirement of this big group of employees. They either did not discover the problem so far nor do not take actions to make the consequences of this trend more convenient for them. 36% of the respondents of the survey think that they will not face an unusually large loss of talents because of the predicted retirements. 18% anticipate a loss of knowledge that will be serious and 20% were not sure about how they will be affected. Only 26% of the respondents regard the retirement as a serious threat for the company and have already taken steps to reduce the loss of knowledge and talents when the employees are going to retire. (http://www.novations.com)

Another survey made by the same company in 2007 found out that only 4% of the organizations created a formal process to transfer knowledge from senior employees to others and 23% developed an informal process. 29% of the asked organizations planned to implement a process and the rest which are 44% of the respondents did not plan anything. (http://www.novations.com)

Although the surveys were made in North America the results are transferable to other geographic areas such as Europe. These two data acquisitions show that a lot of companies are not aware of the problem of retirement of a big group of their employees.

Hilsen and Ennals (2007) described one solution that was developed in Norway to deal with knowledge transfer between young and "old generation" in companies. The government noticed the following: *"From the end of this decade, Norway faces a marked ageing of the population. "For the first period after 2010 this will be related, in particular, to the fact that the baby boomers born between the late 1940s and the early 1970s will be nearing retirement age. However, in the longer run the ageing of the population will increasingly be caused by higher life expectancy on the part of retirees. This may result in the population over the age of 65 being almost doubled by 2050 as a share of the population of working age, from just over 22% today to about 40% in 2050"* (Hilsen and Ennals, 2007, p.35) That is why the government decided to intervene to accomplish the project "The golden Link". The goal was to create a tool which could help to promote active ageing in the Norwegian public sector. The government was aware of the potentials of these professionals who will retire with their experience based on competencies with them, unless they came up with a systematic way to share knowledge while still present in the workplace. Then, ageing workers are not only valuable as labor, but they possess experience based on competencies that are vital for successful production; by seeing seniors as a resource in the workplace; and making tacit knowledge explicit. The government's approach was to change the focus and to stop considering "seniors" as a problem, and instead start seeing them as the solution. The practical solution to the challenge facing the workplace was to develop a tool that linked the experience based on competencies of senior workers, and the need to take part in this knowledge, as well as the computer skills of younger workers through information technology. The final tool answers three different dimensions of knowledge transfer challenges: who will replace the seniors when they will leave, who will possess the knowledge when the knowledgeable leave and the mobile technology challenge of how to make the knowledge accessible to workers at a distance. Indeed, this online tool also creates an important aspect: the dialogue between young and senior. The best example to illustrate this affirmation is the need of the reciprocal "Information Technology" knowledge. "The Golden Link" was built around two softwares: an old one for the senior (technology of DOS) and a recent one Windows. The senior felt really comfortable with the first one but completely lost with the second one, although it was the opposite for the young. Moreover, the knowledge collected in this data base could be compared like a guide. All the seniors had to describe their work step by step for each action they have to do. They have made implicit to tacit. "The Golden Link", is a model for cross generational communication, which lets the seniors reflect on their practice while talking through practical situations with the younger colleague. Under normal circumstances, knowledge,

experience and learning is being passed from generation to generation, and a disruption of these patterns may have far reaching consequences. Within working life, experienced older workers possess important competencies on which the organizations depend, and transfer / share experiences and knowledge with younger colleagues is important to secure competencies in important practical areas of the enterprise, and ensure the ability to maintain production. Senior competence is valuable to the enterprises, and comprises more than the theoretical knowledge of employees straight out of schools and universities. In addition to theoretical knowledge, seniors have acquired practical knowledge through experience.

The data analysis for this thesis brought up different ideas from different companies. The companies identified, of course, the knowledge of each employee as useful. Some of the respondents stressed that senior employees have important knowledge because of their experiences that they made over the years and they already identified the need to take measures to transfer the knowledge from them to other employees in the company. Training, cooperation, tutoring, mentoring, and meetings were named as ways to facilitate the transfer of knowledge. The positive effect of such measures is that the less experienced employees feel more confident afterwards and are most of the time willing to be trained by a senior colleague.

Other respondents did not see the retirement of the boomer generation as a problem that faces their companies. They stated that knowledge transfer is not a question of age but a question of competence and knowledge that one person possesses. Everyone can transfer knowledge to any other employee in the company. Indeed, this is a trend that can be observed quite often in practice nowadays. Mentors and mentees switch their roles. An example of a salesperson can be mentioned here. By not following the traditional way of selling goods proposed by her mentor she turned out to be the best salesperson of the whole team. She simply used her Facebook contacts to acquire new clients which is an opportunity that older and more experienced employees did not think about. (Wagner, 2009) That is why one can describe a "knowledge transfer cooperation" of senior and less experienced employees as a win-win situation for both parties as also one of the respondents of the questionnaire of this research study did.

Finally, one can say that some companies have identified the forecasted retirement of the baby boomer generation as a threat for the organization. If they take action they most of the times concentrate on using tools that are already used in the company such as mentoring programs and

documentation measures. The success of these transfer processes depends on the motivation of the employees to transfer and to receive knowledge.

- **Knowledge transfer from a team to the whole company**

To work in teams is a great opportunity for organizations to create, share and develop skills and knowledge between people who are coming from different horizons and have different backgrounds. Therefore, they made experiences that differ from each other and develop their own view on task that have to be done in order to boost the performance of the whole company.

The first example that we can use to illustrate this dynamic is when a company has to create and transfer knowledge around a new product development. Since knowledge is developed within the team and has to move across the team to multiple functions in order to bring new products on the market. New product development includes all activities needed to conceive, design, produce, and deliver a product to the market, including solving a steady stream of problems. This requires, on the one hand, generating ideas and, on the other hand, collectively implementing the ideas generated. The team's mandate is to combine skills, facts and ideas to create the product but also organizational capabilities that the team then needs to act with them. Thus the team not only has to create new knowledge but also to transfer that new knowledge to others inside or outside the organization for the execution of it. Of course, the first step of transferring knowledge is to share the individual knowledge with others to create a common understanding of the characteristics of the product. All the specialists have to transfer a part of their knowing to make it understandable for the entire actors of the project, inside and outside the organization. This will develop a large scope of knowledge which could be the base of discussion and also a critical vision, to increase the feeling of involvement. It helps the individual to develop new skills. This "multi-knowing", generating around a project, helps employees to feel more comfortable with some technical aspects and create a continual improvement of their knowing.

New product development efforts require structure and processes that facilitate both creative action and collective action. To achieve it companies often implement principles such as decentralized decision-making and sharing information across hierarchical divisions. (Kalling and Styhre, 2003)

So team work requires common knowledge, sharing and confrontation of ideas and finally transfers the project knowledge to the rest of the companies. To facilitate collective action, multifunctional

teams integrate dispersed knowledge by using schedule and plan to direct the creative processes toward commonly established goals.

Nevertheless, theories of knowledge creation and transfer developed by major contributors in the field show that if new product development teams are able to create "dense" knowledge networks within the team and build bridges between different organizational and outside stakeholders (Nonaka and Takeuchi, 1995), they will be more successful in creating new businesses. Density, here represents measures of cohesion and shows the closeness of relations between people. Dense team works help employees to share their understanding, their skills that lead to knowledge improvement within a team, which is necessary to mobilize innovative action and helps to establish communication channels across the team that leads to the implementation of knowledge transfer.

The idea of capturing and transferring knowledge learned from a project team in various functional areas is one of that managers find extremely attractive, since the learned lessons could improve quality or save time and money in other functions. The main difficulty with transferring knowledge learned and captured by or in a company or collected in databases is that knowledge is not always understood or is questioned by the user because the transfer is connected to social processes: conversations, interactions and reflection. Effective knowledge transfer implies meeting and frequent interaction between people, and therefore the outcome must be worth the time invested (Dixon, 2004). As a result, it has to be asked in which case and for which projects knowledge transfer should actually be undertaken. To judge whether transferring knowledge across different business functions is worth the cost, two dimensions have to be considered: the monetary or strategic significance of the functional or cross-functional team work and the applicability of learned lessons to the potential user's context. Figure 10 below shows us that, in contexts where the output of the team embodies high strategic value and this can be re-applied the transfer of knowledge to other individuals is clearly most significant. (Ichijo and Nonaka, 2007)
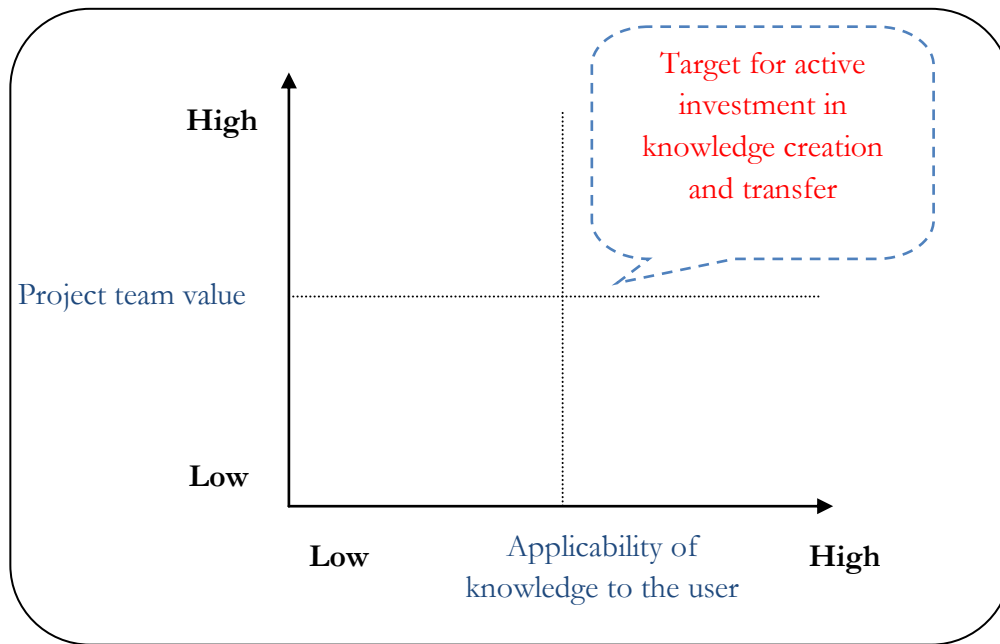
Figure 10: A decision to actively invest in knowledge and transfer (Ichijo and Nonaka, 2007)

The return of investment to actively manage the creation and transfer of knowledge is highest when the output of the functional team work is of high strategic or monetary value, and when potential users can easily apply the learned lessons within their own context. While the output and learning of a new product development team within an organization under growth pressure is largely beneficial to the entire organization, the transfer of the output of a public relations team may not be considered worth the investment at all time. A potential consequence of investing in active knowledge transfer could be wasted time and disillusionment on the side of the "giving" or "receiving" team. Therefore, the investment of time (which is probably the biggest investment) sharing the actions, decisions, costs and outcomes on the part of all involved has to be balanced against the potential value to both the sending and the receiving individuals or teams. If knowledge is to be created and transferred across business functions, a cost-benefit evaluation has to be conducted. Once the investment is considered to be worthwhile, actively managing the team network internally and externally is the key to successful knowledge creation and transfer.

