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The process of knowledge integration

A case study of a change project

Edgaras Rakevičius
Louis Auzias

Supervisor: Jonas Söderlund

Linköping University
SE-581 83 Linköping, Sweden
+46 013 28 10 00, www.liu.se

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Authors:

Edgaras Rakevičius and Louis Auzias

Advisor:

Jonas Söderlund

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Abstract

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Summary Knowledge integration is rather a new and not fully explored concept in business management. However there are many scholars, who have researched knowledge integration in recent decades. This thesis is conducted in order to draw attention towards knowledge integration and its processual phenomena. Moreover, some scholars have mentioned that knowledge integration is dynamic. The dynamics of knowledge integration lead to the fact that the actual knowledge integration process is also dynamic and constituted of performance practices, while being dependent on different factors and conditions. In further understanding, knowledge ingratiation process cannot be implemented in a straight forward lineal fashion. For this reason it changes during the time of the knowledge integration project implementation. The interest of this research is to find out how does the knowledge integration process change during the evolution of project.

For this purpose, we have researched a real company's project, the objective of which is to reach the knowledge integration amongst different back office teams in a newly established Shared Service Centre (SSC). The study led us through the discovery of different aspects of knowledge integration process, including challenges that occur during its implementation and mechanisms that are adopted as the project evolves. The analysis of existent theory and practical interpretation of the company's project allowed us to conduct a visualization of the change of knowledge integration process. This visualization summarizes the occurrence of knowledge integration challenges, which call the company management to alternate different performance practices in combination with the use of practice-based coordination's. In this essence it becomes visible, that as project evolves, the process of knowledge integration adopts a non-lineal progression. This in later perspective builds a reason to argue that the more knowledge is integrated more challenges occur in this integration process and as a result more mechanism are needed to be adopted to sustain successful knowledge integration in the project.

Keywords: Knowledge Integration, Process, Challenges, Mechanisms, Project evolution, Company, Back office, Shared Service Centre.

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The journey of this thesis has started in the mists of rainy November, 2015 in the city of Linköping, Sweden. Back then the authors of this study have started discussing their interests within the widest latitudes of the world of business in academia. It comes out as no surprise that while researching knowledge integration we have also engaged fully into integrating our own knowledge and given the unusual research setting, the integration our experience, teamwork, determination, vision and will have also come to place. Herby we acknowledge that this work would never happen if not the support and understanding of our families, friends and beloved ones as well as patience and guidance of our teachers and colleagues.

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Edgaras and Louis

2016-05-28, Vilnius, Lithuania

“To improve is to change; to be perfect is to change often.”

Winston Churchill

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1. Introduction

This opening chapter begins with a presentation of the study on the processual knowledge integration in the project. This chapter is also dedicated to explaining the research problem and dilemma, as well as the purpose this study. Hereby we also introduce the reader to the research question, the overview of the empirical choice, our target audience and the outline of the following parts

1.1. Knowledge integration in context of business strategy

In today's globalized and interdependent world, organisations engage in developing different projects so as to sustain the operational efficiency and continuation in delivery of business output. It is no longer a surprise that in most organisations, projects are designed to create a strategic value in order to out-stand the competition against their competitors. Schumpeter (1934) already recognized that creating a new value can ultimately lead organizations into achieving their competitive advantage. The value is in fact brought through creation of knowledge in an organization (Grant, 2013). According to Grant (2013) a new knowledge is one of the factors constituting a new generated value, therefore it is important for achieving competitive advantage. Carlile & Rebentisch (2003) on the other hand argues that new knowledge can be created through integrating the existent knowledge in an organization. Thus, knowledge integration can be also understood as a way of building a competitive advantage.

Nevertheless, this idea should not yet be taken for granted, since it depends on how we understand knowledge. Understanding knowledge, it-self may be a difficult task, since the concept is not self-explanatory in the academic world. However, many scholars, including Simon (1973), Grant (1996) and Okhuysen & Eisenhardt (2002) understood a strategic importance of knowledge. Simon (1973) sees knowledge as an organization's asset. On the other hand Grant (1996) and Okhuysen & Eisenhardt (2002) claim that knowledge is an important strategic resource. Whereas, Nonaka (1994) argues that knowledge is a flow of information. Since, it is a flow, or a resource it is possible to think that it can be managed. Therefore knowledge integration can be seen as a process of managing knowledge. In more specific terms knowledge integration is, in fact, a process of transferring knowledge between different individuals. This allows creating a common new knowledge in an organization. According to Okhuysen & Eisenhardt (2002) when organisations choose to integrate knowledge they, normally aim to engage in process of transferring knowledge from an individual level to a collective one. In long term perspective this process gains a paramount importance to organisations, which want to excel in its competitive environment. Knowledge integration often allows them to better manage and optimize operational processes. Thus, it can also be argued that successful knowledge integration can serve as one of the important aspects of organizations' management in search for competitive advantage (Rahimli, 2012). For this reason, knowledge integration becomes a subject for managerial projects.

While Knowledge integration is a relatively new concept of an emerging process in organizational science, which is adopted by many companies to foster innovation and strengthen their organizational capabilities (Haddad & Bozdogan, 2009), organization's ability to generate knowledge integration capabilities gives a triggering effect on building up knowledge integration processes (Berggren et. al., 2011). Nevertheless, since knowledge integration process can be a part of a project, it is logical that this process will change in order to better suit the project goals during its evolution. What can trigger this change is however unknown. It therefore becomes interesting to explore the process of knowledge integration.

1.2 Problematization and Research Dilemma

The processual view of knowledge integration has been explored by authors such as Berggren et al. (2011) Tiwana (2008), Enberg (2006; 2007), Huang & Newell (2003) and Okhuysen & Eisenhardt (2002). Enberg (2006; 2007) refers to knowledge integration as a process of linking knowledge and claims it to be dynamic, whereas Okhuysen & Eisenhardt (2002) understand it as a process of knowledge transformation from individual to collective knowledge. Although the authors explain the concept of knowledge integration and provide us with a logical definition, neither of them really seems to be explaining how this process is built. Since knowledge integration is understood as a process it is interesting to see what shapes it. Nonetheless, it is intriguing to learn what affects the implementation of this process during the evolution of project. The lack of exploration in understanding of the knowledge integration process as well as indefinite exemplification on how this process is implemented within a company's project, dictates us the need to research the phenomena of processual knowledge integration even further.

Majchrzak et al. (2012) suggest that knowledge integration process can be conducted with the use of performance practices. These are "voicing fragment", "co-creating the scaffold", "dialoguing around the scaffold", "moving the scaffold aside" and "sustaining engagement." Through exploring these practices the author provides an extension to the existing literature on processual knowledge integration. Besides the performance practices recognized by Majchrzak et al. (2012) there are more things to add. For instance, Faraj & Xiao (2006) argued that knowledge integration can be run through adopting practice based coordination. This can either be an "expertise coordination", or "dialogic coordination". Moreover, knowledge integration process appears to not only be conducted by performance practices or practice based coordination, but also shaped by factors and conditions (Ravasi & Verona, 2000 and Söderlund 2010).

Although the process of knowledge integration can be shaped by factors and conditions recognized by Ravasi & Verona (2000) and Söderlund (
2010) there are also knowledge integration mechanisms that play a considerable role. The use of knowledge integration mechanisms, such as organising routines and procedures (Grant, 1996), executing formal interventions (Okhuysen & Eisenhardt, 2002), creating

deadlines (Söderlund, 2010), knowing expertise location (Faraj and Sproull, 2000) or creating relational capital (Tiwana and McLean, 2005) is however important when facilitating knowledge integration in a project.

Nevertheless, knowledge integration is dynamic (Enberg et. al., 2006), due to this reason it cannot be defined and viewed indifferently. As the matter of fact the execution of it can be uneven. Thus, the management may choose to alternate between different performance practices or practice based coordinations in order to sustain the successful implementation of knowledge integration in the project. This implies the assumption that along the evolution of a company‘s project knowledge integration can be processed differently. Therefore different challenges may occur. Some of the most common challenges, such as time constraints of task complexities are recognized by Okhuysen & Eisenhardt (2002) and Berggren et al. (2011). The occurrence of knowledge integration challenges can, in fact, affect the knowledge integration process. This can, therefore change from time to time, depending on what challenges occur.

On one hand, the study allows us to argue that the change of knowledge integration process can generate new challenges. As these new challenges occur, it becomes inevitable to search the ways to mitigate them. These could either be done through changing the process, with use of different performance practices as per Majchrzak et al. (2012) or it could mean that the management will have to adopt new knowledge integration mechanisms as the project evolves. On the other hand, the evolution of project may naturally cause knowledge integration challenge to occur. The occurrence of those challenges will trigger the change of knowledge integration process. This dilemma, in fact, requires drawing more attention to the actual change of knowledge integration process.

1.3 Study purpose and research question

As it has been mentioned before, there have been studies written about knowledge integration, where understanding of this phenomenon comes from seeing it as a process. However in this study we aim to stretch the understanding of processual knowledge integration even further, where it is possible to explore the change of knowledge integration process. Söderlund (2011) in his study on theoretical foundations of project management suggests that process is interrelated to project, when implementation of a project is viewed as a process. Moreover the interrelation is also existent between process, problem that occur, and perspective through which the project is viewed. However, when it comes to process Söderlund (2011) also claims that there are different views or perspectives on process. These are: Neo-conventional view, which argues that implementation of process depends on project life cycle and therefore tasks carried out during this cycle differ depending on the phase of the project; Extended view claims that project management needs to involve a set of activities to shape the project and push through the process to reach the project goals; Research implications point out that there is not enough attention put on process itself and that projects are evolving processes; Finally the managerial implications suggest that

projects are dynamic and therefore had to be managed differently depending on the phases of process. These observations provide the reasoning that process can change during the project. Therefore, it is possible to claim that, if knowledge integration is a process as per Okhuysen & Eisenhardt (2002) it will also change during the evolution of project. For this reason it is interesting to explore the change of knowledge integration process.

Hence, the purpose of the study is to understand the phenomenon of the change of knowledge integration process. Since the process according to Söderlund (2011) is not only interrelated with the project but also with a problem and perspective, it is possible to argue that the challenges that occur during knowledge integration are related to the change of knowledge integration process. This leads to further argumentation that knowledge integration process is dynamic and in project setting it is affected by interrelation between the implementation of knowledge integration and the challenges that occur during the evolution of the project.

The setting of this study is designed to contribute to the understanding of the change of the knowledge integration process, when this process is the implementation of a company's project. So as to see the change of knowledge integration process in practice we have chosen to explore a project of knowledge integration of a company, which aims to integrate knowledge of different back office teams in order to achieve better optimization of its operations. The long term goal of the project is to create a single back office unit from different back offices which currently function separately in one business unit. This sets a long term project vision, which allows a step by step approach for project implementation. That is, firstly, to start integrating knowledge within the back offices, and secondly to look how knowledge can be integrated amongst the back office. Since, the project is ongoing and is currently in the first step of knowledge integration this paper will explore the knowledge integration process within different back offices.

The example of single company's project should provide reasons for studying multiple projects in the expansion of this research. This, therefore, should be a point of departure in researching the tendencies of process change in contemporary projects of knowledge integration. Hence, to start gaining a deeper understanding of the change of knowledge integration process in a project setting this study aims to answer the following question and the sub-questions:

How does the process of knowledge integration change during the evolution of project?

- ***What are the KI challenges forcing the change of KIP and how do these challenges evolve?***
- ***What KI mechanisms does the management use to deal with the KIP challenges?***

1.4 Overview of empirical choice of study and brief explanation of the project

The study explores a company which is engaged in long-term project of knowledge integration. Before getting confused between a company and an organization, Grant (2013) have mentioned a company can be understood as an organization therefore, let us agree that in this study the chosen company is an international organization. The chosen company is engaged in a relocation of its operational back office teams from multiple countries into one location, where the functions of the teams have to be optimized to serve the organizational goals of continuing task delivery to support the overall business output. However it is also important to point out that the focus of this study is not put on the company. Instead, it is set on the project of knowledge integration which is initiated by this company. For many years the focus of the company has been to provide their customers with high-quality service through utilizing the knowledge of the local market on cultural and legal terms. The relocation procedure entails recruiting professionals in the arbitrage location, sending them to the countries of origin in order to transfer the local specialist knowledge and then sending them to the newly established Shared Service Center (SSC), where they would continue executing the tasks independently.

The project of knowledge integration starts after the newly relocated back office teams are settled down with their routines and have become experts in their designated procedures. Each back office team consists of several functional multi-task teams, whose operations are crucial for the successful delivery of business output. Hence, integrating knowledge amongst the functional teams of each back office is set to ensure the continuous task delivery and the extension of team members' professional intellectual capacity. In long term it should create the foundation for integration of knowledge amongst all the back offices in the SSC, which would fulfill the project vision of completely knowledge integrated Shared Service Centre.

1.4.1 Target audience

The research has been conducted to reach the audience of both academic researchers and the management of the company. This paper is designed to explore the weight of knowledge integration and its processual understanding in academic literature. We aim to raise greater awareness of knowledge integration as a process and its change in contemporary organizational management research. At the same time this paper is written to offer an empirical case study to companies, which could grasp the ideas for practical application of the findings to their managerial solutions.

1.5 Outline

Chapter 1.
The purpose of the chapter 1 is to provide an introduction to the master thesis by presenting the problematization, the dilemma of this study and finally the research question to the reader

Chapter 2.
The methodology presented in this chapter intends to describe and motivate the different choices that we made regarding our research design, method, quality as well as data collection and analysis.

Chapter 3.
In this chapter the aims is to present our theoretical background of the master thesis. Therefore, this chapter is divided in three mains categories: knowledge integration, the mechanisms of knowledge integration and the conceptual framework in order to answer to our research question. The theory is meant to expand the reader's understanding of the master thesis. Moreover the objective of this chapter is to serve as foundation for the analytical model presented in at the end of this chapter.

Chapter 4.
This chapter presents the empirical material, which will be later analyzed. On this chapter it presented not only the empirical data itself but also additional background information in order to able for the reader to understand more clearly context of the case for this master thesis
Chapter 5.

In this chapter, the analytical model presented in the chapter three is investigated to analyze the empirical material and the theoretical background in order to answer the research question

Chapter 6.
In this last chapter, the master thesis' finding are presented and discussed. Therefore, an outlook for a future research is presented.

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2. Methodology

In this part we present study methodological approach used in this study. First and foremost the method of that research is based on a single case study. The reason for that lies in the principle of demonstrating how the knowledge integration process is executed in a company, which is an international organization that undertakes a strategic change in reorganizing its operations, by placing its back offices under one site in an arbitrage location. The division of tasks in each back office allows them to be subdivided into minor functional teams, where integration of knowledge becomes an important aspect for ensuring a continuous execution of procedures in an optimized way. As a result the company engages in a long-term knowledge integration project. To conduct our study we have considered discussing the case perspective and its uniqueness. Further we aim to explain the chosen research design and method, thus finally to evaluate the research quality so as to validate our choices for carrying out the study.

2.1 Case perspective

In the starting phase of the strategic change, the chosen company is aiming to relocate its back offices to an arbitrage location and leave only the customer services teams and senior management in the original locations. That way the quality of B2C operations would be sustained via use of native languages, whereas functional operations would be supported from one single Shared Service Centre (SSC). Since, 2014 the company have relocated four back offices "A", "B" ,"C" and "D" for multiple countries into a single location of SSC.

Each back office team consists of functional teams, responsible for different disciplines. So as to ensure the effective delivery of operational results the company's management considers it to be of a paramount importance that each member of every sub-team is fully familiar with task the delivery procedures of other sub-teams. Hence the knowledge integration phase is the final and most important part of the transition before the team can fully deliver independently. For this purpose, a long-term project for integrating knowledge amongst different back offices has been set to start. The ultimate goal of this project, according to the company's management is to have knowledge integrated amongst all the relocated back offices. However to reach it the first phase of the project is to integrate knowledge within the back offices. This, in further perspective the integration can start amongst the actual back offices.

As the project evolves, the knowledge integration process faces different challenges in different back office teams. These challenges are mitigated in a unique way the manager of each team. As a result the knowledge integration process changes each time the project evolves further. Thus, finding out and what challenges occur during this knowledge integration process as well as analyzing how they have been coped with and what kind of mechanisms the management use to integrate knowledge provides grounds for this research

in search for answer on how the knowledge integration process changes during the evolution of project.

2.1.1 Case uniqueness

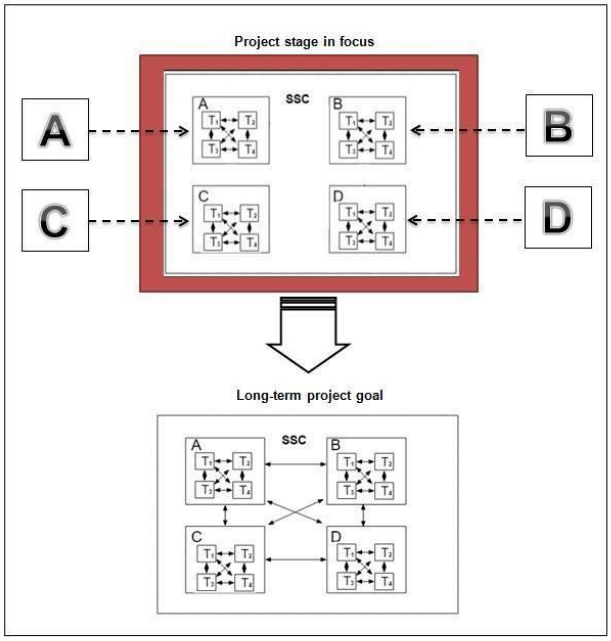
Form a macro perspective, the uniqueness of this study derives from a single case strategic phenomenon, when a company engages in project of fully integrating knowledge amongst its newly relocated back offices. The knowledge integration process comes across different challenges. Mitigating those challenges causes the process to change as the project evolves, thus having a unique possibility observe change of this process during the course of this study allows bringing the hands on findings to the field of knowledge integration research.

On a micro level the study explores process in a project of integrating knowledge amongst functional teams within different back offices. Having one of the researches being part of this process allows building a deeper understanding with primary focus on the details of this process. This, in fact helps to show the academia in real practice outside the wide spectrum of assumptional interpretations that can possibly be as a result if only relying on interviews and secondary data.

2.2 Research design

This case provides bases for understanding the knowledge integration process, where it comes as part of a long-term project for knowledge integration amongst different back office teams. This is visualized in figure: 1, which shows the relocated back to a Shared Service Centre. Since all the back office teams that have engaged in knowledge integration, different challenges occurred that led the process of knowledge integration to change during the evolution of the project. This implied adoption of different knowledge integration mechanisms. At present time the company focuses on integrating knowledge amongst functional teams within different back offices. Once the knowledge is integrated within the back offices, the long term project vision implies total knowledge integration amongst those offices. This in fact will be the next stage of the project. However, in this study the focus is placed on knowledge integration process amongst the functional teams within the different back offices (Figure 1).

Figure 1: Research design



The figure 1 demonstrates the company's project the focused part of this research and the long-term goal set by the company. It also visualizes our research design, through showing the case study of this paper and the focused area, marked in red, where the change of process of knowledge integration has been researched. Since the back offices engage in knowledge integration process in a chronological order, - back office "A", "B", "C" and "D", the project at this stage evolves each time knowledge is integrated in one of the back offices. As a matter of fact, studying this project should allow us to learn how the knowledge integration process changes during the evolution of the project. Following the focus on knowledge integration of functional teams, in regards to the uniqueness of the case, this paper will based on qualitative study methods in order to reach a deeper understanding of the processual change of knowledge integration in the project.

2.2.1. Revelatory - representative case

Since, the purpose of the study is to increase the understanding of the change of knowledge integration process, analyzing a case of a real company is highly important. Stake (1995) suggests a case study is an opportunity to acquire deep knowledge about a phenomenon. Due to the nature of our research setting, one of the researchers was working on the study while being based inside of the company and also taking part in the project. This allowed us to put the research in the center of practical implementations of the knowledge integration process. The second researcher however did not have the same access to the project and the company's daily operations. Hence, in his perspective the understanding of knowledge integration process is rather external, built on theoretical knowledge and processing of the explicit material provided by the first researcher. Thus, the unique access to the project and

company in this kind of research setting enables a unique twist of ideas and argumentations, derived from the experience of seeing an organization both internally and externally.

Since the organization has not previously been approached by scientific research and its knowledge integration scenario is built on the continuation of business unit transition practices, the opportunity to observe this phenomenon also sets the grounds for developing a revelatory case study. As per Yin (1984) in Bryman & Bell (2015) the basis for the revelatory case comes from the researcher's opportunity to study and observe phenomena that have not been previously accessed by scientific investigation. Moreover, everyday access to the company and observation of the project from the inside provides a unique chance to form a representative case. The representative case refers to the exemplification of an everyday situation or form in an organization Bryman & Bell, (2011). Hence there is a possibility to view the study as a revelatory and a representative case. Also, taking into the consideration research setting creates a unique study approach that makes it possible for the paper to provide an interesting combination of realities from the angle of epistemology and ontology.

2.2.3 Epistemology and ontology

According to Bryman & Bell (2011) epistemological considerations are about questioning the understanding of whether or not the social world can be studied by applying the same principles and procedures. Hence it can be understood that through the epistemological angle of study the discussion should be based on a set of commonly accepted norms and rules, like in the world of mathematics. As per Bryman & Bell (2011) epistemological reality comes from the positions of positivism and interpretivism. The first one is based on the natural sciences, with scientific data and facts relating organizations as concrete entities that can be explained through numbers and modules, whereas the second one is critical to scientific modeling of the social world and stands for understanding the social entities that form organizations and human behavior in an empathic way. Following these reasoning it is important to stress that our study has not been conducted through the prism of epistemology. It is because we neither try to scientifically nor numerically explain the phenomena of knowledge integration as in the form of positivism, nor we try to understand specific behavior of social entities in a form of interpretivism.

On the other hand the ontological is more relevant to this study. According to Bryman & Bell (2011) ontological considerations are about understanding social entities through acknowledging them either to be objective with reality external to social actors, or constructive, built up on perceptions of those social actors. Hence, it is possible to say that a discussion developed through an ontological angle will be focused on social interactions and interpretations of their development. Bryman & Bell (2011) argue that an ontological perspective can either embody a position of constructionism, or objectivism. To be more precise they claim that Constructionism is a position, which allows the researcher to see more of the social aspects of the organization, where understanding the essences of organizations' reality and social structure come through interactions, rather than built in essences. On the other hand objectivism according Bryman & Bell (2011) is an ontological

position that views the organization with its own reality and social order that is external to individuals who inhabit it. In that sense the organization is viewed as a tangible object with eternal facts that are beyond the reach of influence for the researcher. Hence having one researcher working on-site and one off-site the company allows us to combine the view of two realities through ontological positions of constructivism and objectivism.

2.2.4 Understanding of knowledge integration process in a project setting

Due to combination of constructivism and objectivism the study has a unique possibility to provide a more complete understanding of research reality. For that reason the understanding of knowledge integration process can also be developed through the prism of long term project. The case study demonstrates a single long-term project, which has been undertaken by a company's management. The implementation of this project comes through the use of knowledge integration process. That brings us towards an empirical example where project is closely interrelated with process. According to Söderlund (2011) a project is interrelated with process when it is viewed as a process. Söderlund (2013) explains that a process exists in order to control the production and the activities of an organization. In other words it can be understood that the evolution of process is the implementation of a project and vice versa. Thus, an organization's management has to create a structure of process mechanisms in order to control the project and the project results. The scholar also argues that a project can be short-term or long-term, with having a different beginning and an end. This therefore creates a dynamic nature for the project. Since projects are dynamic they require several perspectives.

