



Open your mind. LUT.
Lappeenranta University of Technology

Lappeenranta University of Technology
LUT School of Business and Management
Industrial Engineering and Management
Operations Management
Master's thesis

Knowledge management and sharing of internal best practices in the global service business

Last edited 09.08.2018

Knowledge management and sharing of internal best practices in the global service business

Author: Eero-Kaappo Koivisto

Examiner: D.Sc. (Tech) Timo Pirttilä



Open your mind. LUT.
Lappeenranta **University of Technology**

ABSTRACT

Author: Eero-Kaappo Koivisto

Subject: Knowledge management and sharing of internal best practices in the global service business

Year: 2018

Place: Helsinki, Finland

Master's thesis. Lappeenranta University of Technology, Industrial Engineering and Management

101 pages, 26 figures, 11 tables.

Examiner: D.Sc. (Tech) Timo Pirttilä

Keywords: Knowledge management, sharing best practices

The purpose of the present study was twofold; First, gain an in-depth understanding of knowledge management (KM) and best practice sharing as methodologies, and, second, propose steps how the case company could improve its current way of working. Therefore, a qualitative research methodology was chosen for this work. This study was conducted as a descriptive single case study, where data was gathered through four audits, a survey and five interviews.

This study revealed that a balanced perspective of KM existed in the case company's field services (FS) and both personalization and codification strategies were in use. A significant gap in knowledge level between coordinators in area organizations and personnel in the central FS function was identified and, therefore, the effectiveness of the current KM methods was seen as limited. Furthermore, barriers for sharing best practices presented in the relevant literature were also seen in the case company.

Usage of existing knowledge networks, KM responsibilities and requirements and human resources practices were identified as main improvement areas for KM. Furthermore, the sharing of best practices in the case company's field services could be enhanced by improving the visibility of operative performance with operational performance management system, increasing internal benchmarking and securing sufficient time for employees to share best practices.

TIIVISTELMÄ

Tekijä: Eero-Kaappo Koivisto

Aihe: Tietämyksenhallinta ja sisäisten parhaiden käytäntöjen jako globaalissa palveluliiketoiminnassa

Vuosi: 2018

Paikka: Helsinki, Finland

Diplomityö, Lappeenrannan teknillinen yliopisto, tuotantotalous.

101 sivua, 26 kuvaa, 11 taulukkoa.

Työn tarkastaja: D.Sc. (Tech) Timo Pirttilä

Avainsanat: Tietämyksenhallinta, parhaiden käytäntöjen jako

Tällä diplomityöllä oli kaksi tavoitetta: saavuttaa tarkka ymmärrys tietämyksenhallinnasta sekä parhaiden käytäntöjen jaosta metodologioina ja esittää kehitysehdotuksia tutkittavalle yritykselle. Tutkimus toteutettiin kvalitatiivista tutkimusmenetelmää hyödyntäen. Deskriptiivinen tapaustutkimus valittiin tutkimustavaksi ja työn tiedonkeruu suoritettiin neljällä prosessiauditoinnilla, kyselyllä sekä viidellä haastattelulla.

Työn tulokset osoittivat, että kohdeyritys hyödyntää tasapainoitettua perspektiiviä tietämyksen hallinnassa ja käyttää sekä personalisointia että kodifikaatiota tietämyksenhallintastrategiassaan. Yrityksen tietämyksen hallinnan tehokkuus on kuitenkin puutteellinen, sillä eri organisaatioiden välillä löydettiin suuria eroja tietämyksessä. Lisäksi kirjallisuuden esittämät haasteet parhaiden käytäntöjen jaolle olivat nähtävissä myös kohdeyrityksessä.

Nykyisten tietoverkoston hyödyntäminen, vastuualueiden ja vaatimusten määrittely sekä nykyiset henkilöstöhallintamenettelyt ovat selkeitä kehitysalueita, mikäli kohdeyritys haluaa parantaa tietämyksenhallintamenetelmiään. Lisäksi parhaiden käytäntöjen jakamista pystytään edesauttamaan kasvattamalla operatiivisen suorituskyvyn läpinäkyvyyttä, suorittamalla sisäistä vertailua sekä antamalla työntekijöille aikaa etsiä parhaita käytäntöjä.

ACKNOWLEDGEMENTS

First I want to thank Lappeenranta University of Technology for the past five years which offered me unforgettable experiences and a bunch of people whom I can nowadays refer as my friends. University years offered me a possibility to explore the world and learn about life. For sure, there are things I would now do differently, but my first feeling is that things turned out as they should. At least I feel that I am now wiser than in the day when I drove to the Skinnarila for the first time.

A special thank you goes to my instructor Timo Pirtilä, who offered me the needed support during this project. Furthermore, I cannot neglect the meaning of my peers in LUT. Without your feedback and support, I might still be using “the factor of Koivisto” and calculating some values in the course of fluid dynamics II. I also want to thank my case company for giving me the opportunity to finish my studies. Especially, thank you, Nelli, for showing trust in me and offering a rare chance to travel and meet the wonderful people in this company. I think I have found something I really like doing. Also a big thank you for the people in our team, studied service units and the central field services function for your supporting attitude. You made this study possible.

Finally, I would like to thank my family for supporting me throughout my studies. I cannot emphasize enough the significance of your support. I have always had everything needed and been able to concentrate on things that I found meaningful at the time.