The previous descriptions make it obvious that there are two dimensions of knowledge transfer concerned when talking about processes between the team and the whole company. Of course, different teams are supposed to transfer their knowledge to an organizational level so that the whole company can assess it. The second dimension arises in the team which means that the individuals of the team have to exchange their knowledge with each other in order to fulfill the tasks assigned to

the team. In the following the answers on the questionnaires and the telephone interviews will be highlighted.

The respondents that have been contacted during the thesis research study agreed with the main ideas mentioned above. They regard knowledge transfer as very important to create a common understanding and a dynamic in the organization. Especially companies with a focus on technical knowledge used by different teams such as the research and development (R&D) department and the production department regard knowledge transfer between the teams as very important because this enables the employees to understand the needs of their colleagues. If we follow the idea of creating a new product this exchange between the teams can save a lot of time and money for the company. If the R&D department knows that it is impossible to produce a product in a certain way they will not propose to do it.

Methods that are used by companies to build a common understanding and to keep the employees informed about developments within the company and their surrounding were mentioned by the company representatives. It is quite popular to use IT-based solutions such as Intranets. Also internal company newspapers were mentioned to be good solutions.

During the data collection the pre-build assumption that there are people in a company that do not want to transfer knowledge has been affirmed by some respondents. It depends on the individual if they want to transfer knowledge and share it with other people and colleagues. Some people fear that they will be replaced by another person or loss power if they give their knowledge away. Other people are maybe too shy to participate actively in group discussion so they will only be receivers of knowledge but no senders. In the end, it is the task of the manager to encourage people to transfer their knowledge and to create a confident atmosphere for the interactions. At this stage also the importance of good relationships and avoiding conflicts between the colleagues has to be emphasized otherwise people might resist exchanging their knowledge and skills with other people.

- **Knowledge transfer between consultants and clients**

The activities of consultant companies are an excellent example to study the process of knowledge transfer because transferring knowledge effectively between the parties of an assignment are essential for the economical success of the company. As mentioned above knowledge cannot be created by an organization itself. That is why sustained success of a consulting firm is based on the knowledge of the consultants working in this firm. It is generally accepted that the transferred

knowledge within a company is mostly explicit and between the company and the client a combination of explicit and tacit knowledge is transferred with the majority being more explicit than tacit.
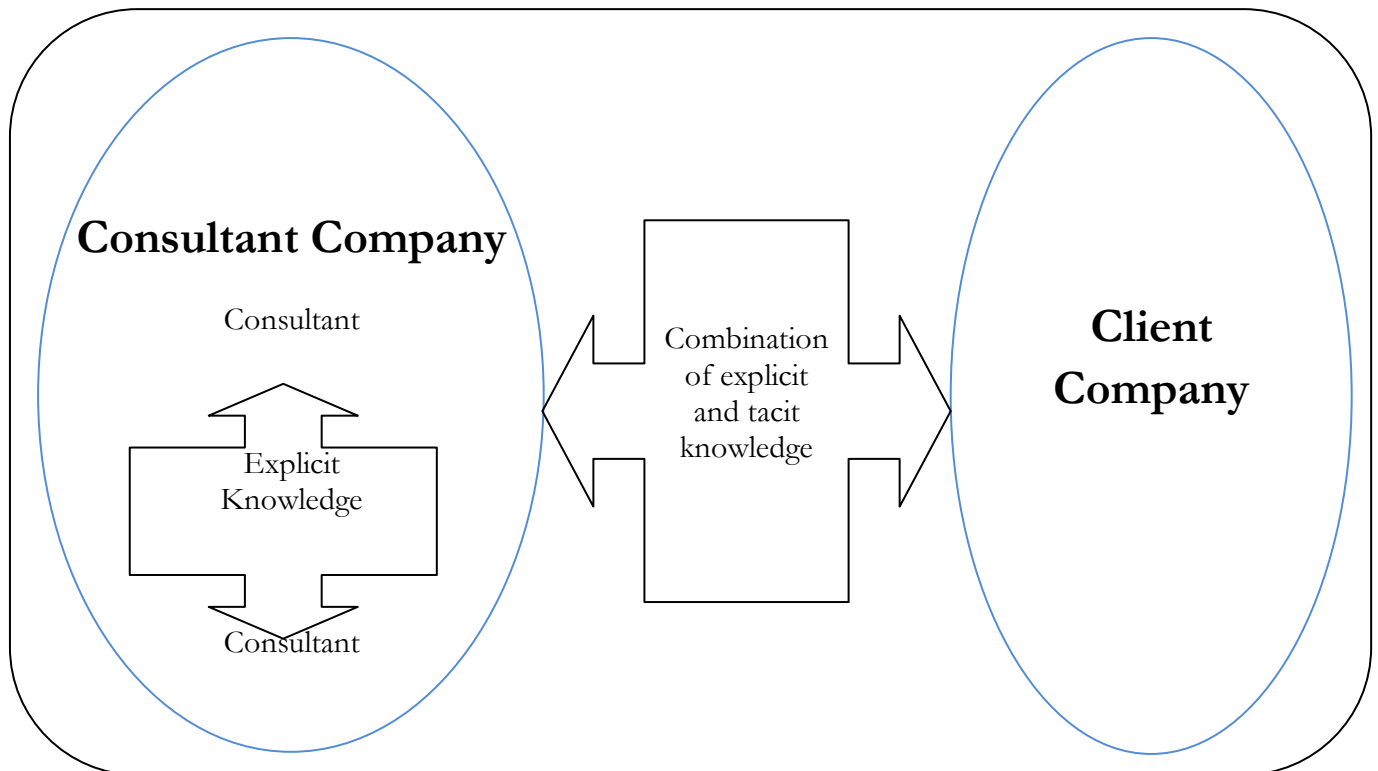
Figure 11: Knowledge transfer in the relation of consultants and clients

Lahti and Beyerlein (2000) made a study about the knowledge transfer connected to management consulting companies. As one of the companies that we asked for an interview is also a management consulting firm this study is from special interest for us because we can put the outcome in a relation to the interview. Furthermore, we can also make some connections to information that other consultant companies gave us. The sample of this study included six consultants who were interviewed about knowledge and knowledge transfer between them and the clients.

Knowledge transfer was defined by them as process of distributing and using information or expertise to increase the performance of the organization as well as individuals. This perception, although expressed in other words, was also shared between the interlocutors of the research study of this thesis.

According to the study by Lahti and Beyerlein (2000) transfer took place in various ways: explicit knowledge was predominately transferred with the help of technological means and tacit knowledge

through methods such as coaching, counseling, modeling, storytelling and training. The consultants agreed that giving enough motivation and time causes that most knowledge (explicit and tacit) can be transferred. The respondents of the thesis research study emphasized the importance of the aspect of communication for transferring knowledge. This shows that the majority of transferred knowledge in these companies is of tacit nature and mentoring systems, preparing presentations for colleagues about currently important topics as well as informal meetings after work are just some example how this kind of knowledge is transferred. The companies also reported about the transfer of explicit knowledge, although they did not name it like this. For this kind of knowledge they used mostly IT-based applications where the person looking for information can access to knowledge provided by others. During the data collection process the interlocutors expressed that there are some kind of knowledge such as technical knowledge can be easier transferred than other kinds. Nevertheless, one answer also said that everything can be transferred which is in accordance to the findings of Lahti and Beyerlein (2000). This makes clear that they are unconsciously aware of the distinction of knowledge between explicit and tacit that Polanyi (1966) proposed.

The study of Lahti and Beyerlein (2000) identified influencing factors of transfer: prior experiences, the level of career commitment of the consultant and the client as well as the question of whether the evaluation of the work will have an effect on careers or finances. In the thesis research study different factors were mentioned. The preservative factor was the motivation of people to share and transfer knowledge.

There are different problems that can lead to an ineffective transfer of knowledge with the client, for example that consultants do not want to share their knowledge to justify their status and power (protectionism). The interviewee of the management consultant company explained that this is not true anymore. In the past knowledge was seen as some kind of power. Nowadays the consultants are willing to share their knowledge completely with their colleagues and clients.

- **Expatriates**

An expatriate is a person that lives permanently or temporarily in a country that is different from the home country without becoming a citizen of this new country. The employer of these persons sends them as specialists to foreign subsidiaries.

More and more companies invest a lot of money to send their employees to workplaces somewhere around the world. Especially for large companies national boarders are no limit anymore and they offer skilled professionals and managers to make an important step on the career ladder by sending them away. There are internationally working organizations that developed staff exchange programs that are an essential part of leadership development programs for younger employees. By going abroad the youngsters not only acquire new knowledge according to their position in the company. They also improve soft skills (communication, tolerance, sensitivity …).

Before going abroad expatriates are aware of the fact that they might face difficulties that are completely different from those in their home countries. Most of them get prepared to face a cultural shock in the new working and living environment. What they do not take into consideration is a cultural shock when coming back home. Abroad they were treated like "princes/princesses" and now no one really cares about them anymore. They start to feel like outsiders who are no longer needed in the company.

The expatriates have to fit back into the community where they have come from. Going back to work can be a problem for them especially when their companies do not do anything to support them. There are a lot of companies who fail to ensure that their best talents stay. Some years ago, the National Foreign Trade Council and World at Work found out that 49% of the expatriates coming back from abroad leave the company within the two years. Of course, the leaving expatriate has to be replaced. Seeing this in the context that one expatriate costs between $ 300.000 to $1.000.000 a year, shows that companies should attempt to do something to keep the expatriates in their companies even after two years. (Vermond, 2001)

A study of the consulting company KPMG showed that it is a fault not to plan repatriation or only start these plans three months in advance. One reason why management teams are doing so is their unwillingness to see that expatriates need help to deal with the fact that a lot of things happen in a company during the years when they are abroad: the whole environment can change. Another reason is the question of money. To help the expatriates to assimilate back to the culture would require some investment from the companies but leaders are asked to keep costs low. Large companies that operate in different countries have an advantage compared to small companies due to effects of economies of scale. (Vermond, 2001)

Expatriates make a lot of efforts when they are on an assignment abroad and want to show their companies their capabilities. Unfortunately, many companies regard assignments as a position to

fulfill. Because of these two different ways of evaluating the work, the employee feels easily unrecognized and unappreciated. Further problems can occur when expatriates feel that their new job back home has a lower level than the job abroad or if no job exists at all. To avoid this it could be helpful to realize a written policy or plan which helps to set goals during the assignment and after the return. Even simple measures such as lunch and learn can help expatriates to feel appreciated. Another way could be a mentor system: the expatriates have mentors back home who represent them in the company and gives the expatriates updates about what is happening in the company. There are companies which take care of the whole family and offer career training to the expatriate's spouse if he or she could not work during the assignment. Some other large organizations organize personal web portals used by expatriates or develop sponsorship programs.