> [...] *Indeed, projects are dynamic enterprises, errors and integration activities. But they are dynamic in quite a number of dimensions. This is one of the reasons why there is a need for multiple perspectives to possibly grasp some of the complexity, nature and life of projects* [...]
>
> (Söderlund 2013 p 120)

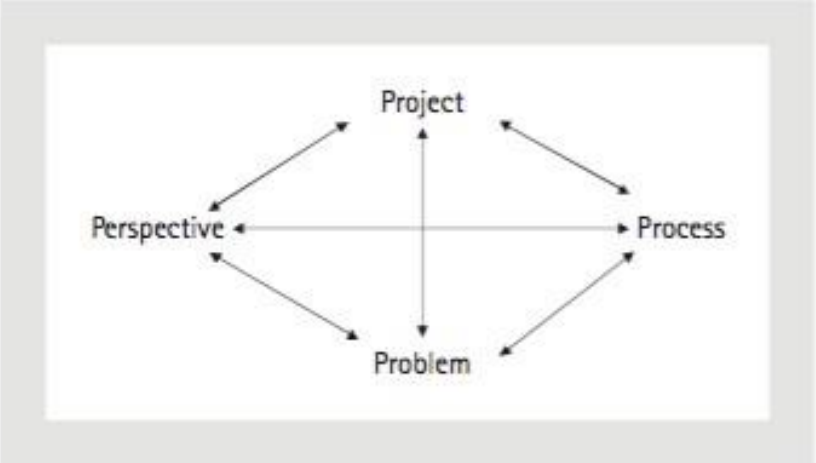
According to Söderlund (2013) multiple perspectives help the organization to clearly understand the reality of the project dynamics, such as behavior and the evolution of the project. Following these idea different types of project can be mentioned. One of such is a "change project", which is defined as any project related to a modification or evolution of the organizational structure and process. Similarly to project, a process can also be understood through multiple perspectives. Söderlund (2011) distinguishes a Neo-conventional perspective. In this perspective, process depends on the project life cycle and thus can be different in different phase of it. He also mentions "Extended" perspective, which main focus is put on a set of activities constituting a project. There are also a "Research implication" perspective, referring that processes and projects are self-evolving and "Managerial implication" suggesting that projects are dynamic and therefore they have to be managed differently in different phases of processes. Different perspectives, according to Söderlund (2011) are important, since they create a research frame and allow bettering

observing specific problems. The author claims that there are many models in literature, which are rather mechanistic or task-oriented, when it comes to project management.

> *"So far, extant literature has suggested a number of process models grounded in the mechanistic, task-oriented models so common in textbooks in the area of project management (see Andersen, 2008)"*
>
> Söderlund (2013 p 120)

Therefore, there should be a model, which could demonstrate the interdependence between projects, processes, perspectives and problem. Söderlund (2011) suggests a Four P model (figure 2.)

Figure 2: Framework for understanding the theoretical foundations of the project management research



Söderlund (2011 p 54)

The figure 2 demonstrates the interrelation between the four actors. According to Söderlund (2011) there is a link between the "perspective", "project", a "problem" and a "process".

This interrelation helps to explain the foundation of this thesis. Since, both process and project are dynamic and interrelated it is possible to draw an argumentation, that the evolution of a project will simultaneously affect the evolution of the project. Thus the process will change. The change of knowledge integration process is a subject of discussion in this study. Therefore, acknowledging the interrelation between process and project as per Söderlund (2011) "4P" model of "framework for understanding the theoretical foundations of project management research" is important. This study we argue that knowledge integration process can be self-evolving due to the occurrence of different challenges. Also, we acknowledge that the process is dynamic and therefore it can change either because of occurrence of challenges or because of managers use of different practices and tactics to run the process during the course of the project. This connects "Research implications" and "Managerial implications" perspectives, which were previously discussed by Söderlund

(2011 in Morris et al. 2011). In this study we also attempt to show that the process of knowledge integration is interrelated with project through the time of project existence. However this interrelation does not specifically affect the vision of the project. Instead, the evolution of project will have an impact on knowledge integration. In order to support these argumentations the study has adopted a single case research method.

2.3 Research Method

Bryman & Bell (2011) argue that the case study research method stands for a generalization of new theories. Since, the single case study design has been chosen for conducting this thesis, the phenomena of this work comes from exploring a project, which is a strategic practice of integrating knowledge amongst different back office teams. This exploration shed the light on how knowledge integration process changes during the implementation the project.

Although exploring only one project might not seem to provide the sufficient scope of empirical evidence to generate a new theory, such a study can still contribute to building an understanding of how the knowledge integration process in the real world adheres to the theories. Much of that understanding comes from the interpretation of existing theories of knowledge integration and from the interpretation of how these theories work in the chosen field of practice. The attempt to interpret the theories in adapting them to the case practice reveals the qualitative nature of our study. Bryman & Bell (2011) describe a qualitative research as the one, which focuses on words, instead of quantification in the analysis of, collected data. Qualitative research features inductive study approach, generation of theory, interpretivism and constructionism as per Bryman & Bell (2011).

2.4. Research Process

In order to conduct this study we identified different phases that were needed implementing this research (Figure 3). The first phase of this research was to initiate the study. In order to do that, during the month of February, we focused on finding the best methods suitable to carry out the work and choose the direction of this thesis. At the same time we engaged in searching and reviewing the theoretical material, which was needed in order to support our ideas and build a framework that would allow further build our argumentations in this research This phase was also important in order to be able to formulate the research question.

The second phase of this thesis was data collection. It was already partially in place during the first phase since one of the researchers was already working inside of the company and could observe the project on daily bases. However, in March up until April we have conducted and administered 9 interviews of the managers and carried out an onsite questionnaire of employees. As it was understood later only 7 of the manager interviews were relevant to the focus of this thesis. These interviews and questionnaires in combination

with onsite observations have brought us a sufficient amount of empirical data in order to build the empirical case study.

The third phase of the thesis, which was managing data, started in April and continued until May. During this phase we were organizing and analyzing theoretical and empirical material. This involved transcribing interviews fine tuning theory that was relevant and applicable to the empirics and the focus of this thesis. This led into building a first full draft of our work, which was then had to be completed in the fourth phase of this research.

The fourth and last phase of this study was the completing phase. It started at the end of April and lasted until the end of May. It involved revising and re-writing different parts of work. Also during this phase we continued a more detailed analysis the theory and empirics, which helped us to conduct research findings and provide the answer to the research question. At the same time, during this phase of research we put our final remarks, which then were followed by completing the whole work.

Figure 3: Visualization Research Process

Periods		08/02/2016-15/02/2016	15/02/2016- 04/03/2016		04/03/2016-06/04/2016			06/04/2016-15/04/2016	16/04/2016-22/04/2016	24/04/2016-15/05/2016			15/05/2016-30/05/2016
Initating study	Workshop: qualitative methods												
	Workshop and tutoring												
	Review literature												
Data collecti	onside observation												
	Administrating interviews												
Managing data	Organizing data												
	Transcribing interviews												
	Analyzing data												
Completing	Writing and revising of thesis												
	Finalizing completing thesis												

The figure 5 demonstrates all phases of the this study and how this study progressed during the time of this course, starting in February, 2016 and finishing in May, 2016/

2.4.1 Data collection and selection

The purpose of collecting empirical data was to help us to analyze the process of knowledge integration for this case. The empirical data that we used in this research was collected in, first by interviews based on the chosen case study that we analyze. As mentioned before, this case consists of a relocation of different back office to one shared service center to an arbitrage location. In further development of this the company engages in project of knowledge integration within the back offices in order to progress further to integrate knowledge amongst those offices. This set a project vision of full knowledge integration amongst the operational departments of the SSC.

In order to select the data that we need and in order to explain the data selection approach, it is necessary to make a distinction between the primary data and secondary data. According to Greener (2008) it is difficult to identify the data that is necessary to conduct a qualitative research. This is because most of the study is focused on new concepts. Greener (2008) explains that primary data is all the data that researchers collect by themselves such as questionnaires, interviews and tests. Secondary data refers to all data, which has not been collected directly from the source of it but rather through the second or third party: "*Secondary data is data, which the researcher did not collect for themselves directly from respondents or subjects. Is means that secondary data was not collected with the researcher's purpose and objectives in mind*" Greener (2008 p. 79). In this study we used only primary data such as interviews and onsite observations. The secondary data has turned not to be relevant for our study. The reasons of our choice are multiple: first we had a unique access to data due to the position of one our researcher who was working inside the company. This situation has helped us to collect primary data. This helped to develop an understanding of the process of knowledge integration in the company's project.

The collection of empirical data has also consisted of a series of 9 semi-structured interviews of team managers for each back office team, which dealt with knowledge integration process and the project. Three interviews were taken in the company's in original location of back office "D" and the remaining six interviews took place in the location of SSC. In further stages of this research it was understood that out of 9 conducted interviews the study required 7. Hence 2 interviews were not used in this thesis. All in total we used interviews one head manager of the back office, two project managers and four team managers (Table 1). All the data collected through interviews was transcribed and compared using excel sheets. Due to the researched company wiling to stay anonymous all the names of the interviewees were depersonalized and coded abbreviating their position in the company. Finally the results were consolidated and placed in a table. Although the interviews appeared to be an effective way to collect empirical data, the onsite observations occurred parallel to that. The observed information was memorized and discussed by the researchers on the ongoing bases. This led to put the onsite observation material directly in the thesis document.

Table 1: Abbreviation of the different departments

DEPARTMENT	TITLE OF THE RESPONDENT	ABBREVIATION
SSC (Shared Services Centre)	Manager for projects and organisational development	**MPOD**
A (Back office)	Back office team manager	**MBOA**
B (Back office)	Back office team manager	**MBOB**
C (Back office)	Back office team manager	**MBOC**
D (Back office)	Back office team manager	**MBOD**
D (Back office)	Head manager of back office	**HMBOD**
D (Back office)	Project manager of back office	**PMBOD**

Table 1 lists the interviewees that took part in the research and departments in company that these interviewees represent. The table also shows the coding based on abbreviation of interviewees positions in the company, which was done in purpose to depersonalize them.

Moreover, in order to support our qualitative research, we used an online questionnaire. This questionnaire had the objective to support the finding and the empirical data collected during the interview. We chose an e-mail questionnaire in order to for the employee to be able to answering more easily, According to Bryman & Bell (2015), an embedded questionnaire is more easier for the respondent to return the answer to the researcher and require for the researcher less computer expertise in order to analyze the answers. Moreover, Bryman & Bell (2015) explained that the embedded questionnaire had a higher rate of response than the attached questionnaire.

74.29 per cent of all back office employees took part in the Onsite e-mail questionnaire. That was 52 employees out of 70 (Figure 4).

Figure 4 : Onsite questionnaire, 2016

Back office	Number of participants
A	16
B	21
C	3
D	12

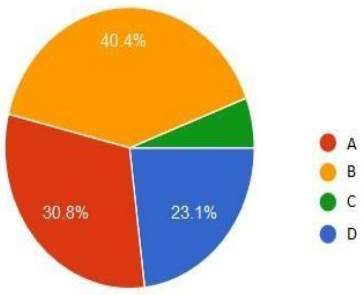


Figure 4 demonstrations the division amongst participants of the onsite questionnaire. Out of these 52 participants, 16 responses came from back office "A", making up for 30.8 per cent all questionnaire participants; 21 - from back office "B", making up for 40.4 per cent all questionnaire participants; 3 - from back office "C", making up for 5.8 per cent all questionnaire participants; and 12 - from back office "D", making up for 23.1 per cent all questionnaire participants.

2.4.2 Data analysis

This study followed the qualitative approach when it comes to collecting and analyzing the data. In order to make the collected empirical data possible to put together, the interviews that were carried out during that data collection had to be transcribed. According to Bryman & Bell (2015) transcribing an interview should help to illustrate the communication during the meeting, since the objective is to grasp the complete conversation in order to help the researcher to understand the content of the discussion. Bryman & Bell (2015) also add that while most of the transcripts illustrate the conversation, gestures and body language also play a role in communication. Nevertheless, the non-verbal annotation in the transcript is considered subjective and not relevant. In other words, our transcript and analysis will be based only on the verbal communication

Furthermore, the managers that we have interviewed each had their own perspectives on knowledge integration as well as on the challenges that the different back office teams faced during the process. In order to better understand the interview data we have created an excel file where we laced all the transcribed data. This in fact helped to analyze and compare the different responses from the taken interviews. This method has considerably simplified the task to identify at which point in project the knowledge integration process changed, what challenges the management identified then and how they managed to resolve those challenges. Moreover, the color coding method was also used to highlight manager's different responses on the same subjects. Coding can be defined as "Code… *serve as shorthand devices to label, separate, compile, and organize data*" Charmaz (1983:186 in Bryman and Bell 2015) this method also helped us to identify the reviewed theory in practice, which was discussed with the interviewees. For this purpose color coding was also used, but in different color schemes so as not to be mixed with analysis of the managers' viewpoints. Moreover, color coding allowed us to identify important keywords, such as: *cross training, exchanging tasks, exchanging knowledge,* and *learning*. These keywords were later used for compiling the empirical part of this thesis.

2.4. Research quality

It is also important that our chosen research method for this master thesis had taken into consideration the researched quality. More precisely this is referred reliability and validity. Kirk and Miller (1986) explain that good research has to be objective. In others words the researcher has to equally consider the study to be reliable and valid, in terms of the data that has been used data for the study. The concepts of reliability and validity have been defined

by Bryman & Bell (2011). Further it is explained how and why this study is reliable and valid.

2.4.1 Reliability

According to Bryman and Bell (2011) any research study needs to be reliable through its empirical data collection. However, any data is reliable to the interpretation of the researcher if the finding and the analysis are reliable and consistent. Yin (2009) suggested that the way to establish the reliability of the data is to define and describe the replication of the action until it become clear and strengthens the reliability of the study. However, there is a second method to validate the reliability of the finding, which is internal reliability. According to Bryman and Bell (2011) internal reliability means that the researchers are in agreement on what they hear and what they find. Therefore the finding is then reliable.

The data that we find during the course of this master thesis is reliable for several reasons. First, the data collection methods that we used explain and describe the transcriptions of the interviews. The several interviews that were conducted so as to collect the empirical data for this study were semi-structured. Thus even each interview did not strictly require structured answers (this is to say that interviewees were allowed to freely elaborate on their ideas during the interview) the method and the process of the interviews are possible replicate. This way it is possible to enhance the reliability of the interviews and ensure that the data used in this thesis is reliable. However, as it was mentioned by Yin (2009) the reliability concerns the research but not the result. Therefore, second reason why the data is reliable comes from the explanation on how it was collected. When collecting the data we organized several interviews with the manager of the different back offices. The third reason is that one of our researchers was based inside of the company and simultaneously took part in the project. Thus as we explained before, having one researcher inside the company and the other one outside of it was rather helpful in conducting a more complete empirical observation. This observation combines both internal and external points of view for this study. This internal reliability according to Bryman and Bell (2011) permits us to secure the reliability of the data collection as well as its objectivity. This objectivity and this reliability is supported by Bryman and Bell (2007) who argue that "true replication" of each case is unique and the data that is collected and analyzed remains also unique in that specific perspective.

2.4.2 Validity

According to Bryman and Bell (2011) the validly refers to the truthfulness of the finding. Bryman and Bell (2011) identify two different types of validly, internal and external validity. Internal validity is described as the degree of the credibility of finding and is explained as: "*Observing, identifying or measuring what you say you are*" Bryman and Bell (2011 p 395). However, in order to validate the finding it is necessary to use the concept of theory to confirm the truthfulness of the finding. The internal validity is usually perceived as the strength of qualitative research because most of the researchers observe the social meaning over a long period. "*LeCompte and Goetz argue that internal validly tends to be a*

strength of the qualitative research, because the prolonged participation in the social life of the group over a long period of time." Bryman and Bell (2011 p 395 LeCompte and Goetz 1982). In our case, we choose to use internal validity to confirm the truthfulness of our finding. The utilization of internal validity is due to the unique perspective of the actual case and due having one researched inside of the company we were granted the full access to all needed internal data. This position helps us to confirm the internal validity of our findings.

External validity is described by Bryman & Bell (2011) as the possibility to generalize the result in the specific research context. Bryman and Bell (2011) argue that according to the authors' LeCompte and Goetz (1992) external validity can be a problem for qualitative studies because of their tendency to use a small sample. However, in our case we also consider us had used the outside perspective of understanding of company's project and knowledge integration process, since the other researched was based outside of the company. This has given the study an external point of observation. This position proves the external validity of the findings.

2.5 Limitations

This master's thesis is considered to have some certain limitations. First of all, it is important to mention that this study has researched only one project in a single company. Therefore the empirical findings of this study are based particularly on this project. This means that in order to build stronger implications on existing theory of knowledge integration process it is important to research more similar kind of projects. Nevertheless the findings of this study suggest the possibility of a particular understanding for how knowledge integration process changes during the evolution of project. The second important point to mentions is that during this study we have reviewed ideas of a selected amount of scholars, which matched our developed ideas in relation to our research setting. This forms a particular view on knowledge integration. It is also understood that knowledge integration phenomena has been researched by many academics therefore there is always a possibility that there is more theory to review and compare in relation to our chosen subject. The third point that is important to keep in considerations is that a considerable amount of empirical data not only comes from interviews and onsite questionnaires but also from the onsite observation. The observations were made mostly by one of the authors of this thesis through informal communication and interaction with project employees and engagement in project daily routines as well as from non-intrusively observing the working environment. To some extent the observation can be bias to one person's interpretations, however through having another author offsite the company the daily discussions and analysis between the authors have helped to be build objective view on the empirical situation.

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3. Theoretical Framework

In this following chapter the theoretical framework is build. Here, we develop the theoretical definition and explanation that we need in order to answer to our research question. Three main streams of literature are reviewed in order to understand the how change the knowledge integration process. First, we explore what is the knowledge integration and what is the process of knowledge integration. Second, we examine what mechanism can be use in order to integrate the knowledge on a process of knowledge integration. Third we examine what challenges of knowledge can be faced during the process. Finally, a conceptual framework is proposed in order to explain our research question

3.1 Knowledge integration

Knowledge integration as a phenomenon is mentioned by scholars such as Smith in (1776) and later by Hayek in 1945. Smith (1776) was one of the first to recognize the importance of knowledge for the specialization of labor and to see the benefits for the economy. Moreover, later Hayek (1945) speaks for the importance of coordination between the integration of knowledge and specialization in economic terms. At the present time it is broadly agreed that knowledge is of considerable importance for any organization. For instance, Grant (1996a), Nonaka (1994), Berggren et al. (2001) and Carlile & Rebentisch (2003) claim that knowledge integration can explain the differences in performance between and within companies. Generally speaking, there are several ideas about what knowledge integration is and how it is executed in a company. Nonetheless, it is important to clarify to what extent the definitions of knowledge integration relate to process. For instance, Okhuysen & Eisenhardt (2002) claim the process of knowledge integration to be more specific. This is due the actions, which are taken in order to create common knowledge in a team. For this reason, there is a need to, firstly, develop an understanding of the building knowledge itself and, secondly, to further look into different definitions of knowledge integration. Thereafter, those relevant to this study can be selected

3.1.1 Understanding knowledge

According to Grant (1996a) knowledge has already been defined many times. However, in order to choose the course for this study it is necessary to explain the definition of knowledge and build an understanding of it from a chosen perspective. Grant (1996a) and Okhuysen & Eisenhardt (2002) agree on the idea that knowledge is the most important organizational strategic resource for any company, whereas, Simon (1973) sees knowledge as an organizational asset brought by the use of information, rules and procedures, aimed at increasing an organization's efficiency. Both views imply that knowledge has a fundamental strategic importance Okhuysen & Eisenhardt (2002), claim it to be the Centre of attention for organization management. Moreover, Simon (1973) also explains that the companies have to develop processes and structures in order to increase the capability of the

organization to share information through a process. Hence the organization's capability to share information can be understood as organizational knowledge. More specifically, this is reflected by Nonaka (1994), who see knowledge as a flow of information: "[...] Information is a flow of messages, while knowledge is created and organized by the very flow of information [...]" (Nonaka, 1994, p.15). Since knowledge is understood as a flow of information (Nonaka, 1994), which is built on the process of developing the capability to share that information (Simon, 1973), it is interesting to take a step further and see from what conceptual perspective knowledge can be viewed in an organization.

Polanyi (1966) claims that there are two different views on the concept of knowledge: "explicit knowledge" and "tacit knowledge". According to Polanyi (1966), tacit knowledge can be defined as knowledge that an individual can obtain and use through his/her experience, which refers to the process of gaining that experience. On the other hand explicit knowledge, according to Haddad and Bozdogan (2009), is knowledge that is written down in books and repositories, and that thus can be seen as more of a static phenomenon. A more simple explanation is given by Lubit (2001), who claims that *"tacit knowledge is 'knowing how' while explicit knowledge is 'knowing what.'"* (Lubit, 2001, p: 164). However, even though there is a concordance of the researchers when it comes to the distinction between tacit and explicit knowledge, there is a contrast in their interpretation between tacit and explicit knowledge. Several authors, such as Nonaka (1994) and Spender (1994) argue that tacit and explicit knowledge are totally different. On the other hand, authors such as Polanyi (1966) and Kogut & Zander (1992) explain that it is hard to find an absolute between explicit and tacit knowledge. Hence, according to Grant (1996a), when he speaks about the knowledge integration perspective, knowledge is as central as information, skills, technology and the "how knowing". Furthermore, Haddad & Bozdogan (2009) explain that knowledge is a combination between explicit knowledge and tacit knowledge. According to him there are not several kinds of knowledge but only one: "The hierarchy in the composition of knowledge is based on subjective context, with personal knowledge (or tacit knowledge) being the most contextual and specialized, while impersonal knowledge (or explicit knowledge) is generic and more abstract." (Haddad and Bozdogan 2009 p: 6). Since, knowledge can be understood conceptually either as tacit or explicit (Grant 1996b and Haddad & Bozdogan 2009), understanding it as an information flow built on organizations' processes (Simon, 1973), sets a processual point of departure for a discussion on knowledge integration.

3.1.2 Different views on knowledge integration

Before we look at knowledge integration as a process, it is important to acknowledge the fact that there are many different views on knowledge integration as an Organizational phenomenon. Doing that will help us to see a broader picture of knowledge integration in the research, prior to setting the final focus on the most relevant definition of it.

To start with it should be mentioned that knowledge integration is important for business production units, since as Haddad & Bozdogan (2009) convey, knowledge integration can be

seen as a catalyst for managing production projects delivered by multidisciplinary teams. They claim that it is important for an organization to continuously combine knowledge resources in order to remain innovative and competitive in their industry segment. Berggren et al. (2001) have also referred to knowledge integration as a combination of a specialized knowledge base in a goal-directed process, whose main goal is to reach considerable results in lifting the organization's competitiveness. Grant (1996a) argues that the specialization itself can increase efficiency for any company, as long as it is coordinated effectively between the specialists. On that note Grant (1996a) refers to knowledge integration as the capability to combine specialists who pursue different tasks and knowledge into a common understanding that serves for new product creation, better service delivery and greater process efficiency. This is further explained by Berggren et al. (2011) as three knowledge integration characteristics, known as "flexibility of the integration", "the scope of the integration" and "the efficiency of the integration".