Helsinki, August 2018

Eero-Kaappo Koivisto

TABLE OF CONTENT

1	Introduction.....	11
1.1	Research motivation	12
1.2	The case organization	13
1.3	The objective and scope of research	15
1.4	The research methodology and process	17
1.5	Content and structure of the study	18
2	Knowledge management	21
2.1	Knowledge management in an organization.....	21
2.2	Knowledge	22
2.3	Knowledge conversion	26
2.4	Obstacles to knowledge management.....	28
2.5	Knowledge management strategies	29
2.6	Layers and mechanisms of knowledge management.....	34
3	Sharing best practices.....	39
3.1	A best practice and its significance to an organization.....	39
3.2	The creation of best practices	40
3.3	The storing of best practices	42
3.4	The sharing of best practices	44
3.5	The implementation and usage of best practices	48
4	Knowledge management and sharing internal best practices in global service business	50
4.1	The conceptual framework	50
4.2	The impact of favourable organizational culture on knowledge and best practice sharing.....	53
4.3	The identification of internal best practices in the global service business	53
4.4	The storing of internal best practices in the global service business	55
4.5	The sharing of internal best practices in the global service business	55
4.6	The implementation and usage of internal best practices in the multinational service business.....	59
5	Research case, methodology, process and limitations	60

5.1	Research case introduction	60
5.2	Research methodology.....	61
5.3	Data collection and research process	62
5.3.1	Process audits.....	63
5.3.2	Conducted interviews	65
5.3.3	Survey	69
5.4	Research limitations.....	70
6	Results.....	71
6.1	Type of knowledge needed for coordinators in studied units	71
6.2	Existing knowledge networks	73
6.3	Existing knowledge management strategy and its effectiveness	76
6.3.1	The existing knowledge management strategy	76
6.3.2	The effectiveness of the current knowledge management practices.....	79
6.4	Intermediaries and barriers to search, share and implement best practices in studied units	82
7	Conclusions.....	86
7.1	Overview of supportive research questions	86
7.2	Overview of the research question.....	90
8	Summary.....	93
	References.....	94

FIGURES

Figure 1. The structure of the case company: One of the main businesses and four areas (Case company 2018b)	13
Figure 2. The functions of the case company's field services: FS Operations, FS Resources and Workshops (Case company 2018a).....	14
Figure 3. The objective and scope of the study: Investigate methods and tools for KM and sharing of BPs in a global service company presented in the literature. Propose improvements for the KM and sharing of BPs in the case company's field services.....	16
Figure 4. The structure of the study: The order of the chapters, used theories and the content of theory parts, empirical part, results and conclusions.....	19
Figure 5. Spender's matrix with four dimensions of knowledge (Spender 1996).....	25
Figure 6. Knowledge conversion model (SECI) to convert explicit and tacit knowledge (Nonaka, Toyama & Konno 2000)	27
Figure 7. Three layers of knowledge management with layers in the left and actions in the right (Mohapatra et al. 2016)	34
Figure 8. Externalization of best practice in the SECI model: The codification of tacit best practice into explicit form to be shared	43
Figure 9. Combination and internalization of best practice in the SECI model: Sharing of best practice happens in codification strategy when giver combines relevant information for receiver and receiver learns from codified and shared best practice	44
Figure 10. Socialization of best practice in the SECI model: Sharing of best practice happens in the personalization strategy when tacit knowledge of an individual is shared knowledge is socialized.....	45
Figure 11. Relationships and theories recognised in the literature which are used later to create the conceptual framework	51
Figure 12. The conceptual framework	52
Figure 13. The analysis of current status and used data collection methods are done based on the literature review	62
Figure 14. The type of tasks been done by the coordinators based on the results of the survey	72
Figure 15. The first knowledge network: the existing knowledge network for sharing knowledge and best practices within an area (Case company 2018b).....	73

Figure 16. The second knowledge network: the existing knowledge network for sharing knowledge and best practices between two areas or between an area organization and the central FS function (Case company 2018b).....	74
Figure 17. The third knowledge network: the existing knowledge network for sharing knowledge and best practices between an area organization and the central FS function (Case company 2018b)	75
Figure 18. The used sources of knowledge among the white collars	77
Figure 19. The source of information about the procedure, process or system updates: the primary source was a colleague inside the own unit	78
Figure 20. The existence of a systematic way to share information locally about latest best practice, process or system updates in place in studied units	79
Figure 21. The existing channels to share locally identified best practice proposed by coordinators	82
Figure 22. The existing barriers to identify best practices.....	83
Figure 23. The existing barriers to transfer best practices	84
Figure 24. The existing barriers to implement best practices	85
Figure 25. Literature review, the analysis of current status, data collection methods and supportive research questions	86
Figure 26. Answering to the research question based on supportive research question.....	90

TABLES

Table 1. Knowledge definitions and their implications (Alavi & Leidner 2001).....	23
Table 2. How consulting firms manage their knowledge (Hansen et al. 1999).....	31
Table 3. Internal factors that affect a firm’s absorptive capacity (Daghfous 2004).....	57
Table 4. Conducted process audits	64
Table 5. Conducted interviews	66
Table 6. The interview guide used with members of the central FS organization	67
Table 7. The interview guide used with members of area organizations	68
Table 8. Survey structure	69
Table 9. The results of conducted tools audit	80
Table 10. The results of the workshop process mapping.....	81
Table 11. The results of field service process mapping.....	81

ABBREVIATIONS

ABS	Area business support
BP	Best practice
FS	Field services
HR	Human resources
IT	Information technology
KM	Knowledge management
KMS	Knowledge management system
WS	Workshop

1 INTRODUCTION

Organizational performance is a fundamental construct in management research. Reviewing of past studies reveals the linkage between organizational performance and organization's capability to learn. Especially in the era of information, knowledge is becoming a valuable resource that provides competitive advantage (Halawi, Aronson & McCarthy 2005). This study explores the ways in which a global service operations shares internal knowledge and best practices (BP). The literature review and empirical part of this study are done in the context of knowledge management and sharing of internal best practices. There are many definitions of knowledge management (KM), and as the knowledge itself managing it, is also hard to define. Davenport and Prusak (1998) define knowledge management as "the process of capturing, storing, sharing, and using knowledge". However, in this study, the definition of Girard and Girard (2015) is used as it presents some of the most recent studies. They define knowledge management as "the process of creating, sharing, using and managing the knowledge and information of an organization".