It has to be emphasized that the companies have to plan the return of the expatriates and that the expatriates themselves have to become aware of the possibility that the second cultural shock, the one when returning back home, can be even bigger and more frustrating than the first one. If this is realized a big step towards a successful re-integration of the expatriates in the company and to benefit from their experiences has been made.

On problem occurred in the data collection process which was that only few companies had experiences with that. The former team manager of IKEA mentioned that she experienced a lot of examples of expatriates leaving the company after they came back to their old working environment. That is why she stressed that it is indispensible that companies develop strategies to offer them new challenges back home. Putting them back on the same position again will rarely be successful because they need to show what they have learned abroad. According to her planning from the beginning on which includes also the time before leaving to start the new job is essential. Another respondent also followed this idea. In the company they do not have a special strategy to re-integrate the expatriate after the return but they also identified the special needs of expatriates. It is necessary to talk to them after the return and to offer new interesting international projects to keep them in the company.

To conclude one can say that the transfer abroad offers the opportunity for employees to develop new skills and in particular to expand their initial capital. Among these developed skills managerial, technical, linguistic, and relational are most often mentioned. At the level of a company they should contribute to the further development of internal resources and enhance the level of performance.

However, the use of these skills has remained very low and even calling the return of "anemic" by Black and Gregersen (1999). The use of these skills is facing limits (Riusala and Suutari, 2000).

10.3 Main discussion ideas

This previous analysis of our data collection points of some key points which are essential to guarantee a successful transfer of knowledge. We have decided to go deeper with some of them and to discuss about them through some techniques and uses in companies. There are two kinds of tools that were mentioned by the interlocutors which are meetings and tutoring methods.

10.3.1 Meetings

The collection of data that we have done demonstrates that companies use meetings as one of their principal tools to transfer knowledge. It will be interesting to focus on it to have a vision of what kind of meeting we can find in a company. It will help us to understand the relation between participants, the goal of the meeting and what kind of knowledge can be transferred. In the interviews we have discussed about some of the most important kinds of meetings with the respondents. They gave us some ideas that are taken up and developed in the following.

- **Business unit meeting**

A department meeting is held for example every Monday morning: it has a "traditional" dimension. The head of the service or the project responsible made the point with his staff on current projects and its progress. This meeting is an obligatory session for each member. It allows the transfer of skills which is done through horizontal and vertical exchange. The debate, the discussion and visual presentations are the primary tools.

- **Information meeting**

During a briefing, the "presenter" says what he wants to present. It may be the introduction of new technology, set up a new organization of the enterprise. The purpose of this meeting is to present and inform the participants to new ideas. In this point the transfer of knowledge can be made in two ways: direct transfer during the meeting, or subsequent exchange between participants. Information meetings can concern all the company; it could also be a department which presents to another one, or a consultant to its client, or manager to the management team.

- **Brainstorming meeting**

The project manager or the team manager organizes brainstorming. These are meetings of creativity and research of ideas, where each meeting participant made suggestions which, of course, refer to its own frame of reference. The transfer of knowledge is very present here. Indeed people of different specialties meet and share their vision and idea. The purpose of this meeting is to create new dynamics.

- **Symposium**

We will use an example to introduce this kind of meeting. Each year, in Paris, a symposium brings together a hundred specialists who discuss and debate about economic issues. These specialists are often regarded as experts. It involves a present situation or some facts. The transfer of knowledge is therefore among experts but also with the assistance that enjoy the information which is presented. A symposium held fewer participants than a congress.

- **Face-to-face meeting**

This kind of meeting is useful for a close relation and to share something in particularly. It could concern managers to one member of his team, a consultant to a consultant. To transfer knowledge this way is interesting because there is no interference in the communication. The participants are able to share as they want.

We can see with this short presentation that many kinds of meetings exist and this list just mentions the "main" meeting. As we can imagine the one who wants to share has to think about the best way to share with his audience. The subject and the goal of the presenter will orient him to choose the best mode to share.

10.3.2 Tutoring methods

As we have noticed, the tutoring is one of the most used tools within the framework of knowledge transmission from seniors towards the less experimented people. We have decided to go further in this subject and develop the following ideas.

The situations in which the tutoring intervenes are numerous in a company: accompaniment of the young people, for the adults training, naturally, but also accompaniment for the resolution of

problems, for the implementation of new working practices, for the introduction of new technologies, to help to the grip of post or to the exercise of new responsibilities.

Thus, mentoring cannot be reduced to the figure of companionship, but covers different ways:

- The "classic" tutoring: transmission of knowledge from an experimented employee to an employee which is in training: new function, new technology, evolution of skill or competence.

- The "crossed" tutoring, within a binomial in which each is alternately a guardian and protégé. The interest of this tutoring for the intergenerational relation is underlined. The knowledge of one can be exchanged for example with the IT ease of the other one.

- The reversed tutoring, in which the mentor is the youngest and the senior learns about new techniques.

- The expertise tutoring. In that case of figure, the mentor masters a rare expertise which is very long and complex to acquire. The practices which Miss Le Page noticed, at Altran for example, recover then from cooperation between the expert and the learner, outside the established frame of the company.

- The hierarchical tutoring: when the managerial function is coupled with an educational function.

We besides noticed that the learning for a work comes true by working, except in the established situations: by exchanging with the colleagues, by solving problems, by assuring new missions. The tutoring is a way to facilitate and to strengthen the informal professional apprenticeships. The transfer of knowledge is the base and defines the tutoring.

As it has been discussed with our interlocutors, we can distinguish four main types of mentoring, crossing the context in which mentoring takes place (stable, changing or random environment) and practices to which teaching positions: prescribing transmits or accompanies the enrichment new skills:

- Mentoring of reproduction (stable - prescription).

- Mentoring of professionalization (stable - support).

- Mentoring support (changing - prescription).

- Mentoring strategies for action (changing - support).

Each of these families refers to contexts and practices, and seeks different skills from the tutor. It is interesting that this approach and vision of the tutoring would prominently as will be discussed in the next lines.

We can thus wonder about the notion of experience, to show that it does not become confused with that of the age, and requires a construction and a validation. The experience is not obvious, the success of the tutoring either. The mentoring function imposes a process of checking capacities and pass by a qualification of the tutor as the exercise of this role requires motivation, availability, relationship and educational qualities. The choice of the mentor is really important in this view. The success of the transfer is linked to decisions which have to be deeply thought about.

10.3.3 Predict the future evolution of the work

This section will allow the reader to understand the importance of predicting the future of the work and the evolution of the company; of course in the view of knowledge transfer. In other words: predicting the content of work situations which will come and identify the resources through which employees can cope with new requirements. There is material for a rigorous methodology, built in two main times.

- On the first hand, grasp the work of the future with the designers. Work to deepen through simulations, identifying risks and proposing adjustments related to the design of the position, the organization needed for this position or the team that fills the job.
- On the other hand, imagine the resources (skills, autonomy, cooperation and support) to help employees meet the new requirements, but they let themselves be overwhelmed by them, but they suffer.

Knowledge transfer could be considered as an active axis to prevent some knowledge problems.

10.3.4 Behavioral knowledge

The concept of knowledge, besides the aspect of expertise and technical skills refers to the concept of behavior. A concept on which we consider it is important to spend some time. The various discussions we had with our interlocutors show that corporate acts on the transfer of knowledge in an indirect way; because of an informal transfer performed by the implication in the daily life of the company (meetings, presentations power point …), as we have seen before. These behaviors are considered important to obtain employment, remain and progress. Thus, knowledge corresponds in

this approach, to fundamental knowledge, but also to the mechanisms that allow operating the implementation of knowledge. A bit like the information stored in the computer memory can become operational only if the right software comes into action. Knowledge is credibly composed of other factors brought by the person such as motivation, skills, tastes, etc... From our results, we can identify four types of behavioral skills and often mentioned as important. This is the initiative, autonomy, accountability and teamwork.

Let us note that these indicators have been repeatedly tracked down in the literature concerning these skills. We can here speak about compartmental and behavioral knowledge.

- **Initiative aspect**

The first indicator of behavioral competence that we consider as important is the initiative of employees. Besides, an employee showing initiative is presented as somebody who finds means to produce better and faster, in particular by stating certain elements susceptible to increase the efficiency of the used methods of work. It is also a question of improving the quality and, by extension, of going beyond the requirements of the customers. In brief, to show initiative it is in a sense to make everything in his power to improve the efficiency of the production and the quality of products; this passing naturally by the transmission and the reception of additional knowledge. The initiative is also considered as being an attention towards the smooth running of the operations. In that case, it is a question for the employees of warning the concerned persons when the quality is lacking, when an equipment is broken or when it seems in process of the being (for example, when a machine makes an unusual noise). In other words, announce his knowledge and skills to his colleagues and in the service of the company. It is about a constant concern for the quality and about a will of developing the company towards a better production. So help his partners and contribute in it to the transmission of skills. The initiative sends dismisses in a sense to the dedication of the employees. As a matter of fact, we can advance that the initiative is presented as a mark of loyalty to the company. In this way, according to us, the valuation of this knowledge participates in a normalization logic of the driving that is it tries to arouse certain behavior considered as productive.

- **Autonomy aspect**

The reference to the autonomy sends back essentially at the idea of working without human supervision that is being able to make its work without constant surveillance by a hierarchical person

in charge. This vision thus under hears the fact that an employee is operational and masters perfectly his work. It is in a sense the real objective of transfer of knowledge: make to aim towards more productivity. But an autonomous employee is also someone capable of transferring his knowledge. However, in a purely executive frame the tasks to be made in the workshops of production by examples are simple and routine of habit and ask for not enough practice before having the complete control of it. So, the human supervision seems little necessary because of the nature of their function; then sees to it: that the workers become quickly autonomous.

- **Responsibility aspect**

The directions grant more responsibilities to the employees of production. The idea of responsibility sends back to two different dimensions. At first, there is obviously a fact of granting more responsibilities to the employees of production. For example, we can ask them to make the maintenance of the first level of their machine or to make the quality control. To tune more responsibilities also supposes the fact of granting margins of autonomy and certain power of decision, what can contribute to enrich the work. Of this fact arises the importance to develop the professionalization of the employees. This passes naturally by the fact of transferring technical skills which are at once horizontal and vertical. The responsibility also refers to another practice, that want that the employees are held as people in charge of the results. In that case, we grant to the employees of the responsibilities whose hierarchy formerly was a guarantor. In this way, this practice tends to make of the transfer of knowledge a central element. Indeed without the acquisition of good practices the empowerment becomes impossible. The mission of a manager who wishes to develop his team this way at thus needs to work on an at once global and individual transfer of knowledge.