A slightly different view on knowledge integration is proposed by Okhuysen & Eisenhardt (2002), who argue that knowledge integration is a process of transforming individual knowledge into the collective knowledge of the organization. Okhuysen & Eisenhardt (2002) also establish the distinction between knowledge integration and the process of knowledge integration. According to Okhuysen & Eisenhardt (2002), knowledge integration is first of all a process in which all the actions taken by the group members to share their know what and know how work to create a common knowledge. Once this process is accomplished, its final outcome is what we know as knowledge integration. Moreover, Huang & Newell (2003) see knowledge integration as a collective process, built on the shared beliefs and interactions an of organization's members, whereas, according to Mitchell (2006), knowledge integration is only a transferring of knowledge. This view can be backed by Willem et al. (2008) who consider knowledge integration to be a transfer of knowledge as well as the application of the common knowledge for all parts of an organization (business unit, team, subsidiary, etc.). Despite that, seeing knowledge integration only as a transfer is not as common in practice as viewing it as a process or a combination of knowledge, or even the source for innovation.

Enberg (2007) defines knowledge integration as a process, the goal of which is to link the different individual knowledge of specialists. Furthermore, Nesta & Saviotti (2006) believe that knowledge integration can be defined as an integration of different knowledge that come from different organizational structures, practices, strategies, that have the same goal in accumulating knowledge and articulating the diffusion of it. In addition to that, Tiwana (2008) defines knowledge integration as a process that can create alliance and partnership between different organizations in order to share information and knowledge. These types of alliances have as their goal to create new products and services. However, Carlie (2002), from his perspective, argues that knowledge can be the source of innovation, which can be used to solve any problem linked with product innovation in an organization, but only if the knowledge of the different specialists, both from inside and outside an organization, is integrated. Hence, according to Carlile (2002), knowledge integration is a bond of different specialist knowledge. Bonding different specialists' knowledge can also be understood as

combining different technologies, since, as Dibiaggio (2007) and Nasiryiar (2009) argue knowledge integration is the extension of the knowledge-based productivity, which comes from the combination of different technologies. Moreover, Bruosoni and Geuna (2003) argue that the integration of different types of research that can accept as knowledge is critical in order to conduct an innovation. In order to understand how the definition of knowledge integration evolved over the years, it is useful to put the definitions discussed into a table (Table 2).

Table 2: Definition of knowledge Integration

Scholars	Year	Definition of Knowledge Integration
Grant, R.M.,	1996	knowledge integration as capability of combining specialists, who pursue different tasks, knowledge into a common understanding that serves for new product creation, better service delivery, and greater process efficiency.
Carlile, P.R.	2002	knowledge integration is a bond of different specialist knowledge
Nesta,L and Saviotti, P-P	2006	knowledge integration can be defined by the integration of different knowledge that come from different organizational structure, practice, strategy with having the same goal in accumulating knowledge and articulate the diffusion of it.
Mitchell, V, L.	2006	knowledge integration is only a transfer of knowledge.
Dibiaggio, L.	2007	knowledge integration is the extension of the knowledge based productivity, which comes from combination of different technology.
Willen et al.	2008	knowledge integration is a transfer of knowledge as well as the application of the common knowledge for all the part of the organization
Haddad, M., & Bozdogan, K	2009	knowledge integration as a catalyser for managing production projects, delivered by multidisciplinary teams.
Nasiryiar, M.	2009	knowledge integration is the extension of the knowledge based productivity, which comes from combination of different technology.

The table 2 shows how different scholars interpret KI. By looking at the table 2 it is evident that there is no common view on the knowledge integration phenomenon. Starting from Grant (1996a), who sees knowledge integration as an organization's capability, ending with Nasiryiar (2009), who links knowledge integration with productivity and the combination of different technologies, it turns to be a rather difficult task to find the most suitable view of KI in regards to learning processes in cross-disciplinary teams. Examining the definitions containing the idea of KI as a process will provide more specific examples.

3.1.3. Knowledge integration - processual understanding

In the further search for a processual view on knowledge integration, there are few significant definitions that lead the understanding of KI through the conceptual prism of processes. As per (Table 3.) it is evident that knowledge integration can also be understood as a process. Moreover, the importance of KI is more specifically seen as being a goal-oriented process aimed at organizations' competitiveness (Table 3.). Nevertheless, differences in defining KI still exist. For instance, Berggren et al. (2011) see it as a goal-directed process. On the other hand, Okhuysen & Eisenhardt (2002) see KI as process of transforming individual knowledge into the collective one, whereas Enberg (2007) understands it as a process which links different individual knowledge. Likewise Tiwana

(2008) sees it as a process of creating alliances between different organizations. Last, Huang & Newell (2003) argue that it is a process, which comes from shared beliefs and interactions. (Table 3) Hence, each definition can be adapted to this study in a different way.

Table 3: Definition of knowledge integration as a Process

Scholars	Years	Explanation
Okhuysen, G., & Eisenhardt, K.	2002	Knowledge integration is a process of transforming individual knowledge into the collective knowledge of the organization
Huang, J. and Newell, S.	2003	Knowledge integration is collective process, built on shared beliefs and interactions of organisation's members.
Enberg, C.	2007	Knowledge integration is a process, the goal of which is to link the different individual knowledge of specialists.
Tiwana, A.	2008	Knowledge integration is a process that can create alliance and partnership between different organizations in order to share information and knowledge.
Berggen,C., Bergek,A., Bengtsson,L., & Söderlund, J.	2011	Knowledge integration is a combination of specialized knowledge base in a goal-directed process, which main goal is to reach considerable results in lifting the organisation's competitiveness.

Table 3 demonstrates different definitions of knowledge integration as a process, which were discussed by the scholars, which were reviewed in this study. Among these plural definitions of knowledge integration as a process, the one provided by Okhuysen & Eisenhardt (2002) best suits the aim of the present thesis, as it centers on the process of transforming individual knowledge into collective knowledge. This idea of transformation allows us to view knowledge integration as a processual phenomenon. Hence, process of knowledge integration itself can be interpreted as a process of exchanging knowledge between professionals. Likewise, Schmickl & Kieser (2008) claim that in order to create an innovation the different specialists have to learn from each other, hence new products can be created. This leads to the concept of cross learning as an approach to knowledge integration, which according to Schmickl & Kieser (2008) implies that every specialist has to obtain the knowledge of the other in order to understand and exploit this knowledge. On this note it is possible to look a little more specifically into how the knowledge is integrated and what constitutes the process of knowledge integration.

3.2. The process of knowledge integration.

According to Berggren et al. (2011) the knowledge integration process consists of combined and integrated knowledge bases, which are complementary and, thus, need to contain internal knowledge creation and external knowledge absorption. As a matter of fact the process of knowledge integration is triggered by an organization's capacity to generate KI capabilities, which are classed as attributes, enabling the organizations to perform. In words of Berggren et al. (2011, p 9) these attributes *"...include experience, skills and knowledge, which may evolve over long periods of time..."* Majchrzak et al. (2012), on the other hand, identify five performance practices, which suggest extensions to the existing literature on knowledge integration and at the same time help to successfully conduct a knowledge

integration process. These practices are: "*voicing fragment, co-creating the scaffold, dialoguing around the scaffold, moving the scaffold aside and sustaining engagement*." (Majchrzak et al., 2012 p: 958). An explanation of each practice is stated in Table 4.

Table 4: KI Process Practices

Practices	Explanation
Voice fragment	" the practice of voicing fragments focused the team on assembling a common landscape of individual statements and parts of solutions ..."
Co-creating the Scaffold	"this practice consist to create a "fluid" of all the common experience of the member of the project"
Dialoguing Around the Scaffold	"interaction between the member even there is some tensionin order to simulate a creative solution"
Moving the Scaffold Aside	"interaction and integration of the external stakeholder requirements"
Sustaining Engagement	"trough relatedly, summarizing the sharing of the unexpected, and the use of the collective enthusiam"

(Majchrzak et al (2012) p. 963)

Moreover the five KI practices discussed by Majchrzak et al. (2012) not only constitute the process of knowledge integration but also simplify it and help mitigate KI challenges:

> "*The practices more specifically depict how knowledge integration challenges are overcome over time as a team goes from individuals representing specialist knowledge areas to the creation of a collectively integrative solution. The practices describe how sensemaking evolves, how the actions of previously unknown others become anticipated, how members create a psychologically safe environment to engage in iterative and rapid reflection, how creative breakthroughs occur without creative tensions between individuals, and how knowledge transformation occurs between different languages and perspectives without deep-knowledge dialogue"*
>
> (Majchrzak et. al., 2012 p. 963)

Faraj & Xiao (2006) likewise stress the importance deadline of the in the KI process, through using a practice based coordination approach, which supports managing knowledge at the level of individual expertise and actions and then following up with articulations of work structures and modes. Hence, there are two types of coordination practices: an "expertise coordination" practice and a "dialogic coordination practice". Both types of coordination practices support the process of knowledge integration. The first one "refers to processes that manage knowledge and skill interdependencies" (Faraj & Xiao, 2006 in Wahlstedt, 2014 p. 40) and the second one comes from specific situations that arise as a result of failure to coordinate knowledge. Thus it requires fast problem- solving and action

(Wahlstedt, 2014). Faraj & Xiao (2006 in Wahlstedt, 2014) also explain that expertise coordination practices help team members to maintain the right attitude for knowledge integration, and in order for this practice to be effective the organization should be able to create "*Reliance on Protocols*", "*plug- and play teaming* ", "*communities of practices*" and "*knowledge externalization*". On the other hand dialogic coordination practices, such as "*epistemic contestation*", "*cross boundary intervention*", "*joint sense making*" and finally "*protocol breaking*", work towards finding a quick solution to a problem, where the change in orientation is present (Wahlstedt, 2014).

Grant (1996a, in Ravasi & Verona, 2000) is mentioned to outline the three factors characterizing the knowledge integration process. These are *efficiency of integration*, *scope* and *flexibility*. According to Ravasi & Verona (2000) the efficiency of knowledge integration refers to the depth of individual specialist knowledge, which can be connected by the organization, whereas the scope of integration shows the variety and breadth that can be embraced by the organization. Ravasi & Verona (2000) also claim that due to the existence of extremely competitive environments, the process of knowledge integration should be open to periodic re-configuration of the integration patterns. Hence this regulates the need of flexibility. Söderlund (2010) also refers to the importance of integrating individually held knowledge, which leads to the creation of new knowledge through the process of applying multiple perspectives to the same information. Söderlund (2010) stresses the importance of *time conditions* and *sense of urgency* in the adoption of personal and communication-intensive forms of knowledge integration. Since time is heterogeneous, due to organizational differentiation (Söderlund, 2010), it depends on when knowledge has been acquired and shared, and thus Söderlund (2010) stresses the importance of *conventional activity synchronisation*, which plays a subject matter role in knowledge entrainment. According to Söderlund (2010) knowledge entrainment is a constitutive part in managing projects involving large-scale transformations and has causal relationship to knowledge integration.

In spite of its causality, based on the relation to other forms of knowledge management, such as knowledge entrainment, the process of knowledge integration is rather dynamic. In their discussion of the model of dynamic knowledge integration, Enberg et al. (2006) argue that knowledge can be integrated differently depending on whether the members of the team work individually or collectively. Thus, if a team works together, knowledge can be integrated explicitly, or it can be integrated tacitly if a team member works alone. This also depends on individual preferences concerning the level of formal interventions. Nonetheless, Enberg et al. (2006) also argues that there are situations where people need to communicate face-to-face in order to solve complex problems. This communication can lead to both an explicit and a tacit integration of knowledge.

Hence, the knowledge integration process can either be structured and highly dependent on practice-based coordination (Faraj & Xiao, 2006), or it can be causal depending on other factors of project management such as knowledge entrainment (Söderlund, 2010), or efficiency, scope and flexibility (Ravasi & Verona, 2000). It can also be dynamic as per Enberg et al. (2006) and triggered by the organizational ability to generate knowledge

integration capabilities (Berggren et. al., 2011). Due to a variety of contextual interpretations, the knowledge integration process cannot be applied or viewed indifferently and thus it may consist of a number of unrelated or interrelated elements, such as: performance practices (Majchrzak et. al., 2012), practice based coordination (Faraj & Xiao, 2006) and factor based conditions (Ravasi & Verona, 2000) characterizing its phenomena (Table 5).

Table 5: Summary of knowledge integration as a process

Elements of Knowledge Integration	
KI Practices	
• voicing fragment, • co-creating the scaffold, • dialoguing around the scaffold, • moving the scaffold aside, • sustaining engagement	Majchrzak et al (2012)
Practice based coordinations	
• **expertise coordination practice:** *Reliance on Protocols, plug- and play teaming, communities of practices, knowledge externalization* • **Dialogic coordination practice** *epistemic contestation, joint sensemaking, protocol breaking, cross boundary intervention*	Faraj & Xiao (2006) Wahlsted (2014)
Factor-based conditions	
• efficiency of integration • scope • flexibility	Ravasi & Verona (2000)
• timing • conventional activity synchronisation	Söderlund (2010)

Table 5 summarises performance practices of knowledge integration, practice-based coordination and factor-based conditions into one single entity, which further in this study is understood as the actors that constitute the knowledge integration process.

3.3. Approaches to the knowledge integration processes

Knowledge can be integrated through the implementation of a cross-learning approach (Schmickl & Kieser 2008). According to Becker & Zirpoli (2003), the cross-learning approach can be used in practice for coordinating the specific knowledge of different specialists. This is aimed towards relationship management implementation with new product creation and development. Thus, combined these views indicate that knowledge integration is a cross-sharing process between different specialists and management. It is interesting to note that processual knowledge integration in terms of transforming individual knowledge into collective knowledge as described by Okhuysen & Eisenhardt (2002) is the same as the process, which involves exchanging knowledge between individuals described by Schmickl & Kieser (2008). Hence integrating knowledge based on cross-learning

activities can create a common collective knowledge. Nonaka (1994) argues that in the cross-learning approach knowledge can be integrated through the use of socialization phenomena between different members of the team. More precisely this phenomenon occurs when the individual knowledge is shared between team members in a harmonized and rather casual way in which it can be articulated more easily. However, Nonaka (1994) also points out that this phenomenon is only possible if there are communication channels that allow for interaction between different specialists. To facilitate those channels the organizations can use what Räisänen & Linde (2004) call project tools such as time charts and project models or mechanisms, including deadlines, milestones and tollgates etc. These tools according to Räisänen & Linde (2004) help group members to become more reactive and productive in their workplace, which in fact should build better grounds for exchanging knowledge. With project tools in mind, it is possible to draw attention to a corporate, in other words combination approach to knowledge integration.

Schmickl & Kieser (2008) align a combination approach to knowledge integration with the use of mechanisms, such as transactive memory systems, modularization and prototyping. The use of these mechanisms in the process of integrating knowledge in a combinative way can reduce knowledge transfers which pose prolonged timing issues in organizations' work processes (Schmickl & Kieser, 2008). On the other hand, Davenport, Jarvenpaa & Beers (1995) argue that improving knowledge work processes can well be a component project, in which organizations can segment such processes into subcomponents so as to reduce the time needed for knowledge integration. These subcomponents can be: information distribution, decision approval, and assignation of roles. This brings us to the consideration of the corporate views on management and their effect on the efficiency of the knowledge integration. Thus, combination or rather a corporate approach to knowledge integration (Davenport, Jarvenpaa & Beers, 1995) can be driven by strategy or business mission. Therefore it can also be viewed through the lens of knowledge segmentation in the form of documentation and record keeping (Davenport, Jarvenpaa & Beers, 1995). Moreover, this means that the process of Knowledge integration has to be taken into consideration as an influence on the organization's strategic goals. According to Okhuysen & Eisenhardt (2002) the participation of the team members with specialized knowledge in that process is crucial and can be supported with the use of formal interventions along with the use of reports and documentations of teamwork. Hence, problems that might have been difficult to identify can be avoided or solved beforehand.

Okhuysen & Eisenhardt (2002) have analyzed how the knowledge integration process serves to achieve a better-integrated organizational knowledge through the creation of formal intervention, concluding that formal interventions permit the members of a team to create outcomes for the knowledge integration process within a functional group. There are three different formal interventions: managing time, questioning the others, and sharing information. The use of these formal intervention tools helps to create more dynamism in a team, which has a positive impact on the knowledge integration process and, the in words of Okhuyen and Eisenhardt (2002), *"these formal interventions that focus on the improvement of the group process are the potential way to achieve superior KI".* Thus, a formal

intervention helps structure a team in order to develop the communication between its members, and encourages them to follow the guidelines and the information. (Okhuyen & Eisenhardt, 2002)

3.4. Knowledge integration mechanisms

Knowledge can be integrated through a set of activities. However, only the activities are not enough in order to successfully conduct the knowledge integration - using mechanisms is essential.

According to Grant (1996b) in order to conduct an integration of knowledge it is necessary to have coordination between the agents of the organization. The knowledge is a resource according Grant (1996b) and this resource has a positive impact on efficiency. However in order to develop the knowledge it is necessary to create rule and standard in order to share it, "knowledge in their procedure, norms, rules, and form can create a common knowledge" They accumulate such knowledge over time learning from their members". Grant (1996b) explains that any organization has to create standard such as routines and directive. Moreover, Grant (1996b) describes the four mechanisms that are necessary to use in order to integrate the knowledge successfully: first "the rules and directives", second the "sequencing", third "organizing routines" and finally the "group problem-solving and decision making".

The three mechanisms are related to the impersonal communication "impersonal communication and learning", according to Wahlstedt (2014 p 37), moreover Grant (1996b) explains that these three mechanisms have to be codified by the structure such as rules, standard and routine in order to help members of the organization to share their knowledge to an explicit knowledge. The fourth mechanism identify by Grant (1996b) is more related to the tacit knowledge and especially to the personal interaction between the members. Grant (1996b) explains that the interaction through the communication between the members facilitate the making of decision in order to solve any problem.

Furthermore, Grant (1996b) describes the first 3 mechanisms such as solution to integrate the knowledge without an expensive cost for the organization because the interactions between the members are restraining, while the fourth mechanism defined by Grant (1996b) involves a strong interaction between the members. Moreover according to Grant (1996b) it requires a huge and complex interaction between the members through personal communication, which can be expensive for the organization. However the first three mechanisms reduce the interdependency and limit the complexity, while the last mechanism is more efficient in order to solve any problems that the organization finds.

However, Okhuysen & Eisenhardt (2002) identify three mechanisms of knowledge integration in order to facilitate and improve the efficiency of any organization. In by their study of integration of knowledge in the group, Okhuysen & Eisenhardt (2002) use a experimental design and find that integration of the knowledge is efficient when it is conducted by formal intervention such as "managing time", "questioning others" and finally

"information sharing". Okhuysen & Eisenhardt (2002) explain that theses mechanisms are impacted by the implication of the members of the organization but also to their specialization of their knowledge base.

According to Okhuysen & Eisenhardt (2002) when any organization uses these three mechanisms, members are subject to a time pressure and have to be able to manage this pressure in order to find solutions and integrate the knowledge and create a common language. Okhuysen & Eisenhardt (2002) explain that in any organization that uses these mechanisms, team members have to be aware of the particularity of the time and combine their own work with the integration of the knowledge in order to conduct the integration of knowledge. Okhuysen & Eisenhardt (2002) that is essential to improve more the efficiency of their work is in progress. Moreover, the formal intervention conducts to an interaction between members through more communication. According to Okhuysen & Eisenhardt (2002) the team members who communicate have tendency to share their knowledge that have in consequence to create, transform the unique knowledge to a common knowledge. Okhuysen & Eisenhardt (2002) explain that situation permit for all team members to share a same knowledge, thus it is easier for a organization afterward to find any solutions in order to solve any problem and to increase the efficiency of the company.

Furthermore, Okhuysen & Eisenhardt (2002) explain that the formal intervention help to the team members to remember their tasks and specially that they have to integrate the knowledge in order to be efficient for their own work, Theses intervention have to be interactive imply the members to their task, I can be done with (specific content, new speaker, etc.…). Okhuysen & Eisenhardt (2002) argue that team members of the organization create a "second agenda" which is the first effect of the formal intervention for the knowledge integration efficiency. "Formal sharing" according to Okhuysen & Eisenhardt (2002) can be defined by the intervention to encourage communicating and sharing their expertise in order to create a common knowledge. Okhuysen & Eisenhardt (2002) explain that the formal intervention create the condition for organization to control and follow the integration of the knowledge by their employees.

Moreover, Söderlund (2010) have made a research about the time management and the importance of it for the knowledge integration. Söderlund (2010) argue that the creation of the deadline and the work under of pressure help the organization to increase their efficiency to develop a common knowledge for the organization.

> "*The awareness of a deadline also normally leads to the identification of interdependencies and interfaces, which before the implementation of the macro pacer were left unnoticed. The evidence that people actually change behavior when having to work under the pressure of a deadline is evidenced in studies of 'time conditions' and their effects on knowledge integration (Okhuysen and Eisenhardt, 2002) and studies of groups in the sense that "having tight time limits . . . seems to induce groups to concentrate more on*

task-oriented behavior and to spend less time engaged in task 'irrelevant' interactions" *(McGrath and Rotchford, 1983, p. 33).*"

(Söderlund, 2010 p 137)

Explain with this sentence the importance of the deadline and the time for the management in order to conduct the integration of the knowledge and specially to increase the efficiency of the work for team members. Söderlund (2010) and Lindkvist et al (1998) describes the model of fountain with specify of the Milestones and the importance of the time management. Söderlund (2010) and Lindkvist et al (1998) argues that the importance of the time is essential for an organization in order to create a sense of urgency for their employee. The employees have to considerate the time, according to Söderlund (2010) the situation of pressure encourages their creativity and their capacity to integrate the knowledge. Söderlund (2010) and Lindkvist et al (1998) explains that this situation the team member has to communicate and related their action in order to be able to improve the efficiency of their own action.

The communication without coordination is not efficient; Faraj & Sproull (2000 - 1554-1568) have studied the process dynamic into the expertise of coordination in the software development. Faraj & Sproull (2000) argue that the right expertise in order to conduct a project is not sufficient in order to achieve the project. "*Team performance is not just a function of having "right" expertise on the team*", Faraj & Sproull (2000 p1555). Faraj & Sproull (2000) argue that expertise and specialist have to be conduct and coordinate in order to be efficient. Faraj & Sproull (2000) define several mechanism to coordinate the expertise such as "knowing expertise location" that can be explain by the identification of the knowledge that the organization need to achieve this project.

However, Faraj & Sproull (2000), explain with "Knowing Expertise location" that in order to find the knowledge that the company need, it is necessary that all team members have already a common language in order to be able to find the knowledge. Faraj & Sproull (2000) explain with "recognizing the Need for Expertise" that team members have to have a common language in order to understand that they need an expertise. Moreover, Faraj & Sproull (2000), explain with "Bringing Expertise to Bear" that team members through their interaction through a communication between specialists can understand the different knowledge and that they have access to this relevant knowledge for their own work. In addition, Faraj & Sproull (2000), explain that all these mechanism can be supported by routine, milestones and meeting.

A cooperation and communication are essential to integrate the knowledge the relation between the employees with integrated the knowledge have to be optimum. In order to do that Tiwana & McLean (2005) identify two mechanisms to help any organization to integrate the knowledge. Tiwana & McLean (2005) in order to help the integration of

expertise in the project, in the organization explain that the "relational capital" is necessary in order to create a trust between the team members:

> "*Relational capital is defined as the level of trust, reciprocity, and closeness of working relationships among the members of a team [35]. Integrating a given team member's expertise into the team's development activities requires that others in the team both trust his or her expertise and be able to incorporate it with relative ease. Relational capital facilitates this"*
>
> Tiwana & McLean (2005 p 21)

Moreover, in order to evaluate the integration of the knowledge the "absorptive capacity" has to be created by an organization, Tiwana & McLean (2005, p22) define the "absorptive capacity" as: "*[...] the ability of the members of a team to interrelate with the expertise of their peer team members*"

Moreover, Tiwana & McLean (2005, p33) with a "accessibility of other individuals' expertise within a team is an important predictor of its application to the project, especially when a detailed breakdown of each member's contributions cannot be fully anticipated in advance" explain that the importance of the relational capital for the relationship between the specialist specially when there is a project with need to integrate the knowledge. Furthermore, the absorptive capacity according to Tiwana & McLean (2005) is related to the level sufficient of knowledge that has in common the team in order to integrate and be able to use the knowledge. However Tiwana & McLean (2005) explain those managers have to be aware of the strength or weakness of their team to be able to spread the different task. Tiwana & McLean (2005) explain if the absorptive capability can be evaluated the knowledge integration process could be increasing the efficiency of the company.