Knowledge management has received considerable attention from the academic world since the 1990s and companies have also noticed the business potential in managing their knowledge resources as competitive assets. Hansen, Nohria and Tierney (1999) claim every firm, which bases its competitive advantage to knowledge, should determine a knowledge management strategy for effective utilization of internal knowledge. However, literature recognizes many obstacles, which hinder effective knowledge transfer to take place, especially in the environment of multinational companies. Companies tend to reinvent the wheel in different parts of the organization even though a solution might already exist in the organization.

The rationale of knowledge management varies between companies. Literature recognizes many applications of knowledge management. However, authors like O'Dell, Grayson and Essaides (1998) and Bhutta and Huq (1999) recognize sharing of best practices as one of the most tangible parts of knowledge management with widely recognized business benefits. A best practice can be defined as "a practice that is performed in a superior way somewhere within the organization providing better results than known alternatives within or outside the

company” (Szulanski 1999). Therefore, sharing of best practices is a foundation for building continuous improvement culture in a company.

The present study investigates how knowledge management and sharing of best practices is seen in the case organization and compares it to relevant literature. This study provides improvement proposals for the case company how to develop its knowledge management and sharing of best practices. Research motivation, case organization, research objective and scope of the study are introduced later in this chapter.

1.1 Research motivation

In the case of large multinational service business, the literature on how companies successfully share knowledge and best practices is scarce. This research aims to narrow this gap by first identifying key methods for sharing knowledge and best practices in the global context of the case company. The motivation for this study was developed from a need to share best practices between service units of the case organization to improve their field service supply chain. The case company has a global service network with tens of different service locations, where it offers services to its local and global customers. Service delivery processes themselves are globally developed and centrally managed to offer a framework within service units should operate, but there are still local differences in how processes are followed and operated. Service units in the case company come up with process improvements to develop the service delivery process, but there is no standard way how to distribute this knowledge between the different units. A mobile working environment with long physical distances does not offer opportunities for the natural exchange of information between colleagues. Service units lack partly also the visibility to the global impact of the locally generated improvements. Additionally, the system development capability and responsibility is on the centrally coordinated functions without daily physical contact or visibility to operations. It is undisputed that there is a need for a new way of working to discover, evaluate and share locally or centrally generated best practices in the case company.

Lundin and Magnusson (2002) believe there is a great need in organizations to enable flexible continuous learning and knowledge sharing also during mobile working conditions.

There is a grand necessity among the people to be able to learn more from others as well as share more with others, but the lack of time and technology for remote access to people and information can cause challenges. These challenges are also seen in the case company's field services and are later highlighted in the conclusions of this study.

1.2 The case organization

The case organization is a global technology company with net sales of approximately 5 billion and with more than 18 000 employees worldwide. The case organization has operations in over 200 locations in more than 70 countries around the world. There are three key business areas in the case company offering solutions and services to its customers. Services is the prominent business area counted both in a number of employees and net sales. The case organization's service network consists of nearly 11,000 professionals in 160 global locations and delivers services to more than 12,000 customers every year.

Services business is divided into three main businesses and four service areas mainly on a continental split. Additionally, there are a few central functions handling areas like finance and HR. This study is conducted in the field services of the case company. Field services is a function in one of the main three businesses and has a matrix relationship to the areas as figure 1 represents. Each area consists of multiple service units and area business support. Area business support (ABS) is responsible for being the link between functions, such as field services, and the area organizations.

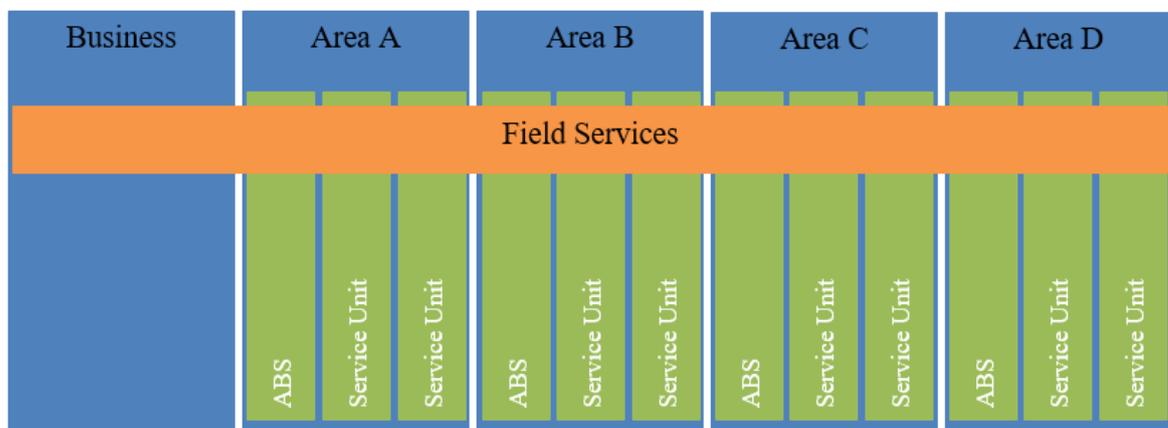


Figure 1. The structure of the case company: One of the main businesses and four areas (Case company 2018b)

The case company's field services consist of business line field services, global field services and service units field services. The central field services (FS) function is responsible for the business and the global field services and the area organization is responsible for the service unit field services. Business line field services is in charge of the knowledge management of global field services. This means business line field services is responsible for expertise and superintendent level support, through a pool of highly skilled engineers and chosen specialized support workshops. On the other hand, global field services is in charge of ensuring the way of working in the different product lines and areas of the case company. Service unit field services are responsible for providing all field services activities by utilizing available competent resources and assets, tools and workshops facilities, in their geographical area. One area field services general manager per area is the link between the service unit field services and the global field services. Altogether the field services form a complex multinational matrix organization. (Case company 2018a)

This study concentrates on the knowledge management of the coordinative and administrative people of the case company's field services referred now on as coordinators. This personnel is located in the service unit field services and their processes and tools are provided by the central FS function. The case company's field service is divided into three main functions: operations, resources and workshops. (Case company 2018a) Field services functions are presented in figure 2.