- **Teamwork aspect**

We want to return on this aspect of group work, as already discussed because it is an important complement of what we have outlined previously. Indeed the ability to work in a group appears as a skill sought after by current companies, but it is a question of moment and surrounding. However, informal groups can also be formed in a spontaneous way. Employees can sometimes help each other, but there are no formal policies to guide this practice which is nevertheless a transfer of knowledge as such. Although with difficulty measurable and oversees it is used in all types of businesses.

10.3.5 Influencing factors

The emergence of the knowledge consideration is frequently associated with a paradigm shift. Our research gives us the possibility to demonstrate that two major approaches exist:

- An economic and sociology one, which addresses the management of knowledge as a mutation of the productive system and a turning point in requirements in respect of the workforce.
- The management sciences for which competency management is presented as a set of new approaches to human resources management.

The transmission is in the heart of the economic and social processes of evolution. As this transmission is not made naturally or automatically, it is important to set up a system of capitalization and to organize the transmission of the existing knowledge. Of the method will be necessary, to bring this strategic stake to a successful conclusion:

- Definition of the notion of skills (what is necessary to know to act) with a location of the knowledge or the skills in the work in such or such activity (the theoretical knowledge, of procedures, the technical knowledge, the ways of being, the knacks, etc.).
- Choice of modes of transmission and the most appropriate support (mentoring, training room, meetings and exchanges of practices, etc...) in connection with the culture of the company, the sector, the individuals and their way of being in relation.

The transmission: a fuel for the projects. Several examples and testimonies read and exchanged allowed us to have a better understanding of the stake in the transmission. The confrontation of the views, the respective representations triggers an understanding of its own lived identity and opens on an acceptance of another (the other culture, the other status, the other history, etc.). The membership and the mobilization of the actors obtain when the individuals meet themselves in the propositions of action there which are made for them, that is when they find at least a part of answers to their expectations. Most notably that of being acknowledged, recognized as being informed, because participating in the decision because asked to do, to pass as well. The confrontation of the representations allows modifying the initial perception of the stakes and the statuses, which could constitute a huge brake and barrier in the relationship and in the action.

The climate of exchange on the group is essential and has to be the object of a lot attention so that the confidence, mutual learning, a community of sharing of practices is developed which allow transmissions. It passes by:

- A facilitator: an individual or a small group of animation, which worries about relations within the group, between the group and the outside.
- An objective clearly expressed: it is the aimed purpose which can be expressed in a sentence or two, in a problem.
- Practices and methods to identify useful know-how, to organize the necessary information to sanction advances.

10.3.6 Taking advantage of the opportunities in the company

The company, an environment convenient to the development of knowledge. The professional situations constitute fitting opportunities to learn and to construct the knowledge. The transfer of knowledge being the central axis of it. On the contrary, they may also, among other when they become too experienced, contribute to the obsolescence or loss of skills. The organization of work produces professional practices which are carriers or not learning. The postures of the manager, his daily practice, his ability to help his employees to take up these training circumstances at work are, as such, determinative. The process of construction and transfer of knowledge takes place in the interrelationship between the individual and its environment. The individual process takes place in a collective framework conducive (or not) to its fulfillment.

Three levers of action are essential to learn in working situation:

- **The interpersonal interactions and the organizational modalities**

Some organizations promote exchanges between individuals, teams, and work units. These provisions allow each other to have a better understanding of the reciprocal link to create, expand the boundaries of action and to transfer knowledge. In other words, it helps to open up the work. Systems of autonomous teams, of management by projects, of development of «communities of action» facilitate the transfer of knowledge.

- **The ability to step back and see the bigger picture**

It is a question of combining the conditions of a reflexive recession on the work: the nature and the quality of the learning widely depend on the way the individual understands and exploits his experience and makes it significant. It is by distancing work, reflection on practice at the turn of events or uncertainties that we encounter developed knowledge that are developing new and it is possible to transfer. The posture of the manager, the collective work and organizational practices largely determine the possibilities of distance and reflection on the work.

- **The processes of self-determination and the individual commitment**

Finally, it is a question of developing opportunities for motivation. Indeed, the nature and the quality of the learning also depend on phenomena of self-determination. It is the individual who learns (and teaches), and who decides to do so. This decision depends on both intrinsic factors (project, meaning at work, self-image) and extrinsic ones (interest of work, autonomy, career, management practices, recognition and others). This concept refers to the idea of voluntariness and positivism, which are keys in a process of knowledge transfer.

10.3.7 Key competence

The transmission of knowledge occurs at three levels:

- At the individual level, which implies a field of autonomy to experiment.
- At the group level, through a relational quality to dialogue and interaction.
- At the organizational level (project group, private or public association) that gives access to resources, information, understanding trends.

It is therefore important to take the individual level, the group, and collective enterprise or the organization into account to optimize the transfer of knowledge. Notably, as a first step, the most carry and generate profits. And, of course, knowledge transfer is important to prevent a shortage of competence, reduce the risk of massive departures retirement etc..

This could lead to the notion of key competencies of the company. The transfer of these skills is essential for the company. Here are some key features of the knowledge that we have isolated in our various exchanges:

- A unique combination of skills and expertise.
- Long to build, difficult to imitate.
- Result of collective learning and included in organizational processes.
- Transverses to the various entities of a group.
- Source of competitive advantage for the organization.

The concept of key knowledge answers three developments and advantages for the company: opening to several markets, contribution to the produced advantage and the difficulty of imitation. These elements are reachable via a process of transfer of reliable and effective knowledge. On one hand, they are considered as the guarantors of the culture, the ethics and the values of the company. Besides, they are confronted with the culture of the operational people in charge: a culture of the result and the productivity.

10.3.8 Surrounding of knowledge transfer: How to use the working situation?

Indeed, only the enforcement of activities can be observed. But the activities of control (control by the worker of his own results) and especially orientation (when the person diagnosed the situation to guide its actions) cannot: although it is in these activities that we find the cognitive dimension of work (whether or not manual work). The professional teaching can then go beyond the approach of teaching by objective: not only work on observable behavior but also get in not observable situations of working procedures, the concepts implemented in the action, integrating them in training situations.

Training know-how is therefore primarily focused on real activity, and mobilizes the professional knowledge, technological, scientific, as aspects of organizing the activity. This is for the people who are concerned to "learn to act", not by applying a theory, but living in a learning situation methodically built to develop skills, through a deliberate transfer. In this precise context we can say that to be competent, it is not to know how to apply a set of knowledge to a situation; it is to know how to organize the activity to adapt itself to the characteristics of the situation. These persons are

thus the organizers of the activity, the knowledge which allows them to adapt themselves to the situations that are identified in the analysis of work to be the key element of the action training. This allows us to emerge from a concept which we discussed a lot further to our various readings and exchanges with the professionals: transferring its knowledge through a specific situation of work.

- Form in the very working situation: it supposes that the transmitter centers his approach by allowing the four phases of the "cycle of Kolb" to take place. In this type of situation we shall find examples for devices of arrangement of working groups, having for vocation to propose a diagnosis and propositions of improvement in a situation, experience feedback. So many phases, which allow a thoughtful observation, conceptualization, active experiment and thus an effective and dynamic transmission of knowledge.

- Form by putting in working situations. The working situation is then used in purposes of activation and individualized accompaniment of the learning. It is naturally this logic which will prevail in the articulation of the phases of integration, as it can appear in a relation of a transfer between senior and young employees.

10.4 Our vision: a structured process

To conclude this analysis part, we toke the decision to create a figure (figure 12) which will summarizes our vision of knowledge transfer, by taking into consideration all the previous focus that we have done.
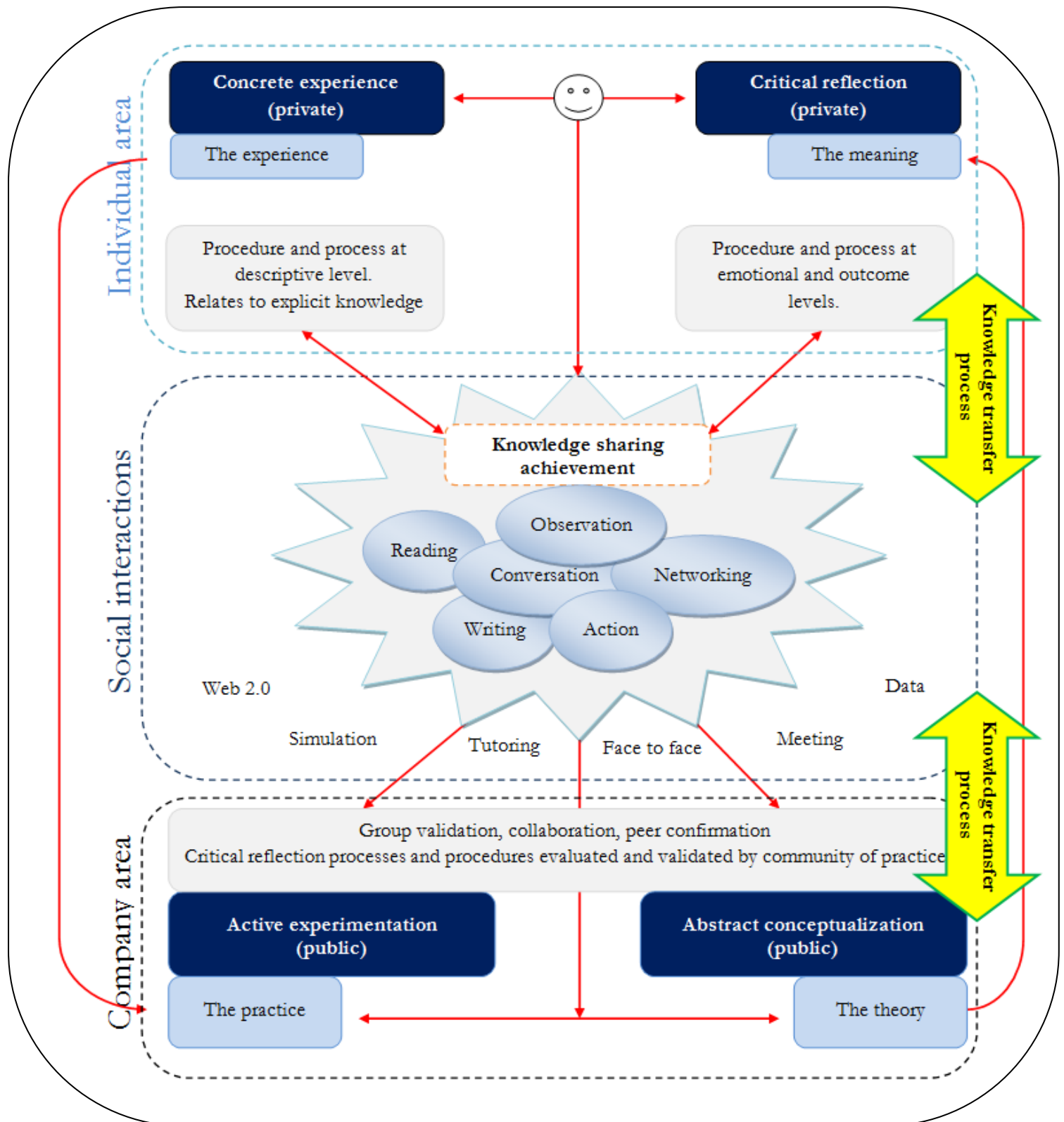
Figure 12: Our vision of the knowledge transfer process environment

10.4.1 The individual area

The individual part is composed by what the individual learns by his own way, and in the company by interacting directly with another individual, or with a collective group. So it takes into consideration as well the private life as the professional one. This double dimension is important to be taken in concern because it includes the multiform of learning. This dimension appears clearly after our reflection part. In fact, what the employee learned in his personal life is also essential because people continuously improve their brains. We mean that the knowing is always created and recreated in both contexts.