Table 6: Summary of Knowledge Integration Mechanisms

Scholars	Years	Knowledge Integration Mechanisms
Grant, R. M.	1996	• Organsiatising Routines, procedure, rules, norms • Sequencing • Group Problem-Solving and Decision Making
Okhuysen, G., & Eisenhardt , K	2002	• Managing Time • Questioning Others • Information Sharing
Soderlund, J.	2010	• Time Management • Deadline
Lindkvist L., Soderlund J., Tell F.	1998	• Milestones • Time Management
Faraj, S. & Sproul], L.	2000	• Knowing Expertise Location, • Recognizing the Need for Expertise • Bringing Expertise to Bear • Mechanisms can support by different mechanisms such as routine, milestones and meeting.
Tiwana, A., & McLean, E.	2005	• Relational Capital • Absorptive Capacity

Table 6 demonstrates knowledge integration mechanisms discussed by the authors, which were reviewed in this study.

3.5 Knowledge Integration Challenges

The McKinsey, (2008) study analyzes the impact of the knowledge integration for the outsourcing industry. It is result that the main challenge is to relate the knowledge capability of the firm with the requirement knowledge integration that the companies need in order to do the outsourcing.

In order to understand clearly the challenges that meet any companies, it is interesting to understand the organizational mechanism and inter-organizational learning and collaboration (e.g. Myers and Cheung, 2008) and more precisely the capability of them Berggren et al. (2011), describe several main challenges for outsourcing companies. According to Berggren et al. (2011) the main challenges that have to be face the companies would be the time constraint and the requirement of the knowledge integration and the process of the work. This challenge according to them is related to the cost of the operation and the profit of the operation

In order to understand clearly the main challenges of the Knowledge integration, we have to define the integration capability. According to Prencipe (2000) the main difference for the knowledge-based view is the highlight between the organizational border and the knowledge border. This interpretation is essential in order to build a process and collaboration for all the organization, Grant (1996) explain that in order to be efficient the knowledge integration in order to be innovate the company have to combining specialization of the task and process

to apply the knowledge and to be efficient.. According to different scholars such as Okhuysen & Eisenhardt (2002), Magnuson & Lakemond (2011), Wahlstedt (2014) knowledge integration is complex and difficult and can challenging for any organization.

The first main challenge according to Okhuysen & Eisenhardt (2002) is the challenge of the lack time to learn which lead to the difficulty to learn fast and to be efficient. Time learning is the one the most important challenges according to Okhuysen & Eisenhardt (2002), the author argued that in order to integrate the knowledge effectively, the organization have to learn their task and be effective but also that organization have to take in consideration the time to learn and to communicate in order to integrate the individual knowledge. Moreover according to Okhuysen & Eisenhardt (2002) when interdisciplinary teams have to integrate the knowledge and when they don't have any constraint of time, team members have a tendency to learn only the basic tasks in order to achieve their own work.

However, Okhuysen & Eisenhardt (2002) also explain that in order to be efficient, the teams have to create a common language and a common knowledge to understand more deeply their own work. Furthermore, Okhuysen & Eisenhardt (2002) explain that in most of the case teams don't take in consideration the knowledge integration when they work. In order to fight against this situation the challenge of the Time constraint, described by Okhuysen & Eisenhardt (2002) forced team members to take in consideration. Moreover, Okhuysen & Eisenhardt (2002) explain that the Formal and informal meeting between the member with a constraint of time forced the employees to take in consideration the integration of the knowledge.

However, Magnusson & Lakemond (2011) argue that the time limit is an element essential of the integration of the knowledge. Moreover, Magnusson & Lakemond (2011) describe the relationship between the time constraint and the management. Magnusson & Lakemond (2011) explain how the dynamic of the management have to be taking in consideration through the organization in order to create a good alchemy inside the team. The time limit according to Magnuson & Lakemond (2011) is one the main challenges that have to be faced by any team. Enberg (2007) describe the impact of the time constraint and the relationship between the management and the efficiency of the integration of the knowledge in order to create a new product. Moreover, Larson (2007) identifies the challenges of Time with, time constraint and the learning time.

> *"One way the deep diversity can be benedict group performance on a complex task is by increasing the range of task relevant resource the group collectivity holds. When different members possess different type of knowledge, skill and abilities germane to performing the task, the group as a whole has more to work with- and so greater potential to perform well-Than when every member possess essentially the same knowledge, skills, and abilities. However, to capitalize on this potential*

> *it is important that members not only apply their various resources to the task but also that they do so at the appropriate time and in the proper sequence"*
>
> Larson (2007 p 414)

Larson (2007) explain in this paragraph that a team should have the time to appropriate the knowledge especially when then the task and the business unit is complex. Besides Larson (2007) explain that in order to conduct any project of knowledge integration the time more precisely time to learn are two of the mains difficulty that are to be face any organization, however today the time constraint is a reality for any business e.g. :(outsourcing Mckinsey 2008). Furthermore, Enberg (2007) explain that the time can be a challenge for any team with have a goal to integrate knowledge in interdisciplinary team. Moreover Wahlstedt (2014) explain that knowledge integration in interdisciplinary team is hard when is rely to the time constraint.

The second challenges identify is the complexity of the tasks, according to Berggren et al. (2011) knowledge integration is complex and hard to achieve, this situation can be explain by the difficulty to understand and relies to the tasks ask by the company. Hence, Berggren et al. (2011) argues that the different challenges are related the position of the company and how this company creates a process with the use of different tools in order to conduct the integration of the knowledge. The distance and the language are also identified as two challenges that have to be considerate by any organization according Berggren et al. (2011). Moreover, Berggren et al. (2011) explain more the location of the business unit is far to the customer, suppliers more their culture, their language and all different features of the country have to be considerate in order to achieve the project.

McKinsey, (2008) argue that the main challenges is the ability for the company to share knowledge efficiently in the different location. However, According to Wahlstedt (2014) one of the challenges of the knowledge integration is the interpretation of the knowledge and especially in the interdisciplinary team when every member has a different background. Wahlstedt (2014) explain that the integration of the knowledge in interdisciplinary team can be difficult because of the difference of background and education "*Integrating disparate knowledge, idea and perspective and, at the same time, moving forward a time-efficient manner, can be a challenging task "Wahlstedt*, (2014 p. 63).

However, Hislop (2003), argue that this issue can be solve with integration of the tools and the education of the members of the team in order to help the member of the team to be efficient. Moreover Hislop (2003) explains that the integration of the tools is essential in order to help team to integrate the knowledge In addition, the challenges of the knowledge integration that can meet any organization, Majchrzak et al. (2012 p. 966) explain the term *cross-functional* refer to at the heterogeneity of perspective that bring each member with have different background. Majchrak et al. (2012) argue this is due to the differentiation of

the knowledge between the members. Rico et al. (2008) explain that one on the main challenge in order to achieve the integration of the knowledge is the selection task for each member according to their background (culture, education, skill, experience, languages). Moreover, in interdisciplinary team each member come from different teams *"not only know different things, but also know things differently "Dougherty* (1992 p, 187). However, in knowledge integration project the member of the team have to conduct their own works and the integration of the knowledge, in order to do that they have to listen and communicate between them even this interpretation of the knowledge are not the same, according to Stasser et al (1995) it is fundamental that the participant of the project recognize and accept the knowledge and the specialty of them domain. Moreover, Stasser et al (1995) explain that is essential that the entire members accept the individual knowledge of the entire members in order to create a trust and be able to integrate faster and easier the knowledge.

Another challenge according to Mohannak (2014) is the selection and the identification of the knowledge that have to be integrated. Mohannak (2014) identify different activities that help the company to identify and make the selection of the knowledge that have to be integrated such as mapping of the different gap and also establishment of a brainstorming**.** However such as explain Stasser et al (1995) it is essential for the organization that the team members trust each other in order to create a cooperation and coordination for the knowledge integration project.

According to Wahlstedt (2014) knowledge integration however, can be problematic for organisations. In order to solve problems the team members have to identify the problem in order to solve it, Wahlstedt (2014, p55) "the first activities is concerned with the importance of finding or creating a definition of the problem to be solved". Moreover, according to Wahlstedt (2014) find the problem can't be considerate have a solution to the problem, the team have to conduct find the solution. However, Wahlstedt (2014) explain that any solutions have to be analyzed in furtherance of to see the efficiency of the process and of the solution.

In other words, Wahlstedt (2014) explain that is hard to define the problem and the team member have to in order to define it analyze all the action that create the problem. Wahlstedt (2014 p 55) " the researcher assert that problem-solver do not easily change their initial representations and argue that there is need for more study on how individual initiate new problem representation and formulation" Moreover, according to Dunbar 1997) in order to solve any problem the team member have to use the heuristics method that consist of use "rule of thumb" Wahlstedt (2014 p 55), however such as explain Dunbar (1997) more the team have an experience more they can adapt and find the solution faster, the experience is critical in order to integrate the knowledge and to use this knowledge efficiency. The experience of the team member help them to identify problem that was already solved, the team use the previous expertise to solve this new problem quickly and faster "if the problem solver has solved a similar problem in the past, she or he can go directly to the solution by mapping to the old problem onto the current problem" Dunbar (1997 p 7) this team experience help them to solve any problem and to be focus on their own work.

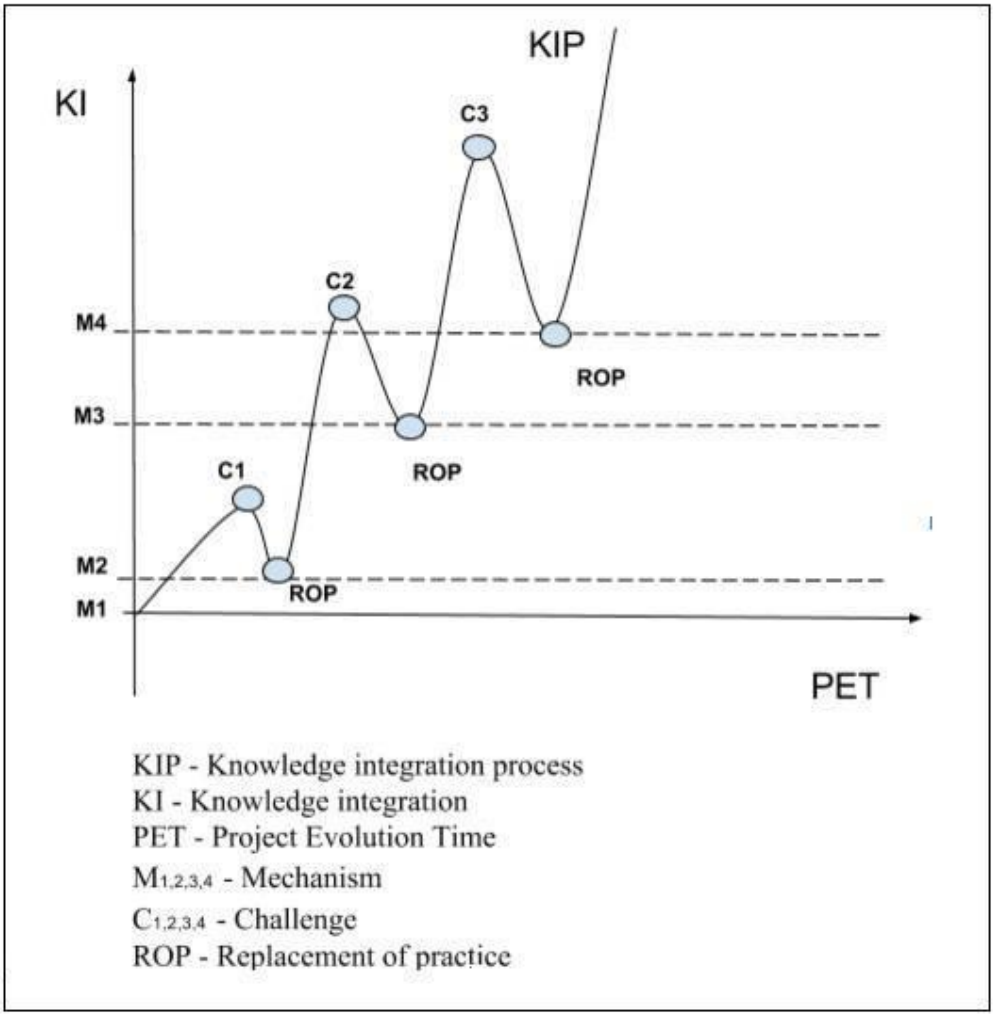
Furthermore, according to Wahlstedt (2014) after to find the solution, the team should be considerate to analyze how they can avoid this type of solution. All these different challenge that can be met any company that want to integrate a knowledge integration have to be considerate in order to achieve this goal successfully. The knowledge integration processes create challenges for any organization. The companies have to meet them and find a solution in order to conduct the integration of the knowledge successfully

3.6 Analytical framework of knowledge integration process during the evolution of a project

After reviewing the literature on knowledge integration it has become interesting to see whether it is possible the ideas of scholars into an analytical frame that could serve this thesis further in analysis of the change of knowledge integration process. First of all, it has been established that the knowledge integration is a process of transformation of the individual knowledge to collective knowledge (Okhuysen & Eisenhardt, 2002). Then this process can be constituted through using performance-based practices as per Majchrzak et al. (2012) or practice based coordination in the view of Faraj & Xiao (2006). Moreover the presence of factor-based conditions according to Söderlund (2010) and Ravasi & Verona (2000) can shape this process one or the other way. It is interesting to mention that during the implementation of this process challenges mentioned by Berggren et al. (2010), Enberg (2007), Wahlstedt (2014) and Rico et al. (2008) occur. Whereas in order to integrate knowledge management can adopt different kind of knowledge integration mechanisms as mentioned by Okhuysen & Eisenhardt (2002), Söderlund (2010), Faraj & Sproull (2000) and Tiwana & McLean (2005). In addition to that it is important to mention that since, process is interrelated with project in view of Söderlund (2011) the evolution of project will be related to the progression of knowledge integration process.

Söderlund (2011) suggested that due to its complexity in nature project can be dynamic in their nature on multiple dimensions. Therefore understanding project can highly depend on the perspective from which the project is viewed. The scholar also claims that due to this reason there can be different types of project. For instance of such, can be a change project is possibly related to the evolution of organizations processes. Thus if looking from the perspective of project evolution, it is possible to argue that the greater amount of knowledge is integrated over the time when project evolves can increase. For this reason there should be possible to find the correlation between the knowledge integration process and project evolution. Moreover, the challenges that occur as well as mechanisms that are adopted should in fact be also related to this evolution. To envision that it is possible place project evolution time on one axes of grid and knowledge integration on the other (Visualization 5). This in fact should lead into analytical understanding for the question: how does the knowledge integration process change during the time or project evolution?

Figure 5: Knowledge integration as process



The visualization, demonstrates that knowledge integration can be implemented through the use of knowledge integration mechanisms as discussed by Okhuysen &Eisenhardt (2002) and Wahlstedt (2014). It points also to the occurrence of challenges along the implementation of knowledge integration as mentioned by Berggren et al. (2010), and Enberg (2007). At the same time it refers to the use performance practice explored by Majchrzak et al. (2012). In fact the visualization also suggests that one of these practices can be replaced with another one, which in fact could fix the challenges and return knowledge integration process back on the positive progression. This would later imply adoption of new knowledge integration mechanisms that according to Wahlstedt (2014) facilitate implementation of knowledge integration process further. As a result this visualization of knowledge integration process suggests that in its process this process changes and therefore is non-linear. At this point is intriguing to see how does knowledge integration process changed during the evolution of project in practice. Therefore the empirical study is needed in order to take this thesis further.

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4. Empirical Study

This following chapter is dedicated to the empirical findings in order to prepare their answer to the research question. The chapter is divided into two main parts. It starts with the presentation of the case study and the different back office units and their specificity. We are focus on the project of the company and more precisely in long term project vision. Afterward we will distinguish the method used in order to integrate the knowledge for each Back Office and challenges that were identified. A starting point of gathering data is to find out how the knowledge integration evolves during the time though the utilization of mechanisms, practices, practices based coordination and condition. We will follow the study of the different back offices of Alpha AB. This section is dedicated to the interviews and questionnaire of the manager and employee of the different back offices in order to identify the mains challenges, process and mechanisms for a knowledge integration project. The objective of the chapter is to improve the understanding of the nature of the process of knowledge integration

4.1 Case of company Alpha

The theory suggests that knowledge integration can be understood as a process, built from the use of different performance practices or practice based coordination and shaped by different conditions. To execute this process management can adopt different mechanisms. Nevertheless, different challenges do occur during the knowledge integration process. It has been also mentioned that the process can be interrelated to project. From a practical perspective, this study explores an example of Company Alpha. The management of the company is engaged in change project, which has a long-term vision to integrate knowledge between different back offices of a newly established shared services center. However, this can only be possible after the knowledge integrated between the functional teams of each different back office. The back offices were established within different intervals of time. As the project evolves more back offices are established in the same location. For this reason the project turns to be dynamic. The knowledge integration process is implemented at different time depending on when each newly recruited back office is ready to integrate knowledge amongst its sub-teams. This allows management to see and share each knowledge integration experience. As the matter of fact the knowledge integration process is implemented and interpreted differently for each back office. Nonetheless, the process holds similarities when it comes to adopted methods and practices or challenges. Thus during the evolution of the project, knowledge integration is understood as single dynamic process, which changes based on integration experience. In order to better understanding how this process changes as the project evolves the study takes a separate look into each of the back office experience. However, before this is done it is important to look at the background of the company, so that the scale of the knowledge integration project can be understood better.

4.1.1 Background of the company and strategic change

Company Alpha is a Nordic capital company, operating in the financial services industry, with offices in 14 different countries across the European market. The company employs approximately 4000 employees. Holding one of the leading positions in European financial markets up on the delivery of financial services to its clients, the company generated around Bln € 540 in net revenue as per 2015. (Annual report, 2015). The case study, in which focus is put on processual knowledge integration between members of functional teams, in each of company's back offices, was conducted in company's two of the companies established sites and Linköping University, in Sweden one these sites was the newly established Shared Service Centre

In light of changes in the global economic and financial markets, a need for better-cost effectiveness and greater competitive edge was recognized. To reach that the board of managers decided to create a shared service Centre (SSC), which would serve as a strategic business unit (SBU). This could localize all major operational divisions from the countries that the company has presence in, to one centralized location. Thus, the costs would be saved through exploitation of arbitrage resources and the level of quality would be maintained via acquisition of professionals possessing high ethical and corporate standards. For this purpose Company Alpha has chosen a city of city "X" in one of the Baltic states, countries situated on the east side of the Baltic sea. Since business development conditions seem to be favorable due to reasonable tax rates, competitive wages, geographical location (close to home country of company's HQ, with very good flight connections between Nordic countries and Baltic States). With that given advantages, in 2014 the city "X" became home to a newly established shared services Centre, whose main purpose is serving Company Alpha strategic objectives of centralizing the operational teams.

4.1.2. Project of knowledge integration

The strategic change led into a new management focus the company. Once the shared service Centre was established, the company entered a phase of relocating its back offices (BOs). There were four back offices relocated to the SSC, each of them serving its own particular country market. Office A, office B, office C and office D. (figure. 6)

Figure 6: Visualization of the SSC

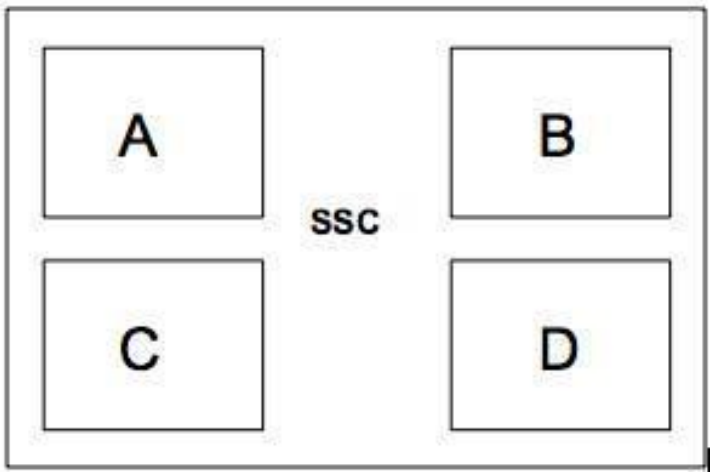

Figure 6 demonstrates each back office A, B, C, D located in a single Shared Service Centre (SSC). The Manager of projects and organizational development MPOD believes that such a change was essential for the company in order to stay ahead of its competitors. However, this was just one step towards reaching the strategic objectives. In order to be successful in long-term the SSC has to be integrated. Therefore it is important to set up a project for integrating knowledge amongst the newly relocated back offices. The project output should bring benefits through increased efficiency of operations and flexibility in teamwork:

> *"This approach of the organization is really to maximize the efficiency and to be able to support each other [...] so in long term a member of a one back office could even cover the tasks of for example someone from another back office team"*
>
> MPOD

On this note the management of the company decided that the main operational objective of this strategic change is integration of knowledge between different back offices within the SSC. This set a vision for the project in which, each employee of every back office would possess sufficient operational knowledge for every task within his/hers office team and within the other back offices in the SSC. Ultimately this would allow a free movement of employees amongst different back offices. As a result all BOs would be linked inside the SSC (figure. 7).

Figure 7: Project vision for knowledge integration in SSC

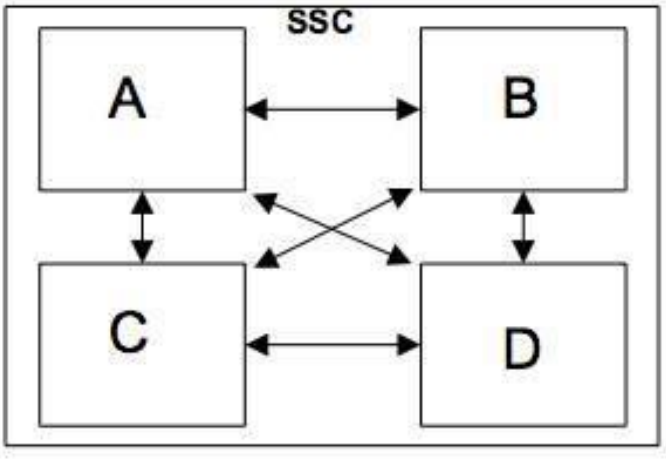

Figure 7 demonstrates how each back office A, B, C, D is linked through integrated knowledge within the Shared Service Centre (SSC). However, to reach the possible implementation of this vision has appeared to be not an easy task for the management. This implies the fact that upon the relocation of each back office the management had to recruit professionals from the SSC location and send them to the original location of each back office in each different country. This is in order to get the original knowledge transferred and to bring the operational tasks to the SSC. The head manager of the original back office "D" HMBOD explains that the company has always had its employees to educate each other, when it comes to learning working procedures. Hence it has become common to have people who are highly skilled in learning and educating.