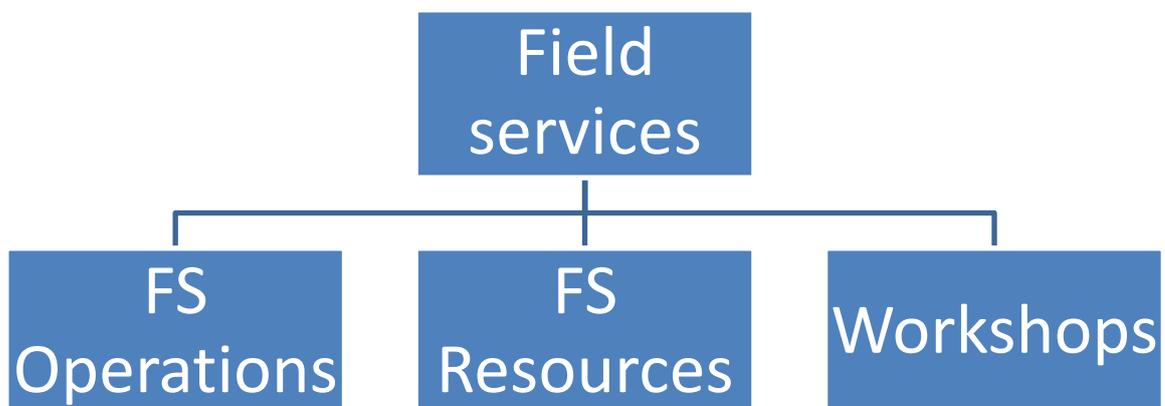


Figure 2. The functions of the case company's field services: FS Operations, FS Resources and Workshops (Case company 2018a)

Similar functions should exist both in the central FS function and each of the service units. However, there are small differences in the organizational structure of service units. There are coordinative roles in all of the three functions. The responsibility areas vary between the functions. In operations, field services coordinators' responsibility is to coordinate the jobs from the point customer order has been made until the invoicing. In resources, resources coordinators are responsible for field services engineers handling the job. Workshop coordinators or foremen are responsible for coordinating jobs conducted in workshops. Additionally, the knowledge management of administrative coordinators is within the scope of this work. Administrative coordinators are responsible for handling administrative tasks such as invoicing. (Case company 2018a)

1.3 The objective and scope of research

This study explores existing methods to share internal knowledge and best practices in the case company's field services and compares them to proposed ways in the literature. The objective is to explore the existing methods and propose improvements for managing the knowledge of coordinators and sharing best practices in the case company's field services. The research objective of this study is reflected in the research question and supportive research questions. This study answers to following research question:

- *How could the knowledge management and sharing of best practices of the case company's field services be improved?*

Additionally, this study answers to following supporting research questions:

- *What methods and tools does the literature propose for knowledge management and sharing of best practices in a global environment?*
- *How does the central FS function determine the knowledge management and knowledge management strategy in field services?*
- *How are needed knowledge and best practices shared between the studied units and the central FS function?*

Research questions are the basis for the empirical part of this study. Answers to the research question and supportive research questions are given later in the conclusions.

This research is limited to the knowledge management and especially to discovering, sharing and implementing of best practices in the case organization's field services. This study concentrates on the knowledge management of the coordinators in the case company's field services. Figure 3 visualizes the scope of the study.