In our point of view knowledge resides within people and between them and the private life is also part of it. Somebody who, for example works in his free time in an association will learn new knowledge which could be useful for a collective of the company (and for the company in the same time). Knowledge creation is intermittent, and through the private life the experience of people could improve some knowledge via a sharing during leisure, family exchange or through different passions for example. This learning and incessant improvement of knowing, in the same way of the professional life, could be passive or active in a formal or informal environment. But in our process, private means in the same time the individual process: what people do by themselves and what they are able to do.

This individual area bestows to the social aspect of knowledge transfer like we have already described in this research. But in the same time it underlines the fact that it is the individual who is at the beginning of a knowledge transfer. In fact all the process of knowledge transfer reposed on the acceptation of the actor. If the individual refuses the transmission the transfer can only be a failure.

This notion of volition of the receiver shows the fact that people plan and control their own learning, so we can speak about self-assessment and personal reflection about knowledge transfer and sharing. In this view individuals are aware that they learn by focusing on real-life (personal and professional) problems that means that individuals have the ability to find and to evaluate information from many sources, and integrate ideas from various fields. This underlines the capability to adopt different learning strategies according to the needs. In this way they can focus on the change and improve their knowing, so in fine to adopt the role of peers (sources and companions). As shows the figure 13 these reflections are divided into two parts: the experience

(acting, observing…) and the meaning (thinking, reflecting…); like we have studied via the Kolb analysis.
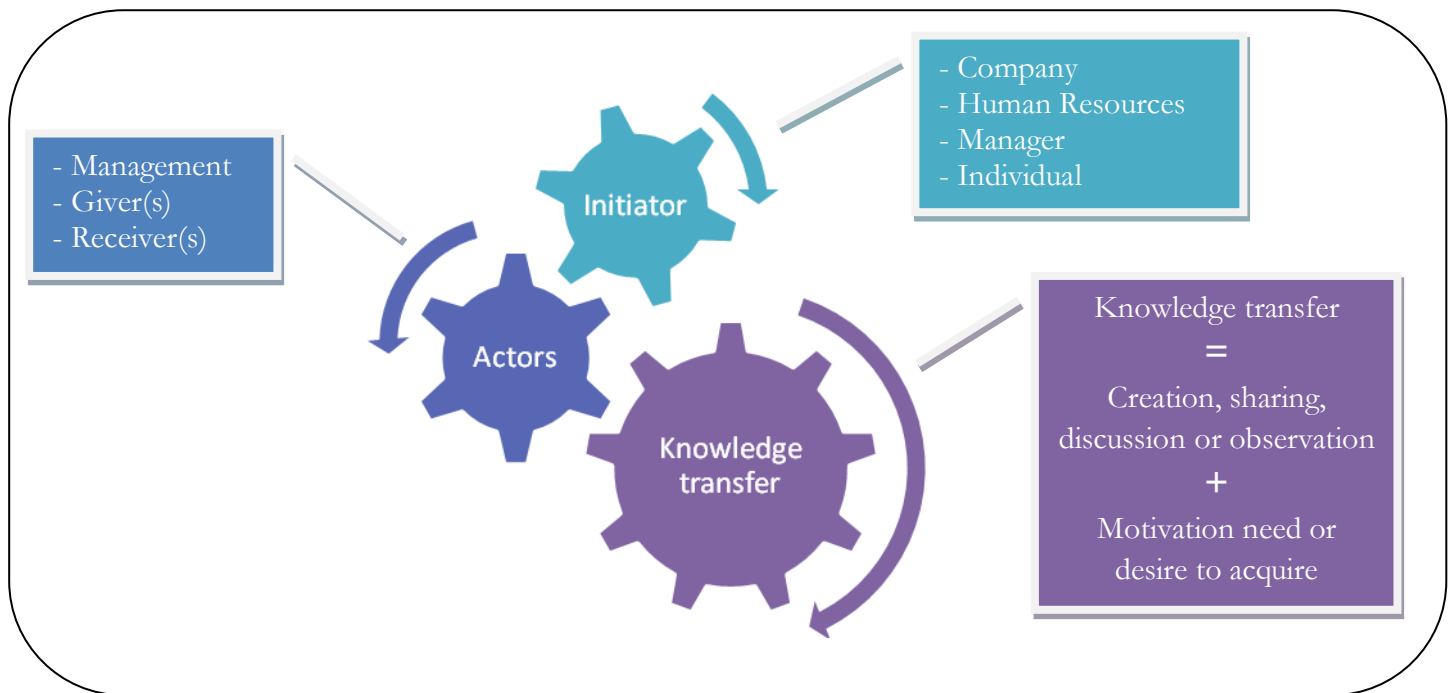
Figure 13: The knowledge transfer dynamic

10.4.2 Social interactions

The second section which is "social interactions" can be regarding as a collective area because it represents groups, teams, internal departments, business units or subsidiaries. This level is important to be considered because it is the step between one individual and the company. For most of the case that we have studied we have seen that it is here where the transfer of knowledge is the stronger and the most evident.

As the process points up it is "where" and "how" the actions and the interactions take place, it is the encounter of individuals who will create a dynamic exchange through action.

The intellectual curiosity, the will of learning and the critical thinking that we have exposed previously take all its sense in the company at this specific place. The translation of it could be identified in the "knowledge sharing achievement" box of our process. These actions and constant interpersonal relations confer to the abilities of the employee to be able to have the habit of looking for and find the information that they need, and then to view, decode, evaluate, manage and use different sources to achieve and solve their goal. This informal and unconscious transfer of

knowledge gives to the employee a "helicopter" view and a clear awareness of linkages between different areas and with the environment of the company. All the previously mentioned factors are important because they allow depth learning, transferable to other contexts. This mobilization is based on good self-image, on organizational skills and on a conductive attitude to learning. This creation of added value argues against the conventional view of training that puts the traditional course (as opposed that personal) in the primary source of learning. As the different exchanges with professionals show us that companies and employees are aware of the fact that the process of learning is present during all the professional life. This perception of learning is directly perceptible into the daily life of the firm through the vocational relevance: training is seen as useful in work.

This usefulness could be measured. And in the view of knowledge transfer this aspect appears for us as really important. The company, managers and the givers have to learn about the transfer. It will improve the level of it for next time: as we say "it is by making mistake that we learn". But in our vision this measure concept could be divided into two aspects which will help to analyze the transfer of knowledge (and to improve it for the future):

- Attitude during the knowledge transfer:
    o Learning in depth.
    o Learning superficially in a rational way.
    o Learning superficially in a disorganized way.

- Quality of the transfer :
    o Relation between the actors.
    o Satisfaction of the actors.
    o Understand the lever of the success and the failures.

When people act in this social or collective place the direct environment impacts the transfer of knowledge. To encourage people to share, so to learn, a good atmosphere is crucial. The management has to take it into consideration, and to achieve it they have to measure it through, for example these factors:

- Quality of the supervision and of the leader (perceive by the employee).
- The quality of the choice that employees do when they are confronted with a problem and their degree of autonomy.
- The volume of workload.

All these measurable dimensions will give the management the opportunity to adapt their process of knowledge transfer.

In the third part of this chapter we present our vision of a good process of transfer (page 88).

Companies have to build clear processes. By doing that they will structure this action and it will be easier to improve the quality of the transfer. The internal experience is the best to capitalize knowledge.

To conclude this section we will explain the different actions that we have put in our process. In our point of view knowledge transfer is perceptible through:

- Observation: employees, just by observing their environment learn from their colleagues. Observations can also be a part of method or tool such as tutoring. We find for example this situation in the knowledge transfer between senior to less experienced employees.

- Networking: by speaking, debating and asking questions employees transfer their knowledge among each other. Networking is an interesting approach because it means that people create a specific relation. They will speak more informally so use the same "language". Moreover, this notion underlines the fact that people will exchange not only with their close (by distance) colleague but with people who work in different units. Networking refers in our view to "close" relations with external sources developed through the private life (former classmates, friends…) and also via the professional one (former colleagues, customers, suppliers…).

- Conversation: thanks to the previous point we understand the importance of this notion. In the view of knowledge transfer internal conversation is essential. Communication is the main axis of success. People have to speak a common language to be able to give and to make sense. These conversations can take numerous forms such as formal, informal, private or public… We also have to speak about the telephone and email aspects through which one person transfers knowledge easily.

- Action: of course, people learn a lot by doing things (refer to the learning by doing concept developed in the first part). In this way they learn by themselves, but also if their trainer puts them into action. There are a lot of different actions: simulation, intervention on machinery, and for the two next points.

- Reading and writing: reading scientific or technical documentations (article, magazine, books, notes, blogs…) is an act of learning. But if we had the notion of writing we understand the

dimension of knowledge transfer through this way. The writer shares his knowledge with people who are interested in the topic, and the reader makes the act to learn. But often the reader will be giver of knowledge by discussing about what they have learned. The fact to write is also a way to think, conceptualize and incorporate our knowing. These two points argue in the sense that the tool that we have developed is significant for companies.

The tools that we have put in our process are some examples of what can be used to interact in a collective environment. There are order demonstrate that it is possible to select a tool depending on the result that we expect. And take into consideration the way of learning of the receiver or the transfer: feel more concerned by action or by reflection.