> *"[...] all these employees that we have, are very skilled and have long experience of educating people. [...] I think that they're very good at learning and educating every task."*
>
> (HMBOD)

However, a practice when the Company Alpha educates a new team of professionals from a foreign country and after a period of learning for between 2 and 8 weeks sends them to the SSC location, Moreover this is done relying on these employees to continue learning from each other, with the knowledge capacity built only during this short period of time is rather new to the organization. As matter of fact that was creating uncertainties on how knowledge will be integrated in the future. Another point of concern was the heterogeneity of individual knowledge and tasks within each back office. The project manager for the back office "D" PMBOD identified the heterogeneity of individual knowledge and tasks as one big issue:

> *"...if we have people that for example, who possess good language skills, they really want to use those skills in most of the tasks […] it could also be*

that you need some other skills or education, then you want to use your education for delivering those tasks […] It's hard to find a role that is a good combination, but still the employees want to have role, in which getting exposed to what they know or challenged in what they can."

(PMBOD)

This issue, in fact, brought the management of company to an understanding the that long term knowledge integration amongst back offices, will be problematic if not, firstly integrating knowledge amongst employees within each back office alone. Therefore, it was decided that new back office teams would be divided into several functional sub-teams according to tasks and procedures. The employees with better skills in the local language of the designated country were set to undertake more complex tasks, requiring language skills, while the rest of the employees were put in groups to learn tasks that better suited their professional background. After the relocation, the back office teams were finally established and set to execute their operational routines in the SSC.

At this point each relocated back office in the SSC consisted of several sub-teams of professionals. Since the long-term project vision is to have knowledge integrated amongst the back offices, the management started to think small before going big. As the matter of fact, knowledge had first to be integrated within the individual back office. Only once this is achieved it is possible to move further into cross-office knowledge integration. This led the knowledge integration process to be sub-divided into four processes. Therefore it had to be implemented separately in each back office. These gives four different experiences of knowledge integration, however each back office team possesses the same-shared long-term project vision of knowledge integration. Therefore the project itself has not been split into four different sub-projects, but rather allowed the process of knowledge integration be individually suited for each back office. Hence, the long-term project vision can be understood as in figure 8.

Figure 8: Project vision complete knowledge integration

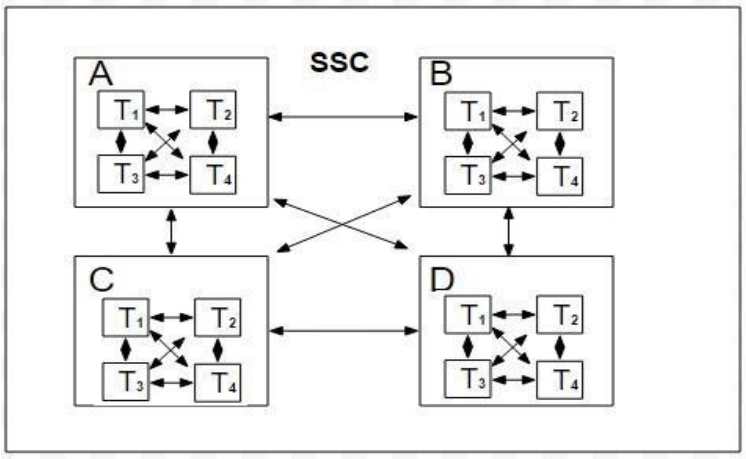

Figure 8 demonstrates links between each functional team for every back office A, B, C, D and how these back offices are linked through integrated knowledge within the Shared Service Centre (SSC). Although having a single and project vision of knowledge integration, each back office engaged in knowledge integration process at different times. This was because the back offices were not relocated simultaneously. For this reason knowledge integration process brought a different experience as the project evolved.

4.2 Project evolution and knowledge integration process

At this point the project of knowledge integration can be viewed from two perspectives:

4.2.1 To see the project as a whole, where the management strives to integrate knowledge to fulfill the vision to have a fully integrated knowledge amongst back offices including the knowledge integration within each individual back office.

4.2.2 To see a project in two phases, where the management ensures the integration of knowledge within the back offices in the first phase and then moves on to integrating knowledge amongst the back offices in the second phase.

The project of the company Alpha is more linked with the second perspective. Since the back offices are newly relocated the management felt it to be safe to first engage in integrating knowledge within the back office teams The integration of knowledge is processed on the office - by -office basis. Figure: 9.

Figure 9: Knowledge integration project evolution office - by - office

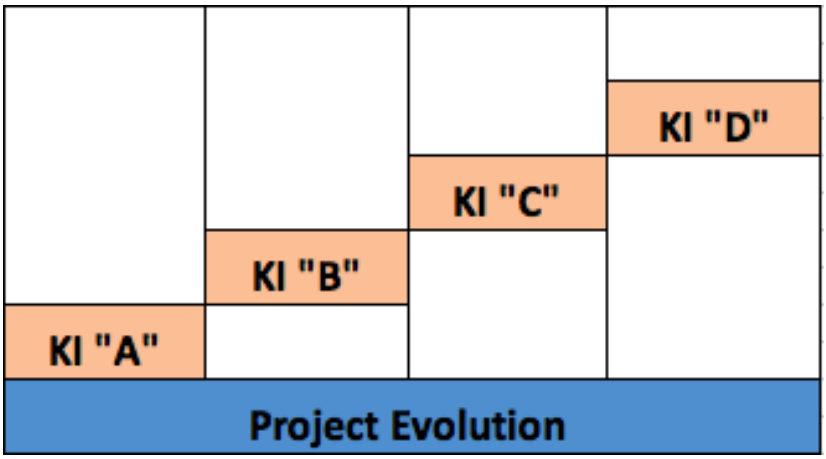

Figure 9 demonstrates knowledge integration (KI) on office - by -office basis. In other words, when one back office "A" engaged in knowledge integration, the next one back office "B" was undergoing the relocation and stabilization. Then once the back office "B" started to integrate knowledge, the back office "C" was relocated. This then followed by back office "D". In this process the team manager of each back office have regular meetings to discuss the practices used during the integration process and challenges that occurred along the way. Hence, before proceeding with knowledge integration of the net back offices the knowledge integrations process is to some extent different . This allows the knowledge integration process evolve along with the evolution of project.

The management of the Company Alpha understood that there would be differences in how knowledge is integrated between the teams of the back offices. The planning of the project was not promising to guarantee the straight curve of its development and nor was the process itself assumed not to have any changes. The ability to manage the process during its implementation was nonetheless a crucial part of the project. In the words of PMBOD:

> *[...]by being a project manager, you always have to deal with issues, you always have to deal with problems that comes up in the project to make sure that you stick to the plan as good as possible [...] you can plan everything perfectly, and when you start, something pops up [...]*
>
> *(*PMBOD)

Since 2014, when the project was set to start, all 4 back offices have been relocated to the SSC and 3 of them have already progressed in learning and integrating the knowledge, whereas the back office "D", which was the last one to relocate, is now taking the first steps into the process of knowledge integration. Each time, knowledge has been integrated amongst the functional teams the process has changed due to the challenges that occurred on

the way and the methods chosen to deal with those challenges. The study has researched what main challenge according to the back office employees has caused difficulties in learning process (Figure 10).

Figure 10: Challenges of knowledge integration process: employee perspective

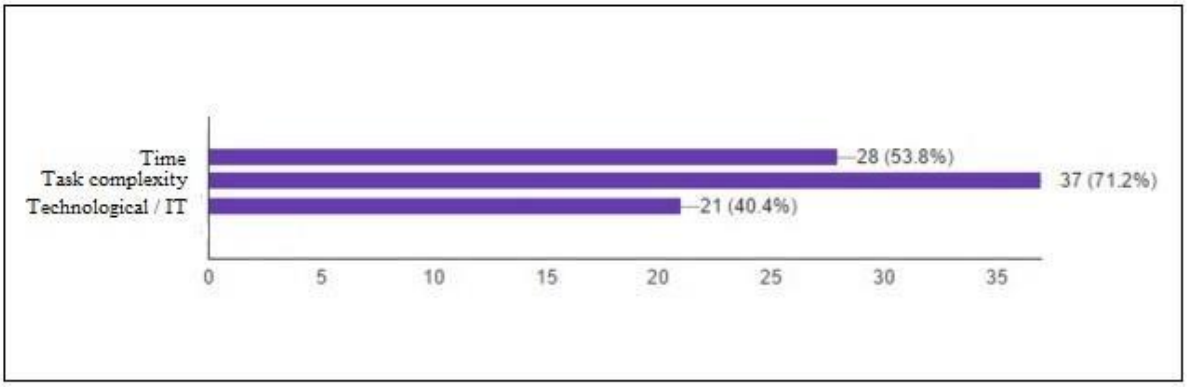

Figure 10 demonstrates the challenges that occurred during knowledge integration process, indicated by the company employees. The results showed that "task complexity" – according to 71, 2 per cent of respondents was the first biggest challenge, "Timing" - according to 53.8 percent of respondents was the second biggest challenge and technological / IT issues were seen as the third biggest challenges, mentioned by 40, 4 per cent of interviewed employees.

This to large extent was coherent to what managers identified as challenges. During evolution of project the challenges were resolved differently in each back office. The experience of each back office showed that the chosen practices and methods of knowledge integration led into the change of the process. Therefore, to understand the changes, the process for each team has to be reviewed separately.

4.2.1 Knowledge integration process in back office "A"

The Back Office "A" was the first one to engage in knowledge integration. As a matter of fact, the manager and the members of functional teams were the first in the Company Alpha to experience what it was all about. The process started 6 months after the knowledge had been transferred. The team manager worked closely with the team on a daily basis to make sure the process is smooth and the development of progress clear:

> *"When we came back to SCC the "go-live" stage of the project started. We worked closely on our dedicated tasks and as a manager I was observing the progress of my team members on daily bases. If there was something unclear I used to consult with my colleagues abroad."*
>
> (MBOA)

MBOA used to call frequent one-2-one meetings to identify, which people want to learn new tasks and which people would be better for teaching them. Based on this practice the members of the functional teams were assigned the roles regarding who was going to teach and who was going to learn and when, vice versa. This way the cross-learning activities had started. As the time passed, the manager had noticed differences in the progress of different employees. Hence, the learning became uneven. The successful progress of one learning pair was totally separate from the progress of the other one. As a matter of fact the knowledge started to be integrated amongst individuals, rather than functional teams. That led to a situation where each functional team would have a different amount of members educated to execute their colleagues' tasks. The manager responded to this by looking for reasons that were inflicting this kind of experience. One such reason according to MBOA was the employees' personalities. Some people were naturally interested in more learning and had the drive to learn quicker, whereas others preferred executing the same procedures all the time and remain monotonic. Other people were, according the manager, generally reluctant to learn and always needed that extra push from somebody else to be set on the right track. These issues, related to employees' personalities MBOA saw as challenges, since they bypass the organization's interest:

> "[...] *we as an organization are more interested in people to engage in more learning. We want our employees to understand more and to constantly broaden their spectrum of knowledge. So that in future this would allow a better movement of employees between the functions and so that they could be able to swap their tasks and cover each other when needed. So the reluctance to learn and reliance that somebody will always push you to the right direction from the beginning is a big challenge.*"
>
> (MBOA)

This implied that it was important to be more observant to work more with some people in order to make sure everything goes well. Another personality factor influencing the process was in big contrast to the reluctance to learn. MBOA refers to it as a difference employee's age groups and belonging to different generations:

> *[...] I think that my team consists of people from different age groups, which reflect their needs or willingness to work in a team. For instance, the biggest parts of people in my team are of the millennium generation. These people want to take part in decision-making.*
>
> MBOA

Particularly these people can see the functional work as boring and are more likely to be interested in organizing the daily tasks as well as teaching others or learning themselves. This, in fact was backed by one the back office employees, saying:

"Learning from skilled colleagues does always contribute to self-development while teaching others makes me conscious of my own skills and aware of where could I improve"

(Company Alpha employee 1)

To pull things together and to even up the knowledge integration process, the manager has chosen a different tactic, which she also intends to use in the future. That is in the first place, prioritizing the identification of tasks that are to be learned for integrating the knowledge. In the second place, it is allowing people to put themselves forward for choosing which tasks they want to learn and which ones to teach:

"[...] Now I do things differently. Instead of identifying people, I identify the tasks and let the employees to choose who wants to teach the tasks and who wants to learn them."

(MBOA)

This method proved to be effective, since after changing the way the manager organizes the learning set up, the team has managed to even up the progress. Hence up to today there are 3 people in each functional team able to execute all of their colleagues' tasks. This allows the team members to be capable to swap between different functions freely if that is required by the situation. This type of approach to learning in view of MBOA also benefits employees and give an extra bit of satisfaction in their daily work. Since the process of knowledge integration is ongoing, the back office "A" manager is looking to create even more opportunities for the employees to express themselves. That way the involvement in cross learning should be ensured. The aim is at the end 2016 to have each task covered by at least 4 people form the team. Allowing the team members to be active and encouraging them to get out of their comfort zone and think outside the box is a key to drive the process more naturally.

"I think that any issue is an opportunity to step outside your comfort zone and look at yourself or express yourself through a different angle."

(MBOA)

The manager also accepts the fact there will always be issues popping up along the way. Therefore the process will also change. The important thing is to be mindful and in times when things do not necessarily go according to the plan the employees should in first place remain positive and be able to question themselves "why?"

"In general, I think that being positive always help both in personal environment and also in working activities. So to push people to the right direction I try to implement a practice called "always have a look from a different angle" or "think outside the box" As our transition manager

says, you should always first coach yourself by asking 5 "why" questions. If you are unhappy about something you can always ask these 5 "why" questions and you will find the needed answer."

(MBOA)

Knowledge integration in back office "A" gave lessons on what can be expected during the process. Sharing the experience between the managers during formal and informal meetings had to give an insight for the manager of the next back office team on what could be a possible way to run the process. As the matter of fact the manager of the back office "B", which was next in line to start knowledge integration has taken different methodic.

4.2.2 Knowledge integration process in back office "B"

The back office "B" team was the next one to engage in the knowledge integration process. It is interesting to mention that this back office team started transition not long after the team "A", however engaging in cross-learning took much longer than expected. According to the project development manager, they continued working divided in functional groups for almost about a year after the knowledge had been transferred and that does not imply having a long stabilization period. In his view the actual issue here was that the manager understood the need of cross-learning knowledge integration from different perspective. As the manager of projects and organizations development points out:

[…] One year no one has done a cross learning in back office "B" [...] so when, for example somebody was sick and that always happens, there was always a problem - they had nobody to take cover the work […]

(MBOB)

No one in company Alpha was able to explain, why the knowledge integration process did not start, especially having experience of back office "A" communicated. However, everything started to get going, once a new manager for the back office "B" joined the team, things started to change. As (MBOB) mentions, when she joined the team there was not enough backup possible, therefore it had to be done.

[…] When i came here, people already had been educated to execute their tasks but I think that they did not have enough backup, i had to start engaging people in learning each other tasks, so that in case of somebody's vacation, for instance, the continuation of work vulnerable […] and because of cross-learning luckily now everyone knows each other's tasks at nearly 100% if needed.

(MBOB)

The process of knowledge integration took a slightly different curve for the back office "B" team. Unlike in the team of the back office "A", the main issue here was not employees' personalities but the difference in team members' skills and complexities of tasks. Particularly due to task complexities some functional groups were operating fewer tasks than others. As the manager has noticed some people were able to fully execute their task individually, whereas others needed support from a colleague. A more complex task took longer to learn. Some tasks required more language or more interpersonal skills (for example: if they involved telephone conversations with clients, etc.) Therefore the team was not able to integrate knowledge evenly. There were people in the team who can be classed as fast learners and their perception of workload was different from that of others. Unlike the back office "A" manager, the manager of the back office "B" team did not have any specific methods on how to assign people for learning and teaching in order to engage them in the learning process. The main action here was to observe people and analyze who is learning better and who needs more help or additional skills, allowing people to take time to discuss with each other. Afterwards it was possible to carefully move people around. This was done through making sure that people who have less skills can learn by working closely together with people who have more skills:

> *For some tasks, you need fewer skills and maybe not best skills […] for other tasks you have to be a really good language speaker, writer […] not everyone has that and of course not all people are happy to talk on telephone, even if their language skills are very good. So you have to find a good person that can handle that, we don't have so many calls but you have to find a person suitable for that […]*
>
> (MBOB)

The study shows that 40 per cent of employees in all back offices that took part in questionnaire speak fluently the language of the designated back office.

Figure 11: Proportion of the employees speaking the local language in the back office

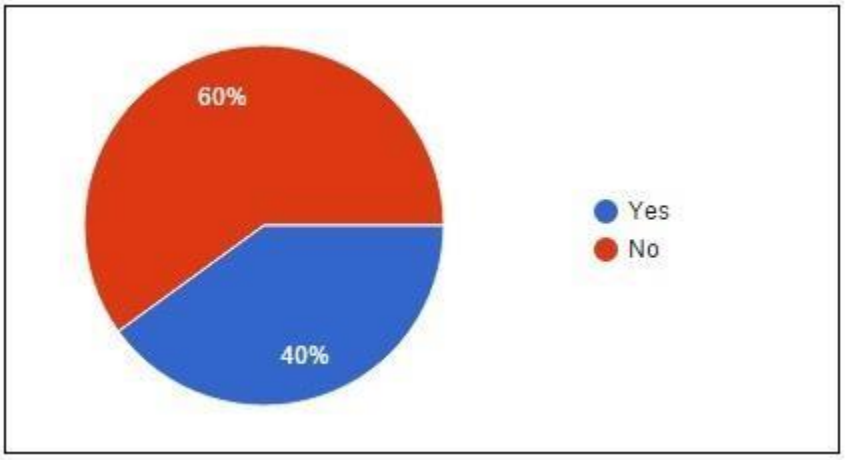

Figure 11 demonstrates the proportion of the employees who speak the local language of their designated back offices. Moreover, the process of knowledge integration in the back office "B" team was also interrupted on several occasions due to lack of time. Some employees were not able to take part in learning due to not having time for that. The reason behind the time shortage, according to MBOB, was the volume of work. The members of the team were simply not able to cope with time pressure and to keep up with deadlines. An example of such a situation was when the manager struggled to find a backup person for the one who was on holiday. Thus the learning was not possible. The employee simply did not have time to learn due to increased workload. Thus it was necessary to include another person to do the backup. This can, however, be difficult if not everyone is trained to each other's tasks. As a result it caused difficulties for the whole team to follow up with deadlines and workload.

> *[…] if the person is sick or in vacation they don't have enough time do both their own tasks and to learn the tasks of the colleagues […] for instance I have got one girl in my team that started to learn a another task and to back up her colleague, which was on holiday. So she had to ignore her own task during the day. I saw that she was not the perfect back up because she didn't have time for the both.*
>
> (MBOB)

As for further project development the back office "B" team is going to hire 19 additional full-time employees and two team leaders to help the coordination of the team's daily operations. MBOB is looking to introduce daily white-board meetings to support a more efficient operations delivery and encourage a greater self-monitoring of learning and progress:

> *"[…] Maybe white board meeting will make a huge difference or maybe they (the members of the teams) will feel more control and obviously it will be different […] I thinks the more overview of the tasks can help in day to day working and especially if there is a lot of work to do[…]"*
>
> (MBOB)

Another thing to do to make learning more efficient is to ensure a very accurate selection of new employees, ascertaining that the people that come on board are highly skilled and educated. That would minimize the future struggles of learning. But the team manager seems to be positive about that and sees potential new candidates to be well-educated and fast learners:

> *[…] Of course there is a 100% difference between the original back office country and here, here people are highly educated and much more than*

there they are quite young, therefore there is a possibility that they are really quick learners so i thinks it will be good […]

(MBOB)

Indeed looking at the age of the employees in the SSC, it is evident that the majority of professionals are of a younger age (Figure 12).

Figure 12: Age groups of all back office employees

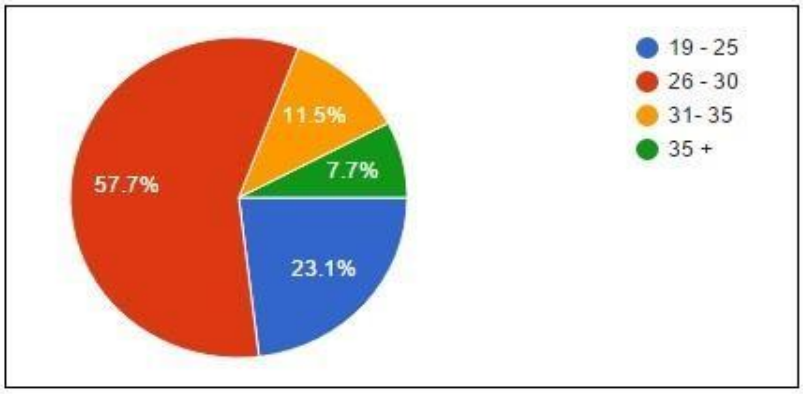

Figure 12 demonstrate different age groups of the company's back office employees. In terms of employees' age, the study showed that the majorities 57.7 per cent of respondents were between 26 and 30 years old, whereas 23.1 per cent of interviewees were of an age between 19 and 25 years. Only 11.5 per cent of people were of an age between 31 and 35, and 7.7 per cent of employees were over 35 years of age. Thus, if age did matter as per manager of the back office "B", the company Alpha seems to be in a relatively good position.

Nevertheless, the change of the knowledge integration process still occurs. Based on the back offices "A" and "B" experiences the management continued to have meetings in preparation of knowledge integration for the next back office team. This, in fact allowed the manager of the back office "C" to grasp more ideas before her functional teams has started to learn from each other. Hence, as the project evolved further the knowledge integration was initiated with different method.

4.2.3 Knowledge integration process in the back office "C"

In contrast to the "A" and "B" back offices, which took rather long time to proceed with knowledge integration, The back office "C" team, right after the relocation has started to fully engage in cross-learning. However, it is important to mention that the team is rather small consisting only of 6 employees. Nevertheless the manager of the team thinks that although the process of relocation was smooth, it was also slightly unclear, since she was also new to the company. Despite this, the manager has understood the importance of learning and implemented the learning mechanisms, such as "knowledge tracker" and "white board meetings" at an early stage in the transfer project. The first one was introduced already during the knowledge transfer stage, while the team members were in country "C".

The second one was introduced already during the stabilization period. In contrast to from the integration practices of the back office "A" team, the MBOC did not engage in one-2-one meetings. Instead at the end of each working day the team would spend some time discussing and sharing the practices and ideas for problem solutions. Thus, the next day it was already clear how to continue with the process and what the team should do.

> *[…] my main role and responsibility was to organize the daily work and to do this Knowledge tracker […], we set all the tasks to knowledge tracker which had 4 stages: basics training scheduling and working in low supervision and active supervision […] during this transition period i had daily conversation with all the members of my team, actually we did not do one-2-one conversation but we did meetings at the end of the working day.[…] we spend some time discussing and sharing practices and ideas and if some problem arose, next morning I used to have a clear list of those problems and ideas how I can solve them.*

(MBOC)

Since the team is very small, the process of knowledge integration was not easy and, like in cases of "A" or "B" back offices there were ups and downs. One thing that MBOC highlights was the numerous amounts of backlogs. There were a lot of tasks and they had to be delivered on time despite the limited amount of human resources. The team had to create their own instructions on how to learn and deliver their work in good time. Due to the excess amount of work the team had to shift focus from preceding the work individually to dividing it between them, three people would operate so one task at a time instead of one. For that reason the manager asked the colleagues from the original back office location to provide back up until the backlogs were processed:

> *[…] At the beginning we had a lot of backlogs, we just got a lot of work that was unusual […] So what we did we, just put together instruction and started to read and do the job after I saw these backlogs and decided with Nederland colleagues to get some backup. Then we had, not one but 3 people working on one task before we could do other tasks. […] it took approximately one month for us clean these backlogs […]*

(MBOC)

After applying the same method to other tasks, all the team members were able to perform all the tasks that came under back office operations. The manager also believed that engaging in group common learning, with the help of instructions and team discussions instead of just paired up cross-learning activities, helped to progress a lot quicker and now the team is performing a lot quicker and is more knowledgeable of the work procedures:

[…] right now I see, that we are performing quicker than expected and we are not only reaching expectations but exceeding them. […] It is good but also we should have more tasks since we are ready for them.