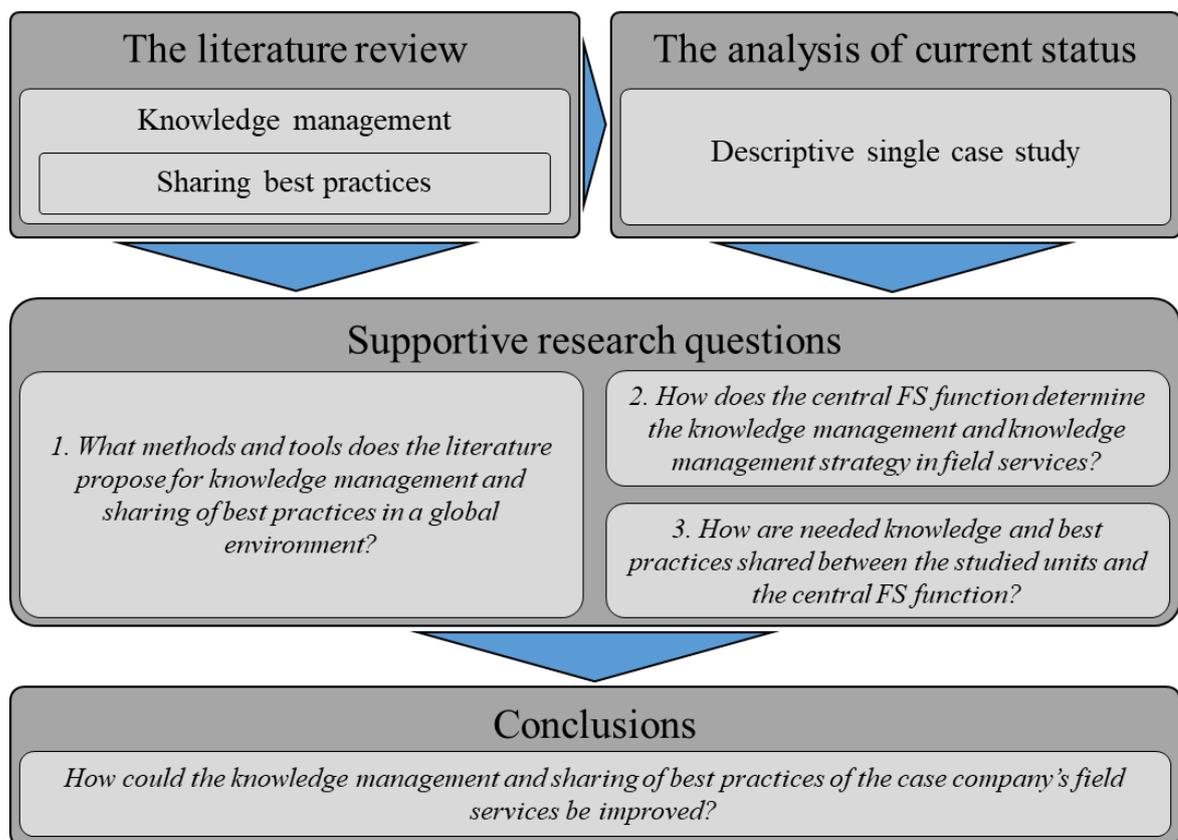


Figure 3. The objective and scope of the study: Investigate methods and tools for KM and sharing of BPs in a global service company presented in the literature. Propose improvements for the KM and sharing of BPs in the case company's field services.

This study explores how knowledge management and sharing of best practices could be improved in the case company by investigating existing knowledge management and tools. The relation of knowledge management and learning organization is not studied in this study as O'Dell, Grayson and Essaides (1998) state knowledge management is tangible evidence

of a learning organization (figure 3). The actual state of knowledge flow from the central FS function to service units and between service units is investigated and then compared to relevant literature to judge how well current strategy, tools and methods are working. Service supply chain management is used as the environment, where the study is conducted, but its theory is not further investigated. The definition of Arnold, Chapman and Clive (2008) of the supply chain as all the required actions and processes required to deliver products or services to customers, is used in this study.

1.4 The research methodology and process

As stated earlier, the goal of this study is to gain an in-depth understanding of knowledge and best practice sharing as methodologies and propose steps how the case company could improve its current way of working. The qualitative research methodology was chosen for this work because its basis is to present the actual state of the chosen object and describe it as comprehensive as possible (Hirsjärvi, Remes & Sajavaara 1997, 151-157). This study is conducted as a single case study because of the methodology's fit for studies trying to answer either how or why explored events take place (Yin 2003). There are several types of case studies (Baxter & Jack 2008) and the descriptive single case study with multiple embedded units was chosen for this study because "it allows the researcher to describe an intervention or phenomenon and the real-life context in which it occurred" (Yin 2003). The descriptive method, therefore, allows the researcher of this study to compare current status in the real-life context with the relevant literature. Additionally, including multiple embedded units allows the researcher to explore the case in several sub-units and analyse the results within, between or across the sub-units (Baxter & Jack 2008).

The empirical part of the study followed the principles of qualitative research. Four formal process audits were chosen to be the first data collection methods, because of their fit for diagnostic purposes (Aalbers 2009). The target of process audits was to investigate the need of knowledge in studied units and the quality of the inflow of new knowledge into units. All of the audits to studied units were conducted together with the central FS function to secure a correct validation of processes. Five semi-structured interviews were conducted with the key stakeholders in the central FS function and area organizations. In semi-structured interviewing, a guide is used, with questions and topics that must be covered, but the

interviewer has some discretion about the order in which questions are asked (Harrell & Bradley 2009). The target for the interviews was to investigate how the central FS function perceived the knowledge management strategy in the field services and to gather information about how needed knowledge was shared between the studied units and the central FS function. Additionally, the personnel of studied units was sent a questionnaire with ten multiple choice questions to investigate how different personnel in different locations and positions saw the status of needed knowledge and knowledge management in the case company's field services. Finally, the results of the empirical part of the study are compared with the literature and conclusions are made.

1.5 Content and structure of the study

This study is divided into seven chapters. Each of the chapters has its specific target and contribution to this study. The content and the structure of this study is presented in figure 4.