- Data: as we have already presented in our theoretical part data are "series of objectives facts" which need to be put into a context to be made sense and being transformed into information. They need a process of reflection from people who receive it. It is the best example of factual thing.
- Meeting: could be considering as a way to make people thinking. More especially if people need action to learn. But some tools exist to make it more objective as speech such as figures, table or power point presentation. As we have seen meetings concern many people or a limited audience, concern a specific technical aspect or general information about a market.
- Face-to-face: means in the same time many aspects like conversations, interviews and so on. The relation and the sharing can be more personal and it is easier to interact.
- Tutoring: In reference to mentoring. It is more related to action than the previous one. As we have seen in the previous part, tutoring gives the possibility to the receiver to develop a stronger relation with the giver.
- Simulation: This term refers to the fact of putting knowledge into action. It is good to test if the receiver really understands what has been transferred to him.
- Web 2.0.: This tool has been presented in the previous part. This is a perfect tool to create a internal dynamic of knowledge transfer through: participation, discussion, evolution, collection.

10.4.3 Company area

This part of our process is related to the company. As we have discussed previously, current companies are aware of the importance of knowledge transfer. Many firms act indirectly on this human resource aspect but an internal politic could be interesting in many points for: quality cost and delay and also on the human capital.

Knowledge transfer can be seen by employees as being a part of recognition and the effect of it can be identify on the motivation, the implication… which interfere on the production, so on the satisfaction of the customers. Knowledge transfer can have an indirect force on the results.

When a collective in the company developed something which can be used in another one the company has to be aware of it. It has to integrate it in the other units or subsidiaries. In this way we can speak about a transfer of knowledge between collectives. But this is the company (managers, directors, board) who has to manage it. The company has to identify and to capitalize its main knowledge as we have already discussed through the business advantage part and also in the key competence analysis.

The strategy of a company has to take in define the surrounding to facilitate knowledge transfer and could do it in this way:

– Set goals.
– Flexible learning strategies.
– Integration.
– Good advice: staff feels prepared and confident.
– Opening: friendly staff, flexible, helpful.
– Freedom in learning: "free" choice of subject of study (for manager).
– Clarity of goals and standards: clear definition of standards assessment and expectations.
– Taking care of the social climate: relationships (personal and in the work) between the learner(s) and the staff.
– Volume of work: major needs and constant transparency.

Then the company has also to take into consideration:

- The application of knowledge and know-how.

- A critical and analytical thinking and a knowledge synthesis.

- To go in-depth learning.

To implement and to optimize the transfer of knowledge in the company, it is better to create a process. It will structure and guide the different actors from the top to the bottom. A clear process will be the opportunity to improve the process itself. We have elaborated our own process as shown in figure 14. As we can see on it, page 87, this process is divided into two main parts:

- The pre-transfer: reflection, choice, elaboration

- And the after: feedback, following the feelings, the results and identify what can be improved for example.

The fact of working in this way allows the company to take into account some key elements such as:

- Planning of the learning formative.

- Evaluation of the learning.

- Active apprenticeship.

- Processes and contained.

- Variety of the strategies of learning (apprenticeship).

- Auto-evaluation or outer criteria.

This prevents from a bad supervision and an overload of work, helps to integrate the vocational and general dimension of training. In addition it contributes to ensure a wide participation in the training thanks to a rigorous follow-up of the participants and facilitates the communication around this topic. Besides it grants the flexibility of the programs and the organization, avoiding repetitions or badly targeted transfer.

Moreover, this process affects:

- Valuing personal experience.

- The links between actors of the training (human resources, management, outside agencies ...) and work.

To conclude with our process we want to add that thanks to this process it is also easier to achieve a deep learning: related to the choices to autonomy and good supervision, and to avoid:

- A superficial but rational learning: related to a low quality of the transfer (inappropriate choice of people for example),
- Or a disrupted and superficial learning: explaining by a wrong approach of the knowledge transfer.

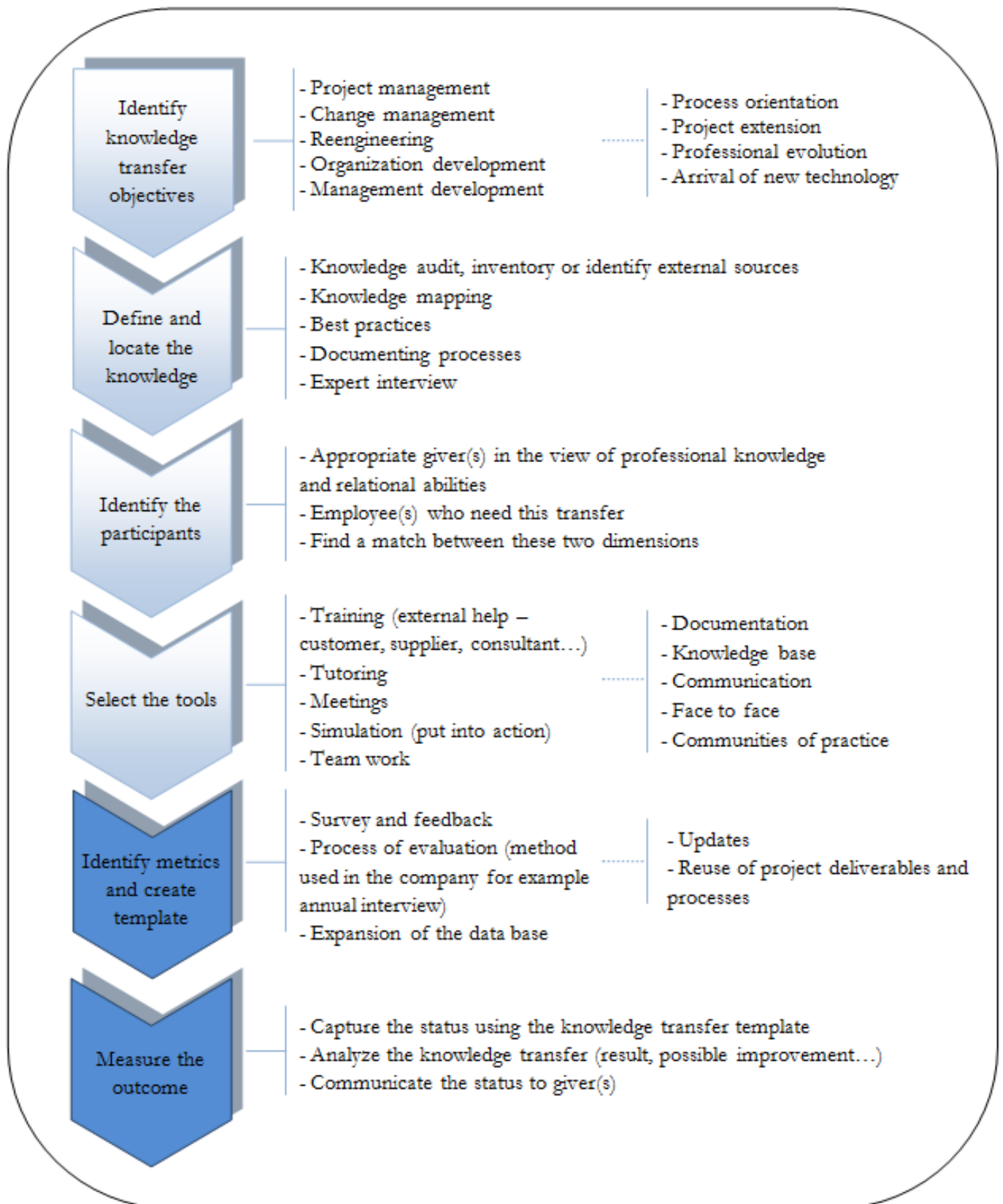A thinking approach and consideration of knowledge transfer is synonymous of success.

Figure 14: Our process of knowledge transfer

11. Presentation of a Web 2.0 technique

Numerous possibilities are accessible to companies which want to use and implement a solution for their knowledge transfer. Of course creating a politic represents the first and main step but firms which want to do it successfully have to use specific and adapt solutions, tools, methods and so on. At this time of development of e-solution we have decide to focus on a specific on: Wikis.

11.1 Why a knowledge method Web 2.0?

An important thing is to consider the process of putting know-how in evolution into circulation, to avoid limiting the transfer of know-how still. This support can extend the learning process, to constitute a living corpus of references and practices. Above all, writing an article on a blog or a Wiki, which can also be a blog, is itself a powerful means of learning, because it obliges people to formalize the concepts which they have even acquired.

This solution enables us to speak about "knowledge method". Speaking about "knowledge method" is to emphasize the constructed character of this type of device, and the collective and participatory process that promotes its development. It is also argued that the quality of the device depends on the dynamics that create actors through their interactions, in its design and its sustainable implementation.

This approach enrolls a productive efficiency: focusing on the empowerment and the knowledge of all employees to enable the company to cope with its current and future challenges. But also enables employees to enjoy an extensible data source, easily accessible and convivial. The aim is to reconcile economic and social issues, based on common interests of the various actors, but also to respond to those specific to one or the other. The approach must be mutually beneficial: the empowerment of employees which promotes performance, in turn, promotes the recognition of knowledge.

We understand that the benefits of knowledge method Web 2.0 are many, both in terms of the company and employees:

- Involve employees in pursuing the objectives of the company.
- Build on assessment practices of individual skills acquired.
- The company has a "mapping" clear existing powers.
- The directors and managers can make corrections.

- Control issued information.

- Based on the desire to share.

- The employees consult according to their needs and desires.

- Promotes the exchange between employees.

- Better visibility and understanding of what the other people in the business are doing.

By creating a dynamic and participative device for the transmission of knowledge companies, one opens new perspectives in terms of quality, productivity, wide range of products or marketed or supported services. Thus, we can mention at least five benefits of such an approach:

- A considerable increase of the efficiency of every technical, financial or commercial specialists who can multiply immediately the extent of their knowledge because they have a permanent access to the tool.

- An improvement of the satisfaction of the customers who will report an increased quality and cost, and reduced delays.

- A better management of the operational risk because the system allows a precise control of the contents of the delivered and exchanged information.

- A reduction of the costs of training in the profession of the company since this one has its own reserve of information, testimonies and methodology.

- A better protection of the know-how of the company.

11.2 Integrating Web 2.0 for internal transfer and employees' exchange

We make the main part of the apprenticeships which are useful for our work in an informal way, by exchanging with our professional colleagues, by sharing of the information with them, by confronting us with problems posed by our missions. Jay Cross in the United States (Informal Learning, 2007) for example has shown the importance of informal learning for organizational performance, and gave marks to promote its emergence. In the same direction of our focus Jay Cross accompanies firms to improve their performance by managing informal learning through Web 2.0. It appears that the use of Web 2.0 is designed to facilitate learning at work.