(MBOC)

The demonstrated practices also allowed the team member to teach and learn at the same time. Moreover, this knowledge integration experience has strengthened the team spirit in the team and increased trust amongst the employees. As one of the back office employees recalls it:

"Teaching helped me to evaluate my own knowledge of the task and to get some different perspectives over it whereas learning gave me the wider view of work and a stronger feeling of team spirit."

Company Alpha employee 2

As for the future development of the project and implementation of knowledge integration process the manager thinks that she should be observant to recognize the difficulties in learning and try to help her employees to deal with the challenges. Additional training according (MBOC) is always needed as well as being transparent and asking more questions in order to find solutions and look deeper into the problems with Continuous communication is a key to success in the process.

As a manager i have to find a way how to help my team members, and if you have some difficulties to learn I should recognize what is real, what the difficulties are and how to deal with them. Sometime, we have to call for additional training and ask question as well as to organize meeting and find a solution and look deeper on the problem, […] we should be focused and observe. We should also communicate and talk to reach others and to reach more clarity in the process.

(MBOC)

After the knowledge has been integrated in the back office "C", it lifted the project to the next level where knowledge integration process has become more dynamic by bringing group learning practices into the perspective. The managers of all back offices continued, to share the experience in the meetings during the process and after. The experience of back office "C" opened a bigger spectrum of choices in methods and practices of knowledge integration for the back office "D". This back office is the last one to engage in knowledge integration. Based on the example showed by the back office "C", the team did not take long time to start knowledge integration and it is now taking their first steps into the process.

4.2.3 Knowledge integration process in the back office "D"

The back office "D" team was the last one to relocate to the SSC. It is not the biggest team but the whole relocation of the back office took almost a year including all the preparation and ground-work done to ensure the best quality transition and smooth project delivery once the back office is relocated. The head manager of the back office notices:

> *"We started this project; I think it was almost a year ago. I think it was in April last year, and since then we have done a project mapping [...] the mapping took pretty long time, and after that we looked to recruit new employees, that would build a new back office team."*

(HMBOD)

Indeed the preparation for the transition of the back office "D" team involved a lot of project mapping training and task allocation, learning time forecast etc. In January 2016 the team of newly recruited specialist was sent to onsite training for a period of between 6 and 8 weeks. The team has undergone internal division into functional teams, according to task specifics and language requirements. When the first group of team members returned to SSC after the 6 weeks of knowledge transfer the stabilization period started. The back office "D" has sent one of their expat trainers together with the team to in order to ensure that in case of operational uncertainties there would be someone to supervise and answer technical questions right on the spot.

The team manager, however, was also involved in all activities that the team took during the knowledge transfer stage and once the team was back to the city "X". The MBOD was responsible for dealing with the information that needs to be distributed amongst the team members, and for monitoring the progress of team training and operations result delivery,

> "*I am that person who is the first one to receive the information in the team and shares it with the team members and also decides which information has to be distributed, and which further information is needed if there are any disruptions in sharing the knowledge amongst the team members. […] I was also organizing one-2-one meetings and observed the team to estimate what was needed for better employees' efficiency*"

MBOD)

The team is currently at the end of its stabilization period and it is already in the beginning of the knowledge integration process. Despite the fact that the original plan was to start integrating the knowledge between team members of different functional teams only in June 2016, the circumstances forced the situation to change. Ever since the team was back to the SSC the manager has noticed that that one of the functional teams was very struggling with the volumes of work. It turned out that a huge backlog of unresolved tasks was passed on the team from the home Back office of "D". Although the operational difficulty of the tasks was not great and did not require additional language skills, the volume was just too big to

handle on time. To find a solution the manager called for several functional team meetings. During each of them the situation was discussed until a decision was taken to educate members of other functional teams in order to help with the backlog. At this point the manager was taking a risk, since it was uncertain whether the team which is still entirely confident with their procedures able to educate their colleagues. However, at that point it was important to realize the priority and compliance with the SLAs in order to ensure good relationships with stakeholders internally and clients externally.

> *"There are functions that you have to give priority […] everyone knows what the SLA stands for – Service Level Agreement. That implies also the time, for how long does it have to take for you to deliver the task. Sometimes it happens that the backlog of tasks is so big that the employees will only have to work with that task for the whole, week. Then they would leave other tasks behind. That should not be an issue, thus we should prioritize those backlogs as whole team, and everybody should help each other to deal in situations like that.*"
>
> (MBOD)

Nevertheless, the decision was made and each of the team members undertook to teach one of the colleagues from other functional teams on one-to-one basis. The result was very positive. Soon almost half the whole back office team was able to execute that task. As a matter of fact the volumes soon started to decrease and the backlog was minimized. Despite this the team that educated their colleagues still lacks knowledge of other tasks in exchange. Moreover, after seeing the success of the first attempt to learn amongst the team members other employees have expressed their wish to be trained to other tasks. The knowledge integration process has increased employees' motivation and confidence. This in turn proves the fact that most of the back office employees in the company Alpha see the benefit of knowledge integration towards their professional development (Figure: 13).

Figure 13: Proportion of back office employees that consider KI to be helpful for professional development

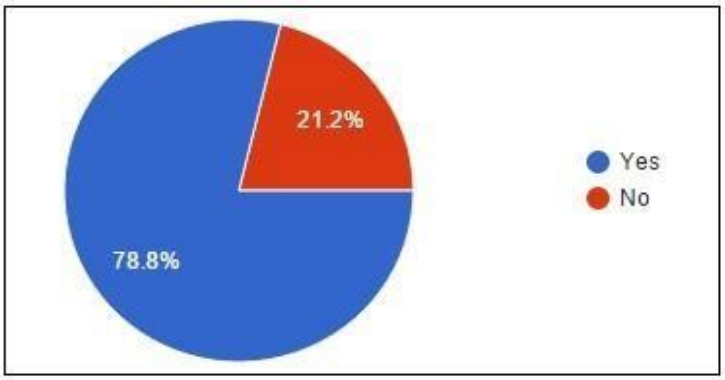

Figure 13 demonstrates the proportion of company's employees who considered knowledge integration had been helpful for their professional development. 78.8 per cent of the interviewed back office employees consider that exchanging knowledge amongst their colleagues help them to become a more skilled professional.

After seeing positive response from the team members the manager has called another meeting with those employees and the members of functional teams whose tasks can now be taught to others. All in all the implementation of the project had to take a different curve once the team realized they were facing challenges with operational volumes.

> *"Maybe some challenges are starting now, but they are not finishing. They will continue. You have to try different options and only after you done that, you realize what is working and what is not. […] For example we have no power to control the task volumes, but we can find the way to deal with them. […] Anyhow in this project there is nothing more constant than changes […]"*
>
> (MBOD)

The situation has clearly dictated the need for actions. Since in further perspective the team should be engaged in the process of integrating knowledge, the manager took the decision to start it earlier to help deal with the volume challenges that occurred. In spite of this effort, the knowledge integration has not been complete, the employees has not received any knowledge in return. Moreover another step for learning is on the go. Thus, the process seems a little bit unstructured at this particular time and perhaps the next challenge is to find out how to deal with it. However the manager of the back office "D" team thinks that the future challenges with the process will be related to identifying the team members' competences in relation to the tasks as well as the attitudes towards learning and teaching and the personality traits.

> *"I think the biggest challenge will now be to identify the competences […] perhaps something that is suitable for one person might not be suitable for the other. […] Also understanding different people attitudes and personality traits will be a challenge […] because you need to find out what kind of functions or tasks will motivate the employees […] if the employee is motivated the quality of the task will most likely not get negatively affected"*
>
> (MBOD)

On the other hand, according to the project manager of the back office "D" (PMBOD), it is difficult to predict how the process will change as well as how the project will change along the process. Therefore it is very important to be observant and identify issues that can cause those changes before they actually occur:

"Yes there will be a lot of issues for the back office "D" team […] I would say most of those issues are actually found out before they happen. […] you plan it and you make sure that you have the right persons involved in the planning phase. So in my example when forming the back office team, we had a lot of communication with the SSC office […] so I asked people in SSC what kind of people they expect, what I will have to do to challenge them in their day-to-day work, so I tried to find all issues up front, before we started education. But there is always something happens that you haven't planned for. And then you have to solve the situation – that is one big part of being project manager. You can always plans to one point, but there are always the situations that you have to handle on the spot, like ad hoc situations, let's say. And it's yes, and then you take big piece by piece - an issue by issue."

(PMBOD)

Finally, the points of view of the employee corroborate the point of view of the manager. The different graphs demonstrate that the projects evolve during the time and the complexity of the task impact the knowledge integration for the employee. However, the result of the survey demonstrate the utilization of different mechanisms, practices, practices based coordination but also challenges such as the timing and the complexity of the task. For example 37% of the employee of the entire different business unit believes that the complexity of the task impact the integration of the knowledge.

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5 Analysis

In this chapter the objective is to first of all align the empirical data to the theoretical framework which has been chosen for this study. This in fact should lead into showcasing the analysis, which could bring this study closer to the research purpose and provide platform for the answer to the research question and implications on the analyzed empirical data. The detailed answer to the research question comes in further part of this chapter that provides the findings our research. That way we aim to bring this study towards the conclusion.

5.1 Case study analysis and theoretical alignment

The empirical findings have revealed the considerable importance of knowledge integration for the studied company. As the matter of strategic change, which implied relocation of back offices A, B, C and D to single shared services Centre SSC, the management of the company Alpha has set up a project for knowledge integration. The long-term project vision called for total knowledge integration amongst different back offices. However, it was also understood that fulfilling this vision would, first require integrating knowledge within the back offices (Figure 14).

Figure 14: Evolution of knowledge integration project

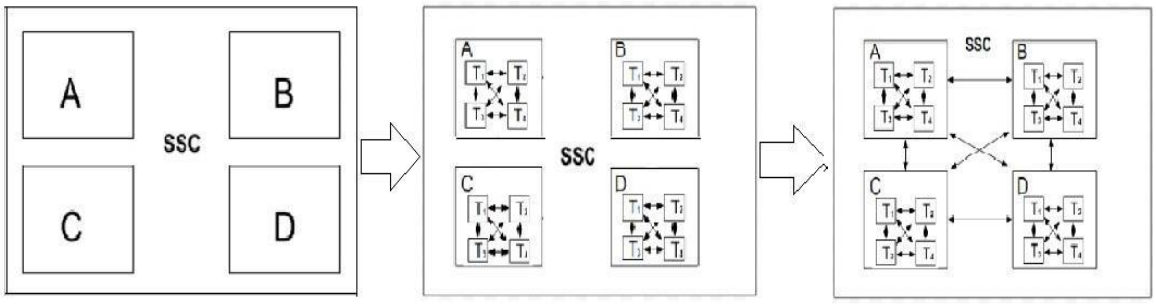


Figure: 14 demonstrate the project evolution of the company Alpha, in fulfilling the vision of having the knowledge to be fully integration amongst different back offices in the SSC. Since knowledge integration was implemented in stages, where knowledge was integrated in back office "A", then after management review it was integrated in back office "B" and same way "C" and "D", it is possible to claim that the project evolved gradually. During this evolution, knowledge integration process evolved differently based on previous experience, which allowed managers to choose different mechanisms and based on the actual course of the process, which had to be managed each time challenges occurred. This shows that both process and projects can be dynamic as it argued by Söderlund (2011 in Morris et al. 2011). Especially, in this case study it is visible that knowledge integration process while it is implemented in each back office team. Moreover, it also changes each time the project evolves and a new back office engages in knowledge integration. Thus, it shows that interrelation between project and process is possible. This supports Söderlund (2011) who

claims that project, process, problem and perspective are interrelated. What Söderlund (2011) refers as a problem in the cases study of company Alpha can be understood as challenges that occur during the knowledge integration process. Whereas, the chosen perspective in this case study implies the perspective of the whole company's project and its long term vision as well as the back office managers' and employees' perspectives on knowledge integration. Having seen that the four actors are interrelated in the study it becomes interesting to look further on how knowledge integration really turns into a process. Since, the process is dynamic given its interrelation with the project, it nonetheless more intriguing to see how this process changes.

5.1.1 Processual knowledge integration in company Alpha

The company Alpha case demonstrates important connections between what the scholars understand as knowledge integration and how it is viewed in practice. The manager of projects and organizational development MPOD has a long-term vision of all back office team members being knowledgeable enough to swap between tasks and even between different back offices. This links to the idea of spreading knowledge in a way so that what is known to one employee becomes known to many others. According to Okhuysen & Eisenhardt (2002) the process of transforming individual knowledge into collective knowledge is, in fact, what we call a processual understanding of knowledge integration in this study. Likewise, the notion of a cross-learning approach, which Schmickl & Kieser (2008) explain as a specialist' ability to obtain knowledge from another specialist, appears to be widely visible in the studied case. The manager of the back office "A" team MBOA mentions that her team members started to teach and learn the working procedures amongst themselves after 6 months of returning from the knowledge transfer phase. Similarly, the knowledge exchange between specialists is referred to by the manager of the back office "C" team. MBOC claimed that the team members were able to change between the functions, because they had learned them from each other. The manager of the back office "B" team argues that because there was no back up for the execution of certain tasks she had to start engaging people to learn each other's tasks. The use of a cross-learning approach is also evident in the activities of the back office "D" team, when due to the big volumes the members of one functional team educated their colleagues from other functional teams on a one-2-one basis.

The knowledge integration process can be facilitated through external knowledge absorption (Berggren et al. 2001), which in the case of company Alpha is reached through sending the newly recruited back office teams to onsite training in the locations of the original back offices. The knowledge that has been obtained by the specialists during the transfer phase turned into freshly build the organization's' capacity to generate knowledge integration capabilities. Having that capacity, the members of back office teams were able to exchange their knowledge in further steps of the project. Therefore the knowledge integration process became possible. Nevertheless, these knowledge integration capabilities were strengthened through the stabilization periods, when team members worked in functional groups on

specifically allocated tasks. Such phases in a project appear to be necessary for specialists in order to assimilate what has been absorbed externally and to gain confidence prior to transferring that to other specialists. For instance for the back office "A" team it took 6 months to assimilate the gained knowledge, before they were confident to transfer it from the individual specialist level to the collective level MBOA. In contrast to the back office "A" team, the team members of the back office "C" were able to reach the same level of confidence in 1 month. However, in the words of the team manager MBOC, the team consisted only of 6 people. This leads to the fact that the team size matters, when it comes to preparation for the knowledge integration process. In other words the capacity to generate knowledge integration capabilities (Berggren et. al., 2011) depends not only on the external knowledge absorption or internal knowledge creation, but also on specialists' confidence. This confidence based on how well the knowledge is assimilated by the individual and by team. Hence, the bigger team may need longer time to assimilate knowledge in order to be ready for engaging in the knowledge integration process.

Nevertheless, assimilation of knowledge may not be the deciding factor for when the team-member should engage in knowledge integration process. Neither the process will necessarily change because of that. The example of back office "D" shows that although the functional team members of the back office were not quite settled with their own tasks after they had returned to the SSC, the increasing backlog required the expansion of resources to handle the task. Based on that the manager of the back office "D" decided to start knowledge integration process. This turned out as a good solution. (Onsite observation, 2016). As matter of fact, even quite bigger in size back office "D" team was able to start knowledge integration process just after one month after the relocation. At the same time the evolution of knowledge integration project remained indifferent to what it was when the back office "C" engaged in knowledge integration process. This was after the previously relocated back office had already progress with the process. Therefore it is possible to claim that the capacity for generating knowledge integration capabilities, built through external knowledge absorption as per (Berggren et. al., 2011) is sufficient on its own for starting the knowledge integration. Moreover the length of building such capacity facilitated by time needed for employees to gain confidence (Onsite observations, 2016) may not necessarily inflict any changes for the evolution of project. Since the start of knowledge integration process cannot majorly inflict the evolution of company's project, it is logical to claim that the vision of this project will remain unchanged over time.

However, it is noticeable that knowledge integration process was initiated by the fact that team members were not able to cope with the increased workloads. This kind of challenge leads the team manager to take of decision to start knowledge integration. Therefore it is possible to understand the knowledge integration process can be inflicted by the challenges that occur during the evolution of project. This makes it even more interest to explore how knowledge integration process was executed in the back offices of company Alpha, what it consisted of and how did it change.

5.1.2 The use of knowledge integration performance practices and the change of KI process

According to Majchrzak et al. (2012 p. 958), the process of knowledge integration consists of and depends on five performance practices, such as "*voicing fragment, co-creating the scaffold, dialoguing around the scaffold, moving the scaffold aside and sustaining engagement"* . However, the case study shows that the process of knowledge integration can be different and may vary due to the challenges that occur during this process. Thus all of the five performance practices may not necessarily be applicable at the same time. For example it can be said that the *voicing fragment*, which refers to assembling a common landscape of individual statements (Majchrzak et al., 2012) has been used in the case of integrating knowledge in the "A" and "D" back office teams. The back office "A" manager MBOA used to often call one-2-one meetings with her team members to identify, which employees were more likely to learn and which ones would rather teach. However, as the project evolved the process of knowledge integration required a different practice. The manager noticed that due to differences in employees' personalities and attitudes, the integration became uneven. Some employees were progressing quicker than others. Therefore she chooses another practice: instead of identifying people she started to identify the tasks and share them to the team members. Based on that, the enthusiastic employees were able to choose their roles. This way the process changed. Moreover the new practice can be aligned to the performance practice of *sustaining engagement*, which according to Majchrzak et al. (2012), refers to the use of collective enthusiasm.

Figure 15: Change of performance practices in back office "A"

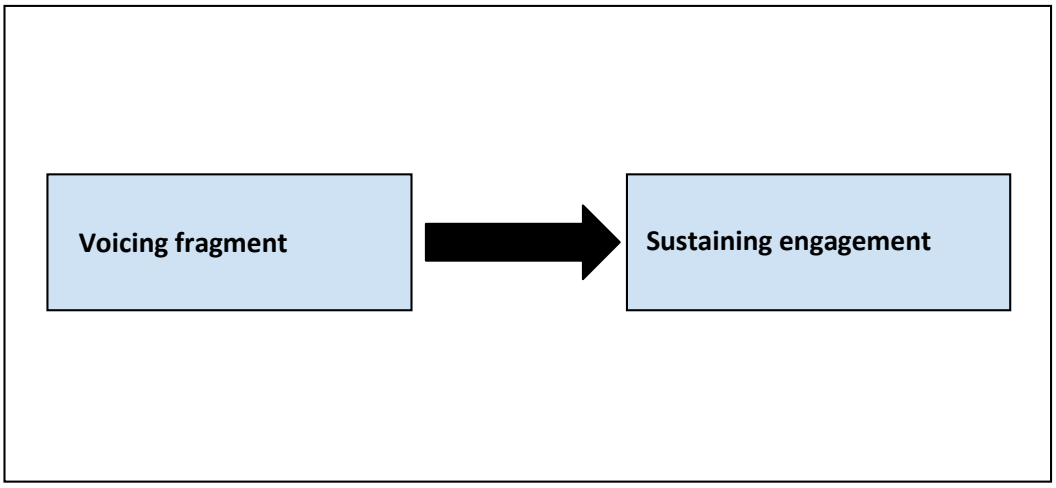


Figure: 15. Demonstrates how the back office "A" team moved from using performance practice of voicing fragment to sustaining engagement. As the matter of fact it is possible to argue that knowledge integration process in back office "A" changed as the result of changing the use of one knowledge integration performance practice with another one. Knowledge integration process has picked up positive curve and that allowed the project to progress further, which implied integrating knowledge into the next back office "B" team

In the case of the back office "B" team the process of knowledge integration did not involve changes in the use of performance practices. The practice that was used mainly referred to interaction amongst team members with a focus on learning each other's task. Thus in the end the operational backup could be ensured. As a result the stakeholders and customer had to be satisfied with continuous delivery of work. That refers to the practice of *moving the scaffold aside*, which according to Majchrzak et al. (2012) is about interaction and integration of external stakeholder requirements. The manager of the team did not identify any activities stimulating common experience; neither did she use the collective enthusiasm. There were no particular tensions nor was the need for one-2one meetings highlighted. The main reason why the process of knowledge integration was uneven, was the differences in employees skills and timing issues, both of which are conditions that shape the knowledge integration process, according to (Söderlund, 2010) and (Ravasi & Verona, 2000). The manager in this case did not adopt any different performance practice; instead she passively observed the team and allowed employees' to learn naturally. Once one pair of employees was educated to a new task it was swapped with another pair. According to MBOB the selection of new employees had to be more accurate, so in the future she could adapt to the process better through introducing white board meetings. Because these will let people speak up, thus the change towards performance practice of *voicing fragment* (Majchrzak et al., 2012) would be possible (Figure: 16).

Figure 16: Change of performance practices in back office "B"

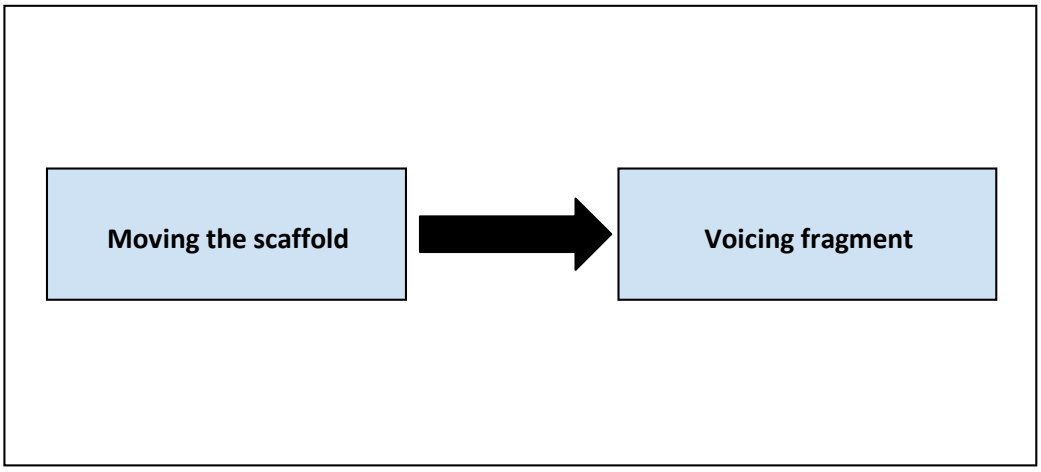


Figure: 16 demonstrate the initiated movement from performance practice of "Moving the scaffold aside" to voicing fragment in the back office "B". As a result the tendency is visible in comparison to the back office "A" as after following one performance practice the team faced challenges during the knowledge integration process, hence the change to another performance practice was initiated. Then, as the project continued the back office "C" engaged in knowledge integration.

The back office "C" team have also started the knowledge integration process with the *co-creation of scaffold*, by having all the employees commonly learn the tasks and then moving on to their tasks. The manager did not use the cross-learning approach; instead the learning

was based on team discussions and interactions. Hence, the process of knowledge integration did not take any considerable turns. Although there were issues with the increased workload and excessively large backlogs, the manager did not change the course of the learning practice. Instead she tried to coordinate the process in such a way that the team members would continue to learn collectively. Therefore, it is possible to argue that the process of knowledge integration was based only on the performance practice of co-creating the scaffold and practice based coordination (Figure: 17).