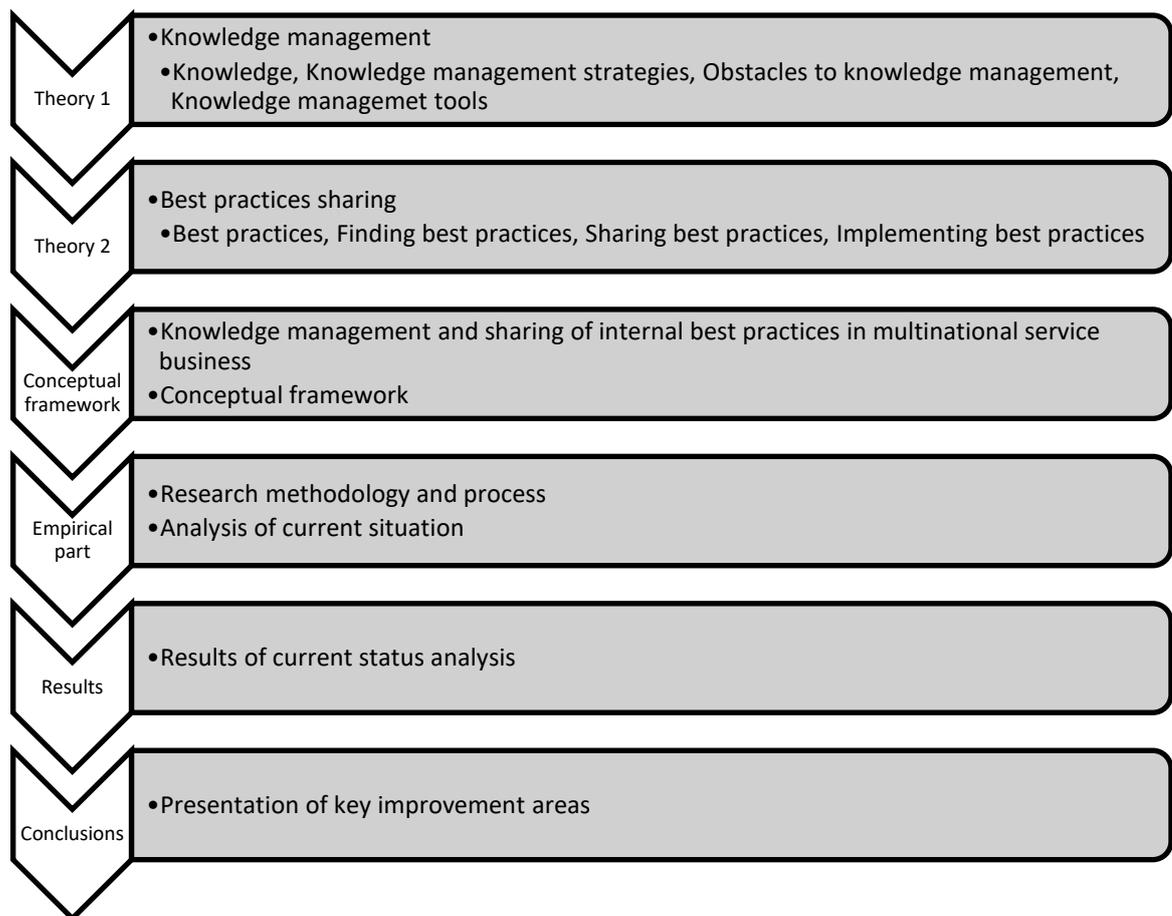


Figure 4. The structure of the study: The order of the chapters, used theories and the content of theory parts, empirical part, results and conclusions

This study begins with a literature review of the relevant subjects: knowledge management and best practice sharing. The literature review begins with the theories of knowledge, knowledge conversion, obstacles to knowledge management, knowledge management strategies and layers and mechanisms of knowledge management. According to different authors (O'Dell, Grayson & Essaides 1998; Szulanski 1999; Bhutta & Huq 1999), the sharing of best practices is one of the most tangible parts of knowledge management and, therefore, chosen as the second theory for this study. The chapter of best practice sharing starts by defining the best practice and proving its significance to an organization. Furthermore, the process of sharing best practices, with its four steps is presented. In the fourth chapter, the author of this study applies the theories of knowledge management and best practice sharing in a context of a multinational service company. The chapter addresses representative applications of sharing best practices in a similar environment than the one of the case. The conceptual framework is created by the author by utilizing relevant literature and personal

work experience. The conceptual framework introduces requirements for a successful best practice sharing in a global company.

The empirical part of this study is done based on the conceptual framework. In the empirical part of the study, four process audits and five interviews are done in the case organization's units to get an overall picture of the current state of knowledge management in the case company's field services. Additionally, a survey was used to investigate how coordinators saw the knowledge management. The research methodology and process are further presented later in this study. The results of the empirical part are presented at the end of this study together with the conclusions about the improvement areas of the case company's field services' sharing of best practices and knowledge management.

2 KNOWLEDGE MANAGEMENT

The literature review in this chapter introduces the concept of knowledge management and its significance for an organization. In later chapters, this study examines sharing of best practices, a part of knowledge management, more detailed. Therefore, this chapter begins by explaining how companies' perspective on managing knowledge has changed in the last decades. The importance and perspective of knowledge management are expressed with relevant literature. The chapter continues by opening the concepts of knowledge and knowledge conversion. After the conversion of different types and dimensions of knowledge has been introduced, different obstacles to knowledge management are presented. Obstacles to knowledge management are collected from the substantive literature. Finally, the different strategies, layers and mechanisms of knowledge management are represented in the final part of this chapter. The objective of this chapter is to answer partly to the first supportive research question and create basis for the following empirical part.

2.1 Knowledge management in an organization

Before reviewing the literature on knowledge management and best practice sharing, it is essential to discuss the context of knowledge in the 21st century. Helander, Kukko and Virtanen (2010) claim companies' perspective on knowledge has changed. This means knowledge is no longer seen as something one is allowed to hold on to oneself, but instead, companies' personnel are encouraged to share it. According to Helander et al. (2010) companies need to think knowledge similarly as they thought raw materials or financials in the 19th and 20th century. This view is supported by Mohapatra, Agrawal and Satpathy (2016) arguing that knowledge can be seen for a company either as a product or a tool, depending on, if a company is operating in knowledge economy or knowledge-based economy. They claim knowledge management can be seen as a strategic tool retaining business model and helping organizations to compete. Based on the definitions in the literature, it can be said the case organization is operating in a knowledge-based economy as its competitive advantage relies heavily on skilled personnel.

Helander et al. (2010) claim "the state of affairs is contradictory, since the financial means, flows of money, are in general kept under rather good control, while knowledge, which is

often even more important is only reaching this point". They state that companies must assess its resources and assets, which include knowledge, and where there is a shortcoming, they must acquire the defective or entirely lacking asset so that operations can continue efficiently and economically. Knowledge management is a tool for extracting the shortcoming by optimising the use of existing knowledge in the company.