Learning at work can be seen as a social act, since it encompasses the interaction between the person and his professional network. By extension Web 2.0 is based on this social aspect. Let us remind how can be defined Internet 2.0: a set of tools that are common to facilitate interaction,

communication and collaboration around a project, blogs, podcasts, RSS... This dimension of participation is demonstrated also through social networks such as MySpace, Facebook, and LinkedIn. Through these features of interaction, communication and collaboration around a project, these uses of the Web have a double interest, to learn and move the organization via the transfer of jurisdiction. The use of Web 2.0 enables to strengthen the links between the employees, to create new ones, especially in large companies where it is difficult to meet physically. They allow users to make the informal organizational life and the emergence of innovative capabilities. Their essential difference compared to traditional modes of communication (sending information down on the intranet, e-mails ...) is that these techniques allow the controversy, the dialogue so they can be fruitful for a group of professionals. Some easy technologies of access exist to admit the integration of Web 2.0 to the company.

From this sharing perspective we can use the example of the Sogeti Group which has invited its 18 000 employees to share for 72 hours on a website dedicated to their ideas about the future of the firm. This illustrates the concept of sharing of ideas, development of a common vision. In our vision we want to develop this concept but with a mission (orientation) related to share, discuss in fine transfer the knowledge.

But if we want that these solutions will be meaningful for their users in the company, a prosperous environment must be created. Blog, Wiki, sharepoint, could become bearers of meaning only if they are integrated into business processes and if they are recognized as useful by the management and by the users themselves. So do not forget to assert the management and the organizational bases for the emergence of informal learning. They do not change what is written before in our research on the conditions needed to allow knowledge transfer at work.

To build the company of tomorrow, it is thus to create internally an "eco system" which will be convenient to the permanent learning by arousing knowledge transfer intra employees. The uses of Web 2.0 can contribute to do it, but they cannot constitute only by themselves. So they represent an evolutionary solid and reliable base to encourage and to facilitate internal transfer of knowledge.
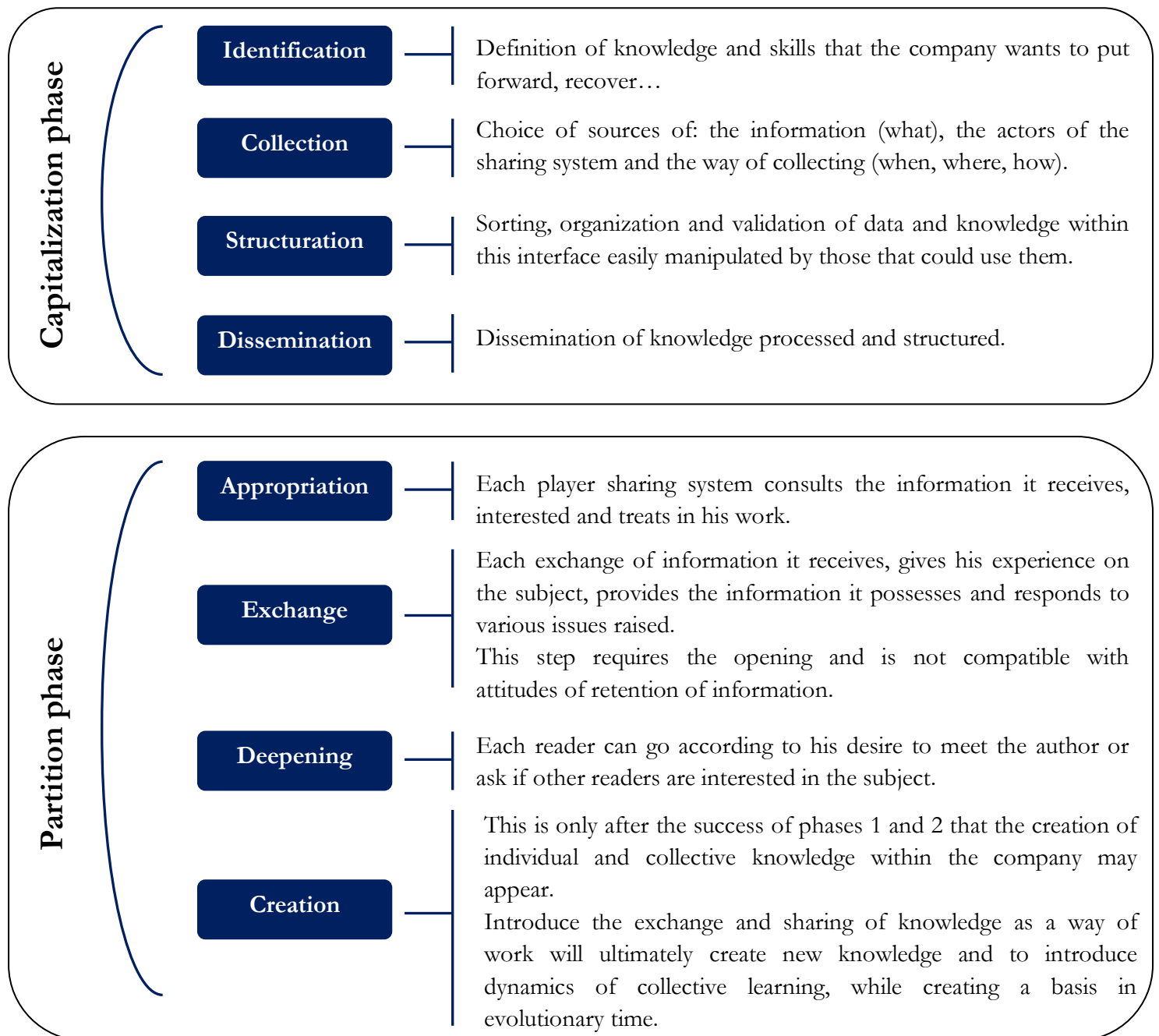
11.3 Presentation of our process

Following the idea of one of our interviewees we have decided to focus on a Web 2.O technique which fits with the need of current companies. As we have already analyzed, lot of companies do

not have really implement a specific methods or politic to encourage, follow and conserve the knowledge of their employees.

The concept of this technique is based on an interactive and modern support. The participative example of Wikipedia can be a good model for knowledge transfer and creation in company. Thanks to internet or intranet it is easy for a company to generate a website on which employees can connect themselves to share their knowledge, experience or explain their job. Blogs and Wiki supports are created to give the possibility for people to share what they want to.

To go more in detail of our template we have build up a process:

Capitalization phase

Identification — Definition of knowledge and skills that the company wants to put forward, recover…

Collection — Choice of sources of: the information (what), the actors of the sharing system and the way of collecting (when, where, how).

Structuration — Sorting, organization and validation of data and knowledge within this interface easily manipulated by those that could use them.

Dissemination — Dissemination of knowledge processed and structured.

Partition phase

Appropriation — Each player sharing system consults the information it receives, interested and treats in his work.

Exchange — Each exchange of information it receives, gives his experience on the subject, provides the information it possesses and responds to various issues raised.
This step requires the opening and is not compatible with attitudes of retention of information.

Deepening — Each reader can go according to his desire to meet the author or ask if other readers are interested in the subject.

Creation — This is only after the success of phases 1 and 2 that the creation of individual and collective knowledge within the company may appear.
Introduce the exchange and sharing of knowledge as a way of work will ultimately create new knowledge and to introduce dynamics of collective learning, while creating a basis in evolutionary time.

The first step of this method is related to the notion of creation and design. Even if this model reposed on a participative concept, the managers need to limit and construct a useful support. The capitalization phase will be the base of it. The scope and the impact will depend on this first phase. The goal is to make it attractive with a good design but of course with a good content. It represents an essential step: invite employees to implicate themselves and for the company to manage a practical and informative base. This will be for the future an accelerator and a springboard for success. This pre-research and enrichment will also enable the company to focus on its priorities of action. Moreover, to expect the success the company will have to communicate about it, to explain the goal, the interest and also the add value for everybody.

The second step is based on the evolution and the life of this practice. It will be important that the management contributes to animate it. Complementary tools and methodology could be added such as forum, meetings, discussions and debates about it and about the content. By creating some teamworks to elaborate new training and new methods, the company will also contribute indirectly to the knowledge transfer process. We can also add the fact that people will speak about this solution when they take a break during their work. It could also be the occasion to reveal unknown knowledge of some employees such as writing, creativity and so one. Exposing the current project and what the company expects in short or long term will encourage people to be implicated and feel more concerned by the company. This way of transferring knowledge will influence the corporate communication and act on the motivation.

In this sense employees will be able to share and find information about:

- Create their own profile (like the Facebook idea, or LinkedIn).
- What is the mission of their job: what they do?
- What are their skills and their knowledge?
- Consult and comment the current project.
- Sharing their experience.
- The creation of a forum could also be interesting to create common discussions and debates. It could also help people to confront their idea and make new thoughts emerge.

This approach represents an added value for all kind of company. No matter of the activity and the "size".

In other words, the capitalization phase refers to the real transfer wanted and initiated by the company and the partition phase emphasizes a leaning aspect for the users via communication and reflections.

The transfer of knowledge is, in our approach, the application of knowledge which are known and held by an individual who, through a process, will allow a second individual to cope with a situation that he never met before, or which he was unable to cope better (efficiency, productivity ...). In this sense, the transfer is based on the ability of generalization and abstraction. The transfer is the ability of the subject to recognize a structured similarity between two situations (one proven, the other unknown):

- Formalization of mechanisms for production or implementation.
- Conceptualization / generalization.

To assure a successful transfer of knowledge it is important to understand the way how individuals are working. To analyze its own intellectual functioning allows gaining credit and success. It is the same in the transfer of knowledge, and the use of such a Web 2.0 solution grants to the users a double dimension: to conceptualize his own knowledge (via the obligation to write for example), and to think about the skills of the other employees. If the user wants to go further to this initiative of personal rise, it is then possible for him to easily identify the holder of the knowledge and so to undertake and finalize a transfer of knowledge.

This thus allows facing the report which everybody learned in his way and, in the same time, to raise a hypothesis: if every individual is brought to analyze his own processes and grips of information, decisions and actions, it is capable of improving.

This reflection brings us to distinguish two essential notions:

- The prescribed task: what the person is supposed to make.
- The real work: the actual way used by the individual to realize the work.

This relation "prescribed task / real work" denotes the fact that knowledge can be seen as being fictitious and not recognizable except in the situation of real work. The knowledge thus takes on an operating and finalized character, which means that it has sense only by regarding to the action. We are competent for this, for it, and thus in a context concerning certain situations. We can besides add that the knowledge must be learnt. We are not spontaneously competent. We become him by a social and personal construction (an aspect which was demonstrated in our process). The knowledge

is structured. It is a combination of knowing, practical know-how, reasoning combined to answer or to reach objectives; the use of a database can thus represent an important and carrier element for the company. It is however to note that the knowledge is an abstract and hypothetical notion. We cannot observe it. What is visible, it is these demonstrations which are more collectively called performances, results or still reached by objective.