Figure 17: Change of performance practices in back office "C"

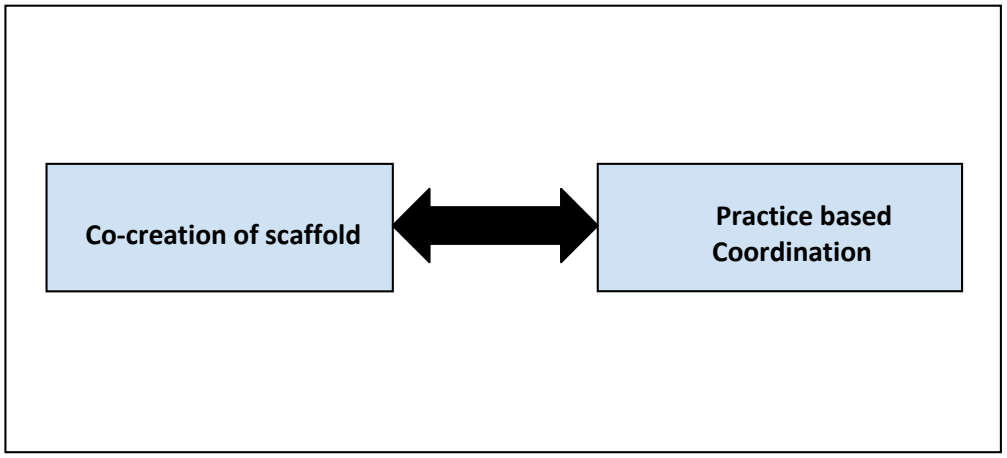


Figure: 17 demonstrates the use performance practice of "Co-creation of scaffold" in combination with practice based coordination in the back office "C" However, the use of practice based coordination, will be discussed in later parts of this analysis in order to expand the understanding of how the process of knowledge integration was executed in the studied project. Nevertheless at this point, it is interesting to take a closer look into what practices were used in case of the back office "D", since as project evolved further the back office "D" team engaged in knowledge integration process. In difference to the back office "C" the team manager did rely on cross - learning activities along with co-creation of scaffold performance practice.

On the other hand the example of the back office "D" team shows that the initiation of the knowledge integration process started with the manager engaging all employees into learning a new task from their colleagues. This can be interpreted as using the performance practice of *co-creating the scaffold*, which according Majchrzak et al. (2012) refers to creating a common experience for the project members. Nevertheless the practice did not give any return effect in the execution of cross-learning knowledge integration - the teaching employees did not learn any new tasks from their colleagues. Thus, from the critical point of view it is even possible to think that for that reason knowledge is not being integrated in the back office "D" team. However, the success brought by this training initiative has triggered the enthusiasm of other team members to be trained to execute more tasks that belong to other functional groups: "*after seeing the success of the first attempt to learn amongst the*

team members some other employees have expressed their wish to be trained to other tasks" (onsite observations, 2016). Therefore, it is also relevant to say that the process of knowledge integration in the back office "D" team is now undergoing the initial phases. It also seems to have a different curve than in other teams, since cross learning does not happen directly. Moreover, the employee's enthusiasm to learn more based on their recent learning experience, can also mean that in future the manager of the team will have to use the performance practice of *sustaining engagement*, (figure: 18) in order to maintain the learning spirit of the team members.

Figure 18: Change of performance practices in back office "D"

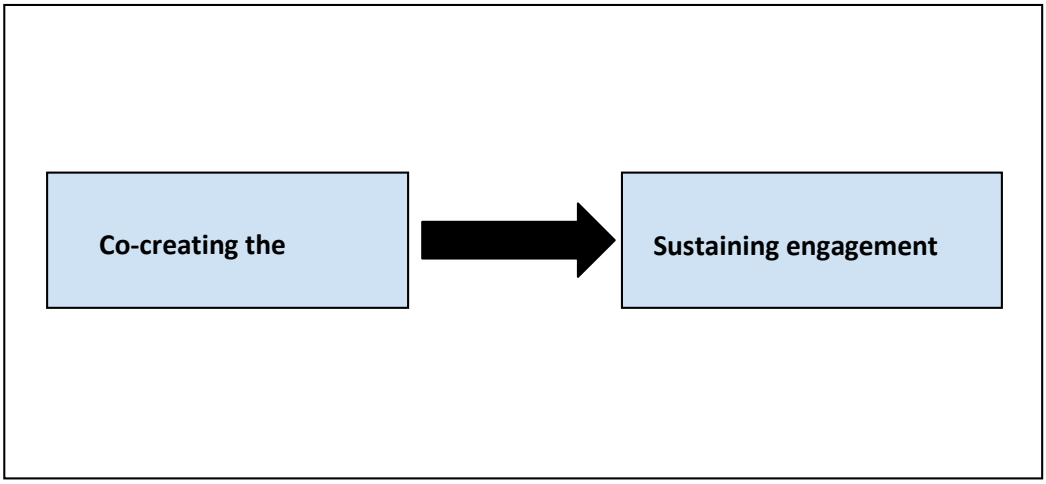


Figure: 18. Demonstrates how the back office "D" team moved from using co-creating the scaffold to sustaining engagement. Likewise, the knowledge integration process in this office changed when the manager switched from one performance practice to another.

At the point it can be argued that knowledge integration process has changed as the project evolved. In three out of four back offices the change of the process was executed through the alteration between different performance practices, which were explained according to Majchrzak et al. (2012) earlier in this study. In one back office the change of knowledge integration process was not so evident, since the manager used the performance-based practice in combination with practice based coordination. Therefore it is also important to explore what kind of practice based ordinations were used in execution of knowledge integration process and how the used of them complemented the change of knowledge integration process during the evolution of the project.

5.1.3 The use of knowledge integration practice based coordination and the change of KI process

In order to conduct the knowledge integration it is also possible to use practice-based coordination. Faraj & Xiao (2006) and Wahlstedt, (2014), identify two types of coordination such as the *Expertise Coordination Practices* and *Dialogic Coordination Practices*. The first practices including *reliance and protocol, plug-and play teaming, communities of practices,*

knowledge externalization. The second practices include *epistemic contestation, joint sense making, protocol breaking, cross boundary intervention*, (Faraj & Xiao, 2006).

However, the case study shows that the knowledge integration process can be different due to the uniqueness of every case. Thus, not all sorts of practice-based coordination were applied in each back office of the company. One such example is *communities of practices*, which can be explained as the planification of the task, of the training and for the control (Faraj & Xiao 2006). The managers of the back office "A", the back office "B" and the back office "C" used this coordination. However it was not seen in the back office "D" execution of knowledge integration process. Moreover, the second practice based coordination that was identified is *knowledge externalization*, which was also used by the "A", "B" and "C" back offices, but again, - it was not used by the back office "D" This coordination implies to a consultation between the specialist of the task and the procedure which have to be followed in order to integrate the knowledge. The third coordination of practice witch has been identified. - "*Reliance of protocol"* has, however been used only by the back office "D" team (Table 7.). The *reliance of protocol* corresponds to the actions that streamline the work and reduce the uncertainties. Moreover all these coordination practices are essential to successfully conduct knowledge integration.

However**,** *the plug- and-play teaming* were also applied in all the back offices "A", "B", "C", and "D" Because the company observed that the knowledge integration at the beginning of the project was not enough efficient due at different background of employees, the management of the SSC decided that all the new back office will be divided in team according their tasks and procedures. According to Faraj & Xiao (2006 in Wahlstedt, 2014), plug- *and-play teaming* can be understood as flexibility to change the requirements of the work in order to facilitate the integration of knowledge. The final practice based coordination that was identified is the *breaking protocol,* used by the back office "A" manager MBOA and the back office "B" manager MBOB . A practice based coordination *breaking of protocol* can be described, as a radical change of the procedure and practice when the manager realized that the practice used is not efficient for the tasks (Table 7).

Table 7: The use of practice-based coordination

Parctice based coordinations	Back offices
Expertise Coordination Practices	A, B,C, D
Communities of practices	A,B,C
Knowledge externalisation	A,B,C
Reliance of protocol	D
The plug- and-play teaming	A,B,C,D
Dialogic Coordination Practices	A,B
Breaking protocol	A,B
Epistemic contestation,joint sensemaking	N/A
Cross boundary intervention	N/A

Table: 7 demonstrate which practice-based coordination was used in different back offices of the company Alpha for implementing knowledge integration process. Following that it becomes evident that for executing knowledge integration processes the managers of the company relied on Expertise coordination practices. This practice-based coordination was used in all of the back office, whereas only back offices "A" and "B" were also using the Dialogic coordination practices. On this note it is interesting to look at how these practice-based coordinations were used and when.

In the case of the back office "A" manager MBOA partially used *communities of practice* in order to integrate the knowledge, the manager observed the work and assessed the integration, but did not take the responsibility to planify the task and procedure of this integration: "*as a manager I was observing the progress of my team members on daily bases"* MBOA. However, the back office "A" team was the first to apply the *knowledge externalization* coordination. Since it was the first back office relocated to the SSC, some problem due to the complexity of the task needed support from the colleagues abroad such as outside expertise. However, the back office "A" manager MBOA applied this interaction in order to integrate the knowledge inside the team between the members so that the members could participate in the decision. The back office "A" manager MBOA was used *Plug- and-play teaming* when he was realized that there were differences between the understanding and knowledge between the members that had to learn the same tasks. The Back office "A" manager realized that the personality of the team members had an impact on the knowledge integration process and in order to increase the efficiency of the process the back office "A" manager changed the procedure of the attribution of the tasks. *Breaking protocol based coordination was* used by MBOA in order to encourage the team members to

ask the question why this task is being done and what different practice can be more efficient in order to improve the task and the integration of the knowledge because the manager believe that when the employee is outside of a comfort zone the integration of knowledge is more efficient

For the back office "B" teams the practice-based coordination "*communities of practice"* was not applied completely. The back office "B" manager MBOB used this coordination in the first time to observe the situation and discussed it in order to have more training and support because the MBOB observed that the knowledge integration was slow and not efficient in order to be able answer completely of the work ask by any customer, this situation was due of lack of backup in the team. However the MBOB considered that it would be necessary to create tools such as whiteboard for example in order to coordinate the procedure of knowledge integration. Moreover, the back office "B" manager MBOB used *knowledge externalization* coordination, in order to support the communities of practice, the manager allow the team member to discuss the situation and to help each other. The MBOB explain the utilization of this coordination of practice because when the employee exchange between them it help all the team members to increase their understanding of their own knowledge. Concerning**,** the *plug- and-play teaming the* back office "B" the manager MBOB realized that in practice the knowledge integration process was challenging because of lack of employees who could provide the back up in order support different tasks. This was a problem because the cross learning approach was not the used first in order to integrate the knowledge. In order to resolve this situation the MBOB change the protocol in order to increase efficiency of the work to the development of more backup between the team members. The *breaking protocol* was the last coordination applied by the back office "B" manager. It was applied when MBOB changed between the transition and realized that the protocol that was used in order to integrate the knowledge was not efficient, and then used the method based on the breaking protocol in order to rethink how to integrate the knowledge in order to increase the efficiency of the process and of the work of the team. The MBOB explain the utilization of this coordination based because knowledge integration of the team was not related to the skills of each team members

In the case of the back office "C" team, the manager used the following practice based coordination. The back office "C" team used the *community of practice* from the beginning creation of the team. The MBOC used it in order to planify the tasks to learn, to prepare the schedule and the training. Moreover the back office "C" is the smaller team of the SSC and the MBOC released that the size of back office team will be a problem in order to respond customers demand. This situation didn't give any choice for MBOC, but to use this practice based coordination in order to integrate the knowledge. Moreover, back office "C" manager MBOC integrated the *knowledge externalization* coordination at the beginning of the process. Due to the fact that the team was small this was preferred by the manager in order to do a complete understanding of the tasks. The MBOC, used it during the transition period through an intense communication between team members in order to improve knowledge integration. However, the manager also increased this coordination through the participation

of the team member to the decision to improve the performance of the work. A *plug- and-play teaming was* applied when the back office "C" manager MBOC created their own procedures in order to adapt them to the situation of the process. Therefore the manager changed the requirement in order to be efficient in their work. The MBOC realized after the transfer period that a lot of backlog had to be taken into consideration; The MBOC noticed that the team was overworked with this new backlog and it was necessary to adapt the procedure and create their own procedure in order to be able to work efficiently.

The *reliance of protocol* coordination was used in the company Alpha by the back office" D" team, since the manager of this back office had the support from an expat, which was sent to the SSC from the original back office country. This helped to reduce the risk of operational uncertainties. The management (2016) used this expert as resource in order to help the team members understand their tasks and to improve the knowledge integration. In addition, the back office "D" manager MBOD, used *plug- and-play teaming* coordination based when he realized that in order to achieve the efficiency in their work it was necessary to change the schedule of the knowledge integration practice. It was necessary to make adjustment of the requirements such as the creation of a backlog and the integration of the knowledge. In fact this had to be done than previously planned. Similarly to MBOC, the manager of the Back office "D" team also realized that the team was overwhelmed with this backlog and that it was necessary to do adjustment of requirement in order to improve the knowledge integration and efficiency of the work.

Therefore, it was seen that the company Alpha used practice based coordinations during the process of knowledge integration. These were *Expertise Coordination Practices and Dialogic Coordination Practices.* However, the process of knowledge integration can be also shaped by conditions according to Söderlund (2010). Therefore, it could be interesting to observe what conditions the companies Alpha have to be faced

5.1.4 Conditions of knowledge integration process.

Söderlund (2010) stress the importance of *time conditions* and *sense of urgency* that persist in the adoption of personal and communication-intensive forms of knowledge integration, as these conditions play an important role, facilitating the change of the knowledge integration process. It is evident in the case of the back office "C" team, where the members were overwhelmed by the amount of work they had to do in order to deliver the operational output in a timely organized manner. The sense of urgency to be back on time with backlogs dictated the manager of the team MBOC to shift the team's work focus from individual to collective, so they would be few team members operating one task at the same time. This proved to be effective on the both sides of the coin. The backlog was minimized and the team-members learned each other tasks quicker. So, the knowledge integration process was made quicker and the knowledge of each employee has deepened considerably. Thus better efficiency of knowledge integration was achieved. According to Ravasi & Verona (2000) the efficiency of knowledge integration stands for how deeply the knowledge is understood by individuals. Also due to the team's flexibility the manager was able to re-configure the

patterns of integration, through leveraging between tasks that needed more work and ones that needed less work. This corresponds to the openness of the knowledge integration process to periodic re-configuration of the integration patterns as per Ravasi & Verona (2000). The example of the back office "C" also implies a direct and instant achievement the full scope of knowledge integration, which according to Ravasi & Verona (2000) is another important factor conditioning the knowledge integration process. The scope was achieved because the whole team was engaged in knowledge integration process at the same time.

A similar situation occurred in the back office "D" team. The increased backlog and shortage of time urged the manager to make the decision to start engaging the employees in cross-learning activities of knowledge integration. As a result the team-members have successfully learned new tasks from their colleagues and the operational backlog was minimized. However, in contrast to the team "C", the flexibility was not so evident. Due to the considerably bigger size of the team, it was not as easy to move people around and the teaching team-members did not have their chance learn from their colleagues. Also because of a greater variety of tasks some employees were more knowledgeable than others (on site observations, 2016). Thus the manager did not change the performance practices, which would mean a re-configuration of the knowledge integration pattern, during the process. Despite this the change can be considered in the future. Nevertheless, the successful results of the training sparked the enthusiasm of the employees to engage in more learning across the functional teams. This opened the opportunities to further development of the knowledge integration process. However, because the knowledge was shared when the employees had not fully assimilated it, the process of knowledge integration seems to be overly extended and the scope is not reached. This shows the contrast from how the knowledge integration process was implemented in the back office "C" team. Also, this implies to the need of additional efforts for the back office "D" team in synchronizing learning activities. Thus this corresponds to what Söderlund (2010) explains as conventional activity synchronization. Due to heterogeneity of time the team learning activities have to be conventionally synchronized, hence knowledge has to be entrained Söderlund (2010).

In contrast to back office "C" and "D", the process of knowledge integration in the back office "B" team was first and foremost affected by the heterogeneity of people's individual skills and competences. The manager of the team had noticed differences in team member's ability to execute different tasks. Some employees were able to be fully operational individually; others needed support from their colleagues. Hence the depth of individual knowledge was uneven. This leads to the fact that efficiency of integration, described by Ravasi & Verona (2000) was a condition allowing to challenges in learning to occur. Since there was no re-configuration of the integration patterns the flexibility appears to have not been considered. However, the timing issue can be considered as a condition, which affected the process of knowledge integration. Employees felt pressure to execute their own tasks on time when at the same time they had to learn from their colleagues (MBOB). The manager did not change any performance practices but passively observed the interaction amongst the employees that were learning. As a matter of fact the knowledge integration process was extended. The extension of the knowledge integration process can also relate to the bigger

scope of knowledge. The scope according to Ravasi & Verona (2000) refers to the variety and breadth of knowledge that the organization, or in this case the team, can embrace. The back office "B" team was generally much larger, than the team "C". Hence the number of tasks the team had to operate was also higher.

In contrast to back office "B" team, the depth of individual knowledge, which links to the efficiency of the knowledge integration (Ravasi & Verona, 2000), did not play a big role during the knowledge integration process in the back office "A" team. Instead this was more of an issue during the pre-integration (stabilization) period, when according to MBOA a lot of her team members were not confident in the knowledge that they gained during the transfer phase. The back office "A" team was also considered to be a big team and the number of tasks was considerably high. This shaped a big scope of knowledge that had to be embraced by the members of the team during the process of knowledge integration. Despite this the team was individually skillful, thus the scope condition did not lead to changes in the knowledge integration process. On the other hand the process was considerably shaped by team members' personalities and attitudes towards learning, as per MBOA. The manager had to change the approach to engagement in learning activities by alternating from one knowledge integration practice to another. This implies a re-configuration of integration practices, (Ravasi & Verona, 2000) and therefore, the factor of flexibility played a big role in shaping the process. Moreover, the sense of urgency, which according to Söderlund (2010) comes from adoption of personal intensive knowledge integration forms, helped the manager to make the decision to change the approach to engagement. MBOA understood the differences in employees' personal backgrounds and their belonging to different generations.

At this point it is possible to sum up the analysis on what kind of factor based conditions as per (Söderlund, 2010) and (Ravasi & Verona, 2000) were present during knowledge integration process in the company Alpha. As the project evolved different back office teams faced a number of factor based conditions that in one or the other way shaped the knowledge integration process (Table 8.)

Table 8: Factor- based conditions present in KIP

Factor-based conditions present in KIP	Back offices
Efficiency of integration	B,C
Scope	A,B,C
Flexibility	A,C
Timing	A,B,C,D
Conventional activity synchronisation	N/A

Table: 8. demonstrates which factor-based conditions were present in knowledge integration process in different back office of the company Alpha. It is interesting to notice that "*Timing"* appeared as a condition shaping the knowledge integration process in all back offices. This implies that the factor-based condition was present in all stages of the project that has been researched. On the other hand the condition of Conventional activity synchronization turned not to be present in knowledge integration process during the project. Whereas conditions like scope, flexibility and efficiency of integration were present during different stages project evolution. Based on that it is possible to argue that factor based conditions can vary as the project evolves. Nevertheless, what turns out to be noticeable, is that along the execution of knowledge integration process the management faced challenges that triggered their decisions on either swapping one performance practice another, or to adopt different practice-based coordinations. It is possible to argue that these challenges emerging as the matter of different factor-based conditions being present during the execution of knowledge integration process. However it is more important look in what those challenges are and how they trigger the change.

5.1.5 Knowledge integration Challenges

Since the knowledge integration process involved the challenges for the teams it is relevant to look at those challenges. Hence the analysis will now focus on the challenges that occurred during the knowledge integration process. The company Alpha case demonstrates that the company had to face several challenges. These challenges were identified through our empirical analysis and theory framework.

The first of the challenges that have been identified by most of the different back office managers was the challenge of lack of time. The back offices "B", "C" and "D" experienced it. Moreover, according to several authors, such as Okhuysen & Eisenhardt (2002), Magnuson & Lakemond (2011), Enberg (2007) and Larson (2007), time is one of the challenges when it comes to integrating knowledge. The first back office that identified the challenge of time for the process of knowledge integration was the back office "B" team. This challenge was identified when the team members did not have time for learning

because of the volume of work they had to do individually MBOB. The pressure to keep up with the deadlines required the team members to have support from the colleagues and to organize an operational backup. Besides the timing issue to learn the tasks of colleagues, the team members also struggled with operating their own tasks. Moreover, the back office "C" manager similarly identified "time" as challenge knowledge integration, just like the back office "B" team. For the MBOC the amount of task and backlogs that the team had to face, the pressure to keep up with deadlines and to answer to their customers, when the amount of tasks to due for each employee required of the MBOC to increase the knowledge integration progress through the utilization of tools such as formal and informal meetings and the reorganization of the operational backup for example to solve the challenge of time. As for the back office "D" team, the main challenge in integrating knowledge was also referred to as lack of time. After the first round of learning, the team members only managed to educate their colleagues but did not receive any education themselves.
As the matter of fact, they did not have time to learn new tasks (onsite observations, 2016).

The second challenge knowledge integration was the complexity of the tasks, which according to Berggren et al. (2011) is a common challenge that can be faced during the knowledge integration. This can imply that the task is very difficult to achieve (Berggren et. al., 2011) or it can come from the fact that team members simply do not have the skills needed to operate that task. According to MBOB not all the team members had the language skills to needed to operate or to learn the specific task. Berggren et al. (2011) in fact mentions that language is an important thing to consider when integrating knowledge, where the tasks are country specific. The first back office that identified this challenge was the back office "B" team, whose MBOB argues that due to the lack of individual skills the members of the back office "B" team were struggling to understand or interpret the tasks correctly. The interpretation of knowledge is another challenge according to Wahlstedt (2014). This challenge is especially common in the team, whose members are of a different background when it comes to education. The manager of the team, however, claims that due to the education profiles of new candidates that will join the team in the nearest future, challenges to the successful integration of knowledge will not occur. Concerning the back office "D" team, the challenge of the complexity of the task can be understood as a lack of knowledge to understand the tasks and to clearly be able to perform. This challenge can be related to the lack of experience and moreover, the previous challenges as a lack of a time to learn the knowledge in order to reduce the challenge of task complexity. As we explained previously the task complexity can be interpreted as challenge linked to several challenges having the good skill, language and education to be able to integrate and understand the knowledge.

Several teams have identified different challenges. The first challenge can be described as how people with different background, education, and perception can integrate knowledge. The second challenge is related to the previous one. It refers to how a manager of knowledge integration project can select the right team members for implementing the process according to their background.

Berggren et al. (2011) in fact mentions that language is an important thing to consider when integrating knowledge, where the tasks are country specific, Moreover, Wahlstedt (2014) and Majchrzak et al. (2012) explain that heterogeneity of perspective and difference in education and background can be challenging for a process of knowledge integration. The MBOA can try to select the tasks according to the background of the team member. However this creates new challenges as to how to select the task for each member according to their background. Rico et al. (2008) explain that selecting tasks according to the background of team members can be challenging for the process of knowledge integration. According to Rico et al. (2008), differences in team members' backgrounds can relate to culture, education, skill, experience, and languages. Hence, the interpretation of knowledge is another challenge according to Wahlstedt (2014). Moreover Dougherty (1992) explains that the interpretation of knowledge and in fact to the integration of the process is linked to the personality of the team member.