2.2 Knowledge

In order to analyse knowledge management as a concept, it is important to discuss about the nature of knowledge. Literature defines knowledge in many ways (table 1) and there is also a debate about the differences of knowledge, information and data. Several authors highlight the personalized aspect of knowledge compared to data and information (Fahey & Prusak 1998; Alavi & Leidner 2001; Churchman 1971). Knowledge is something that cannot be extracted from an individual like information and data. Alavi and Leidner (2001) posit that "knowledge is not radically different concept from information. Information is converted to knowledge once it is processed in the mind of individuals and knowledge becomes information once it is articulated and presented in the form of text, graphics, words, or other symbolic forms". On the other hand, according to the work of Huang (1998) knowledge is "intellectual capital which includes best practices and know-how among others".

Table 1. Knowledge definitions and their implications (Alavi & Leidner 2001)

Definition of knowledge		Implication for knowledge management (KM)	Implications for knowledge management system (KMS)
Knowledge vis a vis Data and information	Data are facts, raw numbers, Information is processed/interpreted data, Knowledge is personalized information	KM focuses on exposing individuals to potentially useful information and facilitating assimilation of information	KMS will not appear radically different from existing IS but will be extended toward helping in user assimilation of information
State of mind	Knowledge is the state of knowing and understanding	KM focuses on exposing individuals to potentially useful information and facilitating assimilation of information	Impossible to mechanize state of knowing. Role of IT to provide sources of knowledge rather than knowledge itself
Object	Knowledge is object to be stored and manipulated	Key KM issue is building and managing knowledge stocks	Role of IT involves gathering, codifying and storing knowledge
Process	Knowledge is a process of applying expertise	KM focuses on knowledge flows and the process of creation, sharing and distributing knowledge	Role of IT to provide a link among sources of knowledge to create wider breadth and depth of knowledge flows
Access to information	Knowledge is a condition of access to information	KM focus is organized access to and retrieval of knowledge content	Role of IT to provide effective search and retrieval mechanisms for locating relevant information
Capability	Knowledge is the potential to influence action	KM is about building core competencies and understanding strategic know-how	Role of IT is to enhance intellectual capital by supporting development of the individual and organizational competencies

Alavi and Leidner (2001) state each chosen perspective to knowledge will affect the strategy and the system how to manage it. This can be seen in table 1, which highlights how the definition of knowledge affects the implication of knowledge management and knowledge management systems. For example, if knowledge is seen as a state of mind the role of knowledge management is to expose individuals to potentially useful information and facilitate assimilation of information with a system providing sources of knowledge rather than knowledge itself. On the other hand, if knowledge is seen as a capability, the role of knowledge management is to build core competencies and understand strategic know-how. In this case, the role of knowledge management system to strengthen intellectual capital by promoting the development of individual and organizational competencies. It can be concluded that the case organization should determine the definition of knowledge before developing implications of knowledge management. (Alavi & Leidner 2001)

In this study, Fahey's and Prusak's (1998) definition of knowledge is used: "knowledge is the result of cognitive processing triggered by the inflow of new stimuli". The new stimuli can be either data or information which become knowledge when assimilated by an individual. This definition is chosen because it concludes that gaining knowledge is an individual process, which begins with external stimuli. Additionally, this definition suits well for the case organization by not defining knowledge only as information or data and by describing well the way how gaining knowledge takes place in the case company.

Even though companies should approach knowledge in a similar way than their other assets, based on the literature knowledge is different from other assets of a company. Mohapatra et al. (2016) state knowledge has the following characteristics:

- It is not reduced as it is consumed.
- It is not lessened when it is transferred.
- Knowledge can be created easily but is difficult to be reused.
- When a knowledge transfer occurs, the sum total of knowledge is more than it was before the transfer.
- Much of the knowledge is available in tacit form; as a result, knowledge is lost when the employees leave an organization.

There are two dimensions of knowledge according to Nonaka (1994): tacit and explicit. According to them, tacit knowledge is gained through action, experience and involvement in a specific context, while explicit knowledge is articulated, codified and communicated in symbolic form. Hansen et al. (1999) claim the process of sharing tacit knowledge is time-consuming, expensive since it cannot be genuinely systematized. Different authors argue which of the two types of knowledge is more valuable than the other. Snyder, Wilson and McManus (1998) highlight the importance of tacit knowledge. On the other hand, Bohn (1994) argues that knowledge is valuable to the extent it is explicit.

Additionally, Nonaka (1994) suggests two more dimensions of knowledge: social and individual. The social dimension of knowledge is created in collective actions and interactions of individuals (Nonaka 1994). On the other hand, individual knowledge means knowledge, which is created by and exists inside individuals. Together with Nonaka's (1994) dimensions, tacit and explicit, social and individual dimensions create Spender's matrix (Spender 1996) (figure 5).