Besides the advantages we already raised, the interests of a Web 2.0 technique can be spread in:

- To understand the effective strategies which are implemented in the workplace.
- To accompany the learning by measuring the obstacles.
- Identify the chances, the constraints, the uncertainties, non-compliance.

But the use of such an approach could make us thinking about the notion of transferability. In this view, being aware of the fact that knowledge is individual as we have already mentioned Wikis could help the user to develop new knowledge without a real and direct way. Being conscious of new concepts or ideas reading on the Wikis, the individual will indirectly generate new knowledge. Knowledge is classified as being individual because it is built by our own way of thinking: sensemaking. Following this affirmation we can say that in a new situation the individual will act differently as before. That is why one of the goals of the company is to generate a dynamic around knowledge.

The figure 15, next page, illustrates the fact that this method confers a cycle process for knowledge transfer:
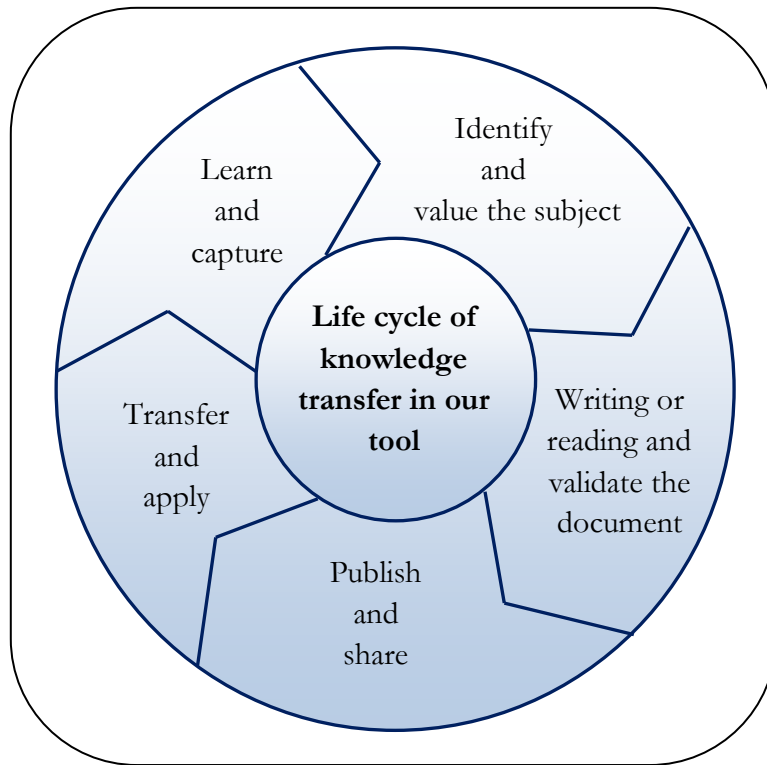
Figure 15: The cycle process of Web 2.0 approach

PART FOUR: CONCLUSION

This final section of our study consists of a conclusion through which one we first, summarize our main findings. Secondly, we connect these highlights with the different related areas to which knowledge transfer refers. In a third part, we demonstrate the impact of this field in the company. The last part is related to the solution that we proposed. To conclude we develop the possible future issue of this topic.

12. Main findings

This paper reflects the numerous findings that have been collected along the process of our research.

Faced with the profound changes in the working world past, present, and future impact the way of how to approach the area of knowledge which has gradually evolved. Whether it is within the framework of internal agreements in companies or in the field of studies and reflections led on the subject that the potential of the employees seems henceforth more taken into account. This affirms that this trend is now visible in the attitudes of the actors, but that the establishment of effective and comprehensive solution tailored to the needs of the company is slow to be introduced.

Companies are aware of the problematic of knowledge transfer. Surprisingly, they take it into consideration but do not really act on it. It is true that the concept and the reflection around this topic are recent in companies which are nowadays confronted to knowledge problems. The main actions of the firms are visible via an informal way. In fact, the companies with which one we were in relation do not really propose some solutions. The transfer of knowledge is observable in its natural aspect: in the daily life of working.

The management justifies this report by the fact that it takes time to implement a solution, more especially an effective one. They also argue that it costs a lot of money to create it and to cope with it. The result is that there is not somebody responsible of this, and there is no specific politic to deal with this task. Transfer happens when a real need is observed so the solutions and the actions are realized in a short term view.

For some companies of course a long term politic is not necessary but they have to keep an eye on this problem through their managers for example. But companies which are specialized (in industry for example) have to be aware of their daily need. In this view a real process is important. Long term

view do not mean that the company has to act on knowledge transfer every day, but has to be sure that it prevents from different dangers such as retirement, resignation and retention of its key knowledge to protect and maintain it business advantage.

Of course, in these conditions employees do not measure the reach of the stakes which arouse their knowledge. Most of them are not conscious that they share knowledge because it occurs in an informal way: during conversations, meetings or when they are confronted with a problem in their work. The notion of putting knowledge into action is very important. People are not aware of all their knowledge but everyday they use a lot of it. In the same way individuals also have knowledge that they do not use, so it has to be the goal of the management and the board to make employees aware of their knowledge.

However, many solutions exist such as technological tools which are easy to create or to implement if the company prefers to buy it. This dimension of technological solutions is in perfect accordance with the emergence of e-solutions in companies. Some of them such as the one that we have presented demonstrate the need of a generating a collective dynamic to make people aware and making them actors of knowledge transfer.

Then to implement a concrete and "ready to use" solution to this corporate problem, a firm can ask for an external help. In the same mode of reflection, to transfer some knowledge companies ask for external help: consultant, expert or training firms.
But some research as ours and some tools which are saled by companies has to represent a support to help companies to improve their doing. No tool can correct everything and achieve a perfect solution. What we have produced here is a way to facilitate and assist managers to find a system to solve their own problem which are visible in their companies.

13. Related area

The installation of new software, design a website, creating a product or a service and so on are strategic decisions that companies - small, medium and large - are used to take. Those which choose to identify the scenarios and possible effects on the organization, content, and working conditions take the advance. They set up a planning to care about their internal job and their internal skills and knowledge. They adopt, with the employees, some steps of anticipation confirming the strategic

dimension of the knowledge, in connection with the working conditions. A link which is not always immediate.

This idea of anticipation is strategically essential for the survival of a company. This is for example one of the mission of managers and leaders. Management is in the first position to manage knowledge transfer and encourage their team to share and transfer knowledge. By definition knowledge transfer has a management facet as it is a part of knowledge management. Team leaders, project managers and more generally unit managers are the ones who have to sensitive the working force about the value of sharing their knowing and knowing-how. Moreover, a good atmosphere is essential to encourage interaction between his employees. Simultaneously managers have to "extract" the knowledge from their employees.

Knowledge transfer is also a good lever to form motivation and to create a professional dynamic through implication for example. So knowledge transfer can be described as being a part of management but furthermore it can be viewed as a management tool. People who are looking for recognition or who want to have a professional evolution will appreciate to acquire new knowledge. On the same idea an employee who will be asked to be a transmitter of knowledge will appreciate the fact that his professionalism is distinguished.

Individuals who obtain new knowledge develop their own performance, in the view of production, but in the view of professional behaviors too. By raising their performance they will improve their degree of autonomy, so being more confident in them then increase their spirit of initiative and so on. For managers it is very interesting to have people who are able to be more responsible.

14. Impacts

The implication of the employees will be better if they know that their engagement is recognized. But a manager who succeeds to create a good atmosphere where people share, means that he will have time to concentrate on other tasks than solving relational troubles; and production problems consequently of the improvement of the professionalism.

The relation between the individuals is better so knowledge transfer influenced the relation between employees. If relations among the company are enhanced then people will feel good in their unit which impacts for example the turn over.

In this human resources vision, thanks to knowledge transfer the company is able to face some problematic easily such as massive retirement and penury of skills.

As we have seen the impact of knowledge transfer is directly measurable on the individual preference. In a production perspective it means that employees win in effectiveness and in efficiency. In the same time they improve the level of their production in the way of quality, cost and delay. Professionalism underlines less default for example.

In other words, that under hears that the relation with customers will be improve thanks to this efficiency and this reliability in the production process. Following the same reasoning the relation with customers will be improved because employees will have a large understanding of the company and will be able to answer all kinds of questions. For example a commercial that will have a large view and understanding of the production process will appear as somebody professional, so trustable; and the commercial will be able to present the good result of the production. In other words, the financial result of the company is better.

To sum up all these different ideas we can say that knowledge transfer contributes to create a better present and future for the company.

15. An interactive solution

In our research we have developed and conceptualized a tool which is interactive, modern and sure. The concept of it is based on the method of the website Wikipedia.com: a participative support which allows and encourages people to share and contribute to create the content. It could be used like a blog on the model of what we name in Web 2.0: Wiki.

This solution could represent a good step for companies. It is simple and cheap to build, quickly to implement and the maintenance is easy, too. Moreover, the access for the employees responds the need of motivation to transfer. People can share and learn when they want. If an employee wants to go deeper in a topic he can easily contact the writer.

This tool permits to the company to develop an online data base consultable by all the managers. Moreover, the participative and evaluative aspects of this tool confer to the users the possibility to discuss, comment and debate. We can say that it contributes to the internal communication, and if

the company already has an intranet it is a good complementary to a website: Internet websites for the external individual, intranet for the board and the Wiki for the employees and the managers.

Employees can create a personal profile which will present their function, their mission and their knowledge. In another hand, the management will create some topics on which they want people to share such as project, technical knowledge, and job description, instructions for use, process, model, and methodology and so on.

16. Future research issues on this topic

The research study proposed in this thesis is based on simple categories related to the type of relationship between participants in the forwarding of knowledge. The transfer is referred to as intra-organizational when the transfer takes place between individuals, between units of the same organization, between subsidiary and parent of a multinational corporation, or organizations that have merged. The transfer can also be inter-organizational knowledge dissemination in a population of firms, transfer in alliances, transfer to joint ventures or transfer through networks.

By regarding the result it appears that it was a good approach to illustrate and discuss knowledge transfer through different cases.

The first step of our analysis reposed on real and current problems of companies. The survey and the interviews allow us to confront primary and secondary sources.

Of course, our goal was not to go deeper in detail whit each situation because it supposed a huge research project. But we believe that our approach confers to the readers a good idea and introduction to these specific problematic. It could be an interesting issue for future research to concentrate on one of them.

LIST OF CONTACTS

Questionnaires:

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Marina Le Page, Recruiter, Altran.

Fernand Riot, Human Resources Director, Chromalloy France

Interviews

Klaus AE. Mogensen, Project manager, Copenhagen Institute for Futures Studies

Maria Hall, Managing Director, Embedded Artists AB, and also spoke about her previous function at IKEA

Dag Larsson, Managing Director, Ekan AB

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