This was visible in the back office "A" and "B" teams. The MBOA and the MBOC describe language as a challenge for the knowledge integration process. According to MBOB not all the team members had the needed language skills in order to operate or to learn the specific task. Also, MBOB argued that due to the lack of individual skills the members of the back office "B" team were struggling to understand or interpret the tasks correctly. Therefore, the manager stressed out the importance of accurate and more profile based selection of new candidates to join the team in the future. As a result this should prevent new challenges of employees having lack of skills to occur. The MBOA, on other hand, has also mentioned that the difference between the education and the background of employees had an impact on the process of knowledge integration. The manager realized that the team members learn differently. Some of them are fast and others slow learners. Therefore it was necessary to select the knowledge and the members that will learn carefully. This selection itself turned to be a challenge for the back office "A" manager.

5.1.6 Mechanisms

Knowledge integration mechanisms discussed by authors Grant (1996), Okhuysen & Eisenhardt (2002), Söderlund (2010), Faraj & Sproull (2000), and Tiwana & McLean (2005). The case study has showed that during the knowledge integration process, different back office teams have adopted several different mechanisms, such as *creation of rules and standards, formal interventions, recognizing the need for expertise, creation of deadlines, communication with cooperation and coordination, creating relational capital* and *use of absorptive capacity.*

All back office teams used certain mechanisms to integrate the knowledge. However it is interesting that apart from the manager of the team "C", no other manager clearly identifies the internal creation of rules and procedures on how the learning process should have been done and how the tasks can be learned and operated quicker. According to Grant (1996a) in order for knowledge to be shared effectively the team members engaged in learning should create rules, standards and procedures. MBOC argued that due to a limited amount of

resources and excessive workload the team had to create their own instructions and norms on how to learn and operate the their work. As a result it proved to be helpful and effective when the team was integrating the knowledge. Although it is not evident in the case study that other teams adopted this kind of mechanism, there is evidence that the team managers used other mechanisms. This particularly applies to the use of formal interventions.

The back office "A" manager as well as the back office "D" manager used a lot of one-2-one meetings to question their team members in order to find out how suitable they are for learning / teaching or how to find solutions to the operational issues. Questioning others along with information sharing and time management is a formal intervention mechanism identified by Okhuysen & Eisenhardt (2002). Information sharing was a mechanism mainly adopted by the back office "C" team in further implementation of the knowledge integration process. The members of this team had to engage in-group discussions and share the information amongst them. This stimulated quicker learning and better implementation of knowledge integration process. On the other hand the back office "B" team used more of the time management techniques during the knowledge integration process. These techniques can be understood as finding a backup for employees who were struggling to learn due to the time pressure.

MBOB realized that the knowledge integration process for the team was not enough in order to work efficiently. Although the back office "B" already used the mechanisms of time management and deadline creation it was not effective. This is because more time pressure appeared. However, the time pressure itself has been identify by Söderlund (2010), Lindkvist et al (1998) as a mechanism helping to integrate the knowledge. According to these authors the time constraint intensified the knowledge integration through the participation of the employee in sharing the knowledge. However the manager of the back office "B" team realized that the time constraints such as deadlines have to be controlled and respected in order to intensify the knowledge integration process, The MBOB encouraged the employee to communicate and increase the knowledge integration between the members in order to answer to this situation.

The manager of the back office "C" team used communication at the beginning of the knowledge integration process. The mechanism of "Communication" was adopted in order to improve the integration of the knowledge. MBOCencouraged the employees to communicate and share their thinking on how to learn and how to increase the performance of their work. Nevertheless, since communication may not be efficient if it is not coordinated Faraj & Sproull (2000, 1554-1568), the coordination of knowledge integration process communication has been present in the company Alpha all the way along the evolution of project. This communication was coordinated through meetings and discussions, which were meant to increase the team members' understanding of knowledge. This resulted in increased cooperation amongst the employees in solving the problems that had come up. Moreover according to Okhuysen & Eisenhardt (2002) communication is essential in order to integrate knowledge. However Tiwana & McLean (2005) argue the importance of cooperation between team members in order to integrate the knowledge.

Since, Faraj & Sproull (2000) argue that communication without coordination is not enough in order to integrate the knowledge. The example of the back office "C" team shows how communication was used in connection to coordination and cooperation. On the other hand communication can also help to identify the challenges, which require managers to change the process practices. That leads to the fact that several knowledge integration mechanisms can be used during the integration process.

The use of one mechanism appeared to be insufficient for some teams. This is because during the process of knowledge integration challenges occurred. The challenges forced the managers to change the process practices. As a result of changing those practices additional mechanisms had to be added. This is clearly demonstrated in the example of the back office "A" team. After the manager realized that different employees' personalities were causing integration challenges, she chose a different performance practice for integrating the knowledge. This was setting the priority to identify the tasks that needed to be learned. This naturally led to the adoption of a new mechanism, which is "*Knowing expertise location"*. This in the view of Faraj & Sproull (2000) is about finding the knowledge needed for the company.

As the process of knowledge integration in the back office "B" team evolved the manager also adopted additional mechanisms. After dealing with time issues and deadline creation, the manager allowed the team members to interact more with each other during the delivery of tasks. This helped them to gain better trust in their colleagues' skills. Hence, "*Relational capital*" (Tiwana and McLean, 2005) was created. Moreover, this also encouraged employees to interrelate with their colleague's expertise. This created "*Absorptive Capacity*", which helped the manager to observe and evaluate the process of knowledge integration. According to MBOB prioritizing the passive observation of how team members learn was important in order to be able to move people between the tasks. As a result it has become possible to pair up the employees according their skill level.

5.1.7 Analysis implications

In this paragraph we will summarize our analysis in order to show the link between our empiric data and our theory. In our analysis of empirical material' the case study on knowledge integration of company Alpha demonstrates that knowledge integration can be understood as a process

The analysis of the empirical material shows that the implementation of a knowledge integration process can done through the application of performance practices identified by Majchrzak et al., (2012) and practice based coordination, which was discussed by researchers Faraj & Xiao (2006) and Wahlstedt, (2014). It has also become visible that the performance practices can be replaced by other practices during the process of knowledge integration. This replacement depends on the manager's interpretation of the knowledge integration progress and the processual situation in the team. Therefore it is possible to claim that the use of performance practices is variable. Moreover the use of the performance-based

practices as well as the practice-based coordination can be influenced by factor-based conditions, which are discussed by Söderlund (2010) and Ravasi & Verona (2000). For this reason the process of knowledge integration can be changed and challenged. Different knowledge integration challenges, which were identified with help of the theory, are, in fact, proved to be existent in practice. The analysis of the empirics implies that there are three main challenges that occur during the process of knowledge integration. These are:

- Time
- Task complexity
- Background and education

However, the analysis also demonstrates that challenges can be different. That depends on synergy of practices and conditions. Moreover, the occurrence of challenges requires the use of different practices, which means that additional mechanisms can be added. The analysis of the case study shows that the mechanisms listed below have been used by the managers of different back office teams in order to integrate the knowledge:

- Creation of rules and standards,
- Questioning others, time management,
- Information sharing,
- Creation of the deadline,
- Communication through a cooperation and coordination,
- Recognizing the need for expertise,
- Creation of relational capital and absorptive capacity.

Since knowledge integration can be changed due to the existence of challenges, the application of mechanisms can be also be different. In fact the analyzed case study suggests that there can be several mechanisms used during the knowledge integration process. Nevertheless, these mechanisms are not necessarily replaced by other mechanisms. Therefore it is possible to claim that the use of knowledge integration mechanisms is constant.

By acknowledging that the knowledge integration process can be implemented with the use of mechanisms, which are understood as constant and that this process can be changed due to the variability challenges, which occur during this process, we can now present the findings of our research.

5.2. Findings

There are several important things to draw from the analysis. First of all, the case study demonstrates that the knowledge integration process adopted by the company Alpha is unique since different back office teams apply it differently. The first team that engaged in

the process was focused on considerable effort to coordinate the process of knowledge integration by applying several sorts of practice-based coordination. However, the manager of the team understood the challenges that called for the change of tactic. Therefore she replaced one performance practice with the other. As a result the process of knowledge integration has changed. At the same time it is possible to claim that responding to the knowledge integration challenges led into the change of the knowledge integration process.

As the project evolved the next team that engaged in knowledge integration process undertook practice-based coordination, which was enough to eliminate the challenge. Nonetheless this approach took a long time and eventually as she decided to recruit more employees the manager is now considering changing the performance-based practice in order to avoid future challenges. This shows that the change of the knowledge integration process can be the reason for challenges to re-occur or change.

In further evolution of the project the third team has engaged in the knowledge integration process and in no difference the previous team has also taken a practice-based coordination approach to coordinate the process. However the team did not replace the performance-based practices, instead it engaged even more in coordination in order to eliminate the challenges. The elimination of challenges in this case sped up the process of knowledge integration, which implies that the process has changed. However, the occurrence of new challenges has not been detected.

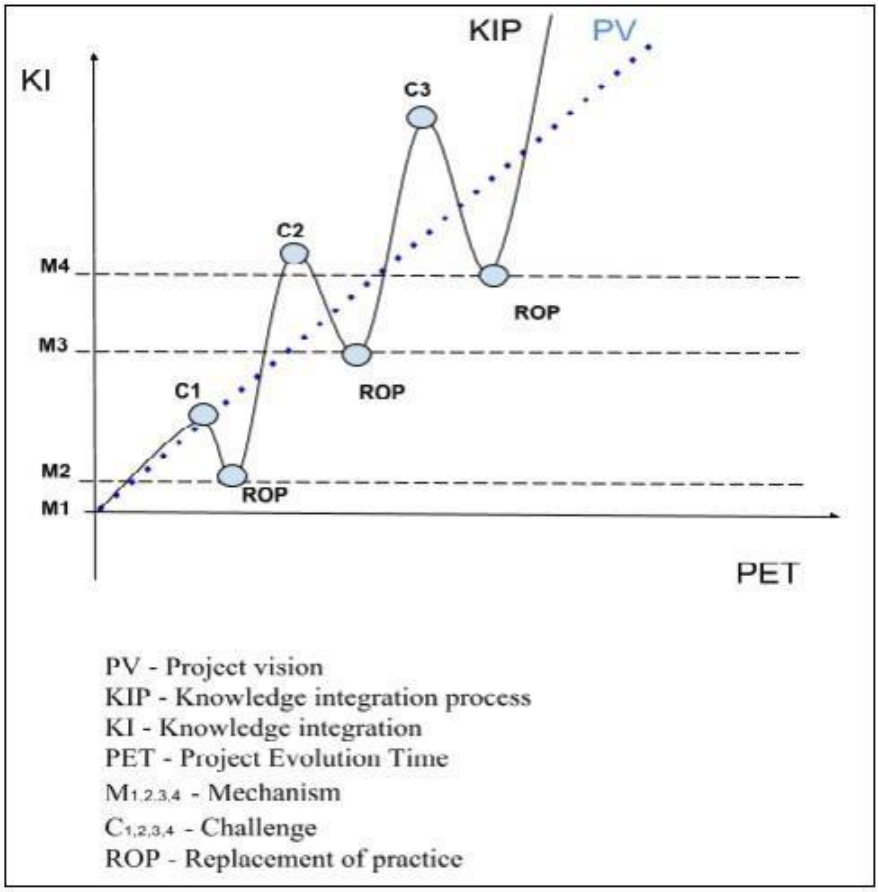
In most recent phase of the project evolution, the fourth team has engaged in the process and also undertaken considerable effort in using practice based-coordination. However, it has been identified that the knowledge integration process is not yet complete. Moreover it was also identified that due to the extension of the knowledge integration process more challenges are expected to occur, thus it might require the replacement of performance practices. Thus this implies that the process can be changed by efforts to eliminate the challenges.

To summarize, this shows that the change of the knowledge integration process can facilitate the occurrence of new challenges just as trying to eliminate those challenges can lead the knowledge integration to change. That also demonstrates that the company either can attempt to coordinate the knowledge integration process or adapt to it. However the study has also showed that the decision on whether the process of knowledge integration should be coordinated or adapted to, depends on how the managers of the teams interpret the situation and how they understand the challenges that occur.

The second finding that this study suggests is that the knowledge integration process changes because of the interrelation between actors. One of these actors is the knowledge integration mechanism, which are applied as constant during the time the knowledge is integrated. Another one is performance practices, which can be understood as variables due to being replaced each time challenges occur and are recognized. The next one is knowledge integration challenges, which slow down the knowledge integration process and create a

need for change of integration tactic. The study has also led to the understanding that the actual process of knowledge integration changes during the evolution of project time and the changes occur each time the manager realizes there is a challenge and makes a decision to replace the performance practices. The changes can lead to the process adopting additional mechanisms of knowledge integration. Thus the more the project evolves, the more the knowledge integration process is changed. As a matter of fact the more knowledge integration mechanisms will be adopted. Thus in long run there might be a shortage of new mechanisms, which will slow the integration process or there can be a surplus of the mechanisms in use. Hence some of those might become irrelevant or cause the reasons for new challenges to the knowledge integration process to occur. This relation between the discussed actors can, in our view, be visualized as followed.

Figure 19: The change of Knowledge Integration process in time of project evolution



The visualization demonstrates how the process of knowledge integration changes during the time of continued project evolution. Since the project of knowledge integration in the company Alpha required to firstly integrating knowledge within the back offices “A”, “B”, “C” and “D”, the researched phase of the project revealed how the knowledge integration process changed over the time. The back office “A” was first to engage in the process. The manager adopted integration mechanism of formal interventions. However under the knowledge integration conditions of flexibility and time challenges occurred. As a result the

result the manager of the back office team dealt with them by moving from one-performance practices to another. This fixed the continuation of knowledge integration process. However it also added additional knowledge integration mechanism of knowing expertise location. At the same time the earlier used mechanism remained in use. As the project moved on with knowledge integration in the back office “B”, then “C” and then “D” the similar trend has been noticed.

Thus, it is possible to argue that knowledge integration is starts with adoption of a particular mechanism. Then once different challenges occur, the management can replace one integration practice with another one. This fixes the continuation of knowledge integration process. However it adds an additional integration mechanism. The experience of knowledge integration process in project also allows in later stages of the project adopt different mechanism and integration practices. That happens until new challenges occur, which age leads the knowledge integration process to change through the alternation between practices and adoption of new mechanism. As a result it becomes logical to claim that: the more the project evolves, the more mechanisms knowledge integration process will have to adopt. At the same time more challenges will be faced. Therefore it is also becomes interesting to engage in more studies on processual knowledge integration so as to learn whether in long run the change of knowledge integration process will have relation to some of the used mechanisms to become obsolete.

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6. Conclusion

This last chapter is to provide a final overview of the thesis and more precisely to draw the attention towards the understanding on how the knowledge integration process changes during the evolution of project. Moreover, the implications of this master thesis as well as findings will be explained in coherence with the theory that has been reviewed. Furthermore, this study suggests that that in order to provide a more solid contribution the existing theory on knowledge integration process in projects further research in this field is needed.

6.1 Summarizing the study

This study has drawn attention to knowledge integration and its processual phenomena in single company's project. Although, the concept of knowledge integration has already been researched by many scholars, including Grant (2013), Ravasi & Verona (2000), Okhuysen & Eisenhardt (2002), Tiwana (2008), (Söderlund, 2010), Majchrzak et al. (2012). The processual understanding had not been entirely explored. Thus, the exploration of the change of knowledge integration process has led this study through interesting theoretical and empirical findings. To a certain point it has become important to grasp the ideas on how knowledge integration process can be conducted and what challenges, as well as what mechanisms feature in this process. Moreover, the examining of the empirical case allowed us finding linkages between practical application of knowledge integration and its processual understanding in theory.

Following the purpose to deepen the understanding of the phenomena of knowledge integration process and the change of it, the study has acknowledged its dynamic nature. That also led to envision the interrelation amongst knowledge integration process and project as well perspectives and problem, which were researched by Söderlund (2010). Thus it was possible to create a prism for empirical observation of the project evolution at the chosen company. Observing this project evolution led us into studying how the process of knowledge integration does change in practice. This in fact, steered the study to build reasoning that would confirm the ideas of Majchrzak et al. (2012) and Faraj & Xiao (2006) who claimed that knowledge integration process can consist of the use of different performance practices or rely on practice based coordinations. It also supported the ideas of Ravasi & Verona (2000) and Söderlund (2010), who suggested the existence of factor-based conditions that can shape the knowledge integration process. Moreover, knowledge integration challenges, which were mentioned by Berggren et al. (2010), Enberg (2007), Wahlstedt (2014) and Rico et al. (2008), as well as knowledge integration mechanisms that were discussed by Okhuysen & Eisenhardt (2002), Söderlund (2010), Faraj & Sproull (2000) and Tiwana & McLean (2005) turned to be evident in processual implementation of knowledge integration.

Overall this thesis provides us three major concluding remarks. First, the analysis of the theoretical and the empirical material has made it possible to conduct the answer to the research question of: "*How does the process of knowledge integration change during the evolution of the project? "*. Second, after the research question is answered it is possible to take a step further and draw the implications of knowledge integration process. Finally the third remark suggests us the possibility to extend this research into several different areas of exploration, which can be the subject for future research. This in all could further contribute to the understanding of knowledge integration process in the world of academia.

6.2 Answering to the research question

The findings of this study have demonstrated that implementation of the knowledge integration requires the company's management to adopt knowledge integration mechanisms. Besides that the use of performance practices or practice-based coordination, which facilitates the process of knowledge integration, is an important aspect of this process implementation. Then, as knowledge integration process progresses during the evolution of project, different challenges occur. The mitigation of those challenges implies the alternation between different performance practices and /or practice based coordination. Moving from one performance practice to another directly result into the change of the knowledge integration process. Also, it turned to be visible that as the project evolves further the management adopts additional mechanisms. In parallel to that new challenges occur. This calls for more alteration in a sense of moving between performance practices. As a result the process of knowledge integration changes again.

Indeed, during the course of this thesis the study of knowledge integration process revealed that this process is not linear in its timely progression. This is because it changes as the project evolves. Also because the knowledge integration process does change, as it was described above, it is possible to argue that in long-term perspective the greater knowledge integration will face greater amount of challenges. At the same it will require more knowledge integration mechanisms to be put in practice. Moreover, contemplating the knowledge integration process from the perspective of project evolution sets the possibility to recognize interrelationship between the knowledge integration process, its challenges and mechanisms. This interrelationship form the knowledge integration progression to curve as the project evolves further.

6.3 Implications of knowledge integration process

The change of knowledge integration process calls us to look in how the ideas of scholars match the implementation process in practice. For instance, Söderlund (2011) argue that process can be viewed as a project if it is the implementation of that project. In this study the knowledge integration process is explored from the perspective of project. The evolution of the company Alpha's project interrelates with the knowledge integration process, as this process changes when the project evolves.

Moreover, Okhuysen & Eisenhardt (2002) had stressed the importance of formal and informal interventions for the implementation of knowledge integration process. The empirical findings of this master thesis demonstrate that in the case of company Alpha the informal intervention is the one that is used the most. It can be visible in a form of communication between different managers and employees in different back offices and also in the fact that the experience of knowledge integration is regularly shared amongst all the managers. As a result this leads to adopting new knowledge integration mechanisms after the process of knowledge integration is changed.

Grant (1996a) in fact, argues that knowledge integration can be improved through the utilization of the experience. The experiences and feedback shared between managers was useful for the project, since based on experience from each back office the managers were able use the different mechanisms so as to improve the process of knowledge integration.

Söderlund (2011) and Enberg (2007) argue that process and knowledge integration are dynamic. The dynamic nature of knowledge integration process has been acknowledged in this study. This, in fact allowed to get closer towards exploring how does the knowledge integration process changed. In addition to that it has become noticeable that not the process of knowledge integration change but also the implementation of this process changes at the same time. This then also makes it possible for management to adopt new knowledge integration mechanisms in further evolution of project.

Nevertheless, it may seem to be over ambitious to claim that this study suggests a new line of thinking in the knowledge integration field of research. Despite that the arguments of this thesis imply the need to explore this area deeper and in a broader context.

6.4 Future research

There are however several things that require additional research, in order to support this study. Due to this reason we suggest the following four areas that could be researched further.

First of all, this thesis has researched knowledge integration process in a project of single company case. Therefore the findings that were presented apply only for this company. It is likely that similar findings could be revealed in more companies. However for this to be arguable it is necessary to research knowledge integration process in multiple cases. This would call for broader empirical focus. Therefore, replicating the study in more companies could be suggested. As a result it can either provide support to now existing suggestions or criticism with implications to this study improvement.

The second point to mention is the fact that this study has taken processual perspective of knowledge integration mainly from theoretical reference of a certain scholars, as their research has better suited this study setting and dilemma. This therefore forms one angle of interpretation. It would be interesting to how the study can be different if perspective is formed other authors in the field of knowledge integration and project management.

The third is, - we argue that the knowledge integration process can be constituted of performance practices discussed by Majchrzak et al. (2012) or practice based coordination, researched by Faraj & Xiao (2006) and shaped by factor-based conditions mentioned by Söderlund (2010) and Ravasi & Verona (2000). However, it should be acknowledged that understanding of how knowledge integration process is constituted is not indifferent and can be built on different theoretical grounds. This leads to the suggestions that more research on knowledge integration process is needed.

Finally in addition to the need of researching the knowledge integration process further it is also important to mention that the study suggested that the knowledge integration process is non-linear during the evolution of project and that it changes as the project evolves further. Following this it is interesting to explore more the nonlinearity of knowledge integration process. This should contribute to understanding of the specifics on how the knowledge integration process is changed at the point when this change happens.

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Appendix

Appendix 1: List of the Interviews

Interview 1. (2016). Manager for the projects and organizational development, Company Alpha, take on the 22/03/2016.

Interview 2. (2016). Manager of back office "A". Company Alpha, take on the 25/03/2016

Interview 3. (2016). Manager of back office "B". Company Alpha, take on the 11/04/2016.

Interview 4. (2016). Manager of back office "C". Company Alpha, take on the 5/04/2016.

Interview 5. (2016). Manager of back office "D". Company Alpha, take on the 18/03/2016

Interview 6. (2016). Head manager of the back office "D". Company Alpha, take on the 8/03/2016

Interview 7. (2016). Project manager of back office "D". Company Alpha, take on the 10/03/2016

Appendix 2: Interview Question

1. What is your name and title?

2. What is your background?

3. When did u get involved in the project?

4. What is/was your role in the project?

5. Have you been involved in process of team members learning their working procedures from each other? How long did it take for the teams to gain common understanding of each other tasks? What was your role then?

6. From your point of view what were the main challenges that team members faced during the cross-learning activities. Can you identify 3 main challenges for you as a team leader / manager in this process?

7. When did you understood that there are issues and what did you do to overcome them? What is the lesson learned?

8. Do you think the teams that will continue the back office tasks in Vilnius will face same challenges or will it be different? Why?

9. What would be you word of advice to those teams and their teams?

10. What would you wish and advice to the management of the ne back office teams when it comes to learning amongst them?

Appendix 3: Onsite Questionnaire questions to the company's employees

List of questions

1. Which one of the following is your designated international office team?

2. Which age group do you belong to?

3. What is your current education?

4. How long have you worked in this organization?

5. Which of the following languages do you speak?

    5.1. Are you fluent in the language of your designated international office? If your answer is "No" please proceed to question 6.
    5.2. Does knowing the language of your designated international office help you to learn working tasks quicker and better?

6. Have you ever engaged in learning from / teaching your colleagues in your department to new working tasks / procedures?

7. What could you name as a challenge when you learned from / taught your colleagues new tasks in your department? Please choose 3 most applicable?

8. What could you name as a challenge when you learned from / taught your colleagues new tasks in your department? Please choose 3 most applicable?

9. Do you consider that learning from / teaching your colleagues has helped you to learn better your tasks and to become a more skilled professional in your organization?

    If your answer to previous question was "yes", could you briefly specify why?