	Individual	Social
Explicit	Conscious	Objectified
Tacit	Automatic	Collective

Figure 5. Spender's matrix with four dimensions of knowledge (Spender 1996)

Spender (1996) highlighted in his work the importance of a richer view of knowledge instead of just concentrating on individual learning or organizational memory. Each of the quadrants implicates a distinct model of how knowledge, learning and memory interact. The conscious quadrat is hard to define since as an explicit knowledge it is available to other and is mainly used individually. Spender (1996) claim that "the boundary between conscious and automatic memory is not precise". Automatic quadrat refers to tacit knowledge, which is automatically available for individuals. Objectified quadrat includes organizational rules, procedures and databases, which are available to a large number of people. Last of the quadrats, collective, relies on social interactions, where learning takes place. (Spender 1996)

2.3 Knowledge conversion

As stated earlier in this chapter, knowledge has different dimensions and types. Therefore, it is meaningful to discuss about how knowledge is converted from a type to another. Two major types of knowledge, tacit and explicit, can be converted to another, while already applying the existing knowledge. Simultaneously, knowledge is exploited and adjusted in social and individual dimensions. This conversion takes place in the SECI model (figure 6) which consists of four modes of knowledge conversion (Nonaka, Toyama & Konno 2000). These four modes of knowledge conversion can be categorised as follows:

1. Socialisation
2. Externalisation
3. Internalisation
4. Combination

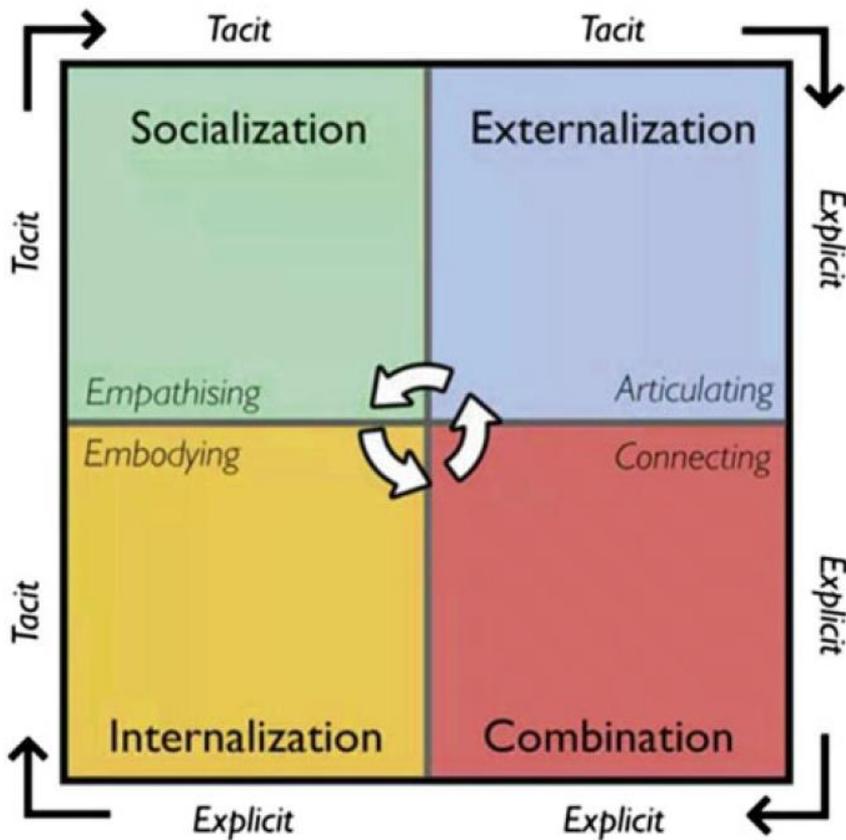


Figure 6. Knowledge conversion model (SECI) to convert explicit and tacit knowledge (Nonaka, Toyama & Konno 2000)

In socialisation, tacit knowledge stays as tacit knowledge and produces socialisation, where experience is what a knowledge developer targets during the knowledge capture process. A knowledge seeker might observe knowledge giver and practice later on gained tacit knowledge. In externalisation mode, tacit knowledge is turned into explicit knowledge by codifying it. Codified knowledge can then be stored in repositories. In internalisation mode, explicit knowledge is turned into tacit by practicing codified knowledge in practice. Combination mode is used in situations, where explicit knowledge needs to be reorganised, categorised or sorted. Explicit knowledge stays as explicit, but it is in form for a particular target. (Mohapatra 2016)

2.4 Obstacles to knowledge management

Before proposing improvement ideas in this study, it is essential to discuss about relevant obstacles for knowledge management. Knowledge management is a complicated process and organizations can face many obstacles when trying to apply it. According to Alavi and Leidner (2001), the personalized aspect of knowledge creates requirements, when sharing it between individuals: “in order for an individual’s or a group’s knowledge to be useful for others, it must be expressed and communicated in such a manner as to be interpretable by the receivers”. They note that in the intrusion of knowledge management strategy, technologies that induce communication and information storage and retrieval may have only a small impact on knowledge flows inside an organization. It can be argued, whether a standard and a fixed solution can ever work in such a diverse environment as the case company’s field services, if learning needs to happen on individual preferences. The work of Brown and Duguid (1998) support this argument by noting that just the existence of the technology to communicate and access to information does not necessarily make knowledge to flow freely within an organization.

Cabrera and Cabrera (2002) claim problems of knowledge sharing are often either from social dilemmas, knowledge dilemmas or a combination of these two. According to Holdt Christensen (2007), literature gives five problems for organizational knowledge sharing:

1. The stickiness of knowledge (Nonaka and Takeuchi, 1995; Szulanski, 1996, 2003)
2. No common identity (Brown and Duguid, 2000; Davenport and Prusak, 1998)
3. No relation between the receiver and sender of knowledge (Davenport and Prusak, 1998; Hansen et al. 1999)
4. No willingness to share knowledge (Cabrera and Cabrera, 2002; Osterloh and Frey, 2000)
5. No knowledge of knowledge (Borgatti and Cross, 2003; Gupta and Govindarajan, 2000; O’Dell and Grayson, 1998)

Ardichvili, Maurer, Li, Wentling and Sturedemann (2006) add a cultural aspect to the list of factors affecting people’s willingness to share their knowledge.

6. Cultural influences (Ardichvili et al. 2006)

Lundin and Magnusson (2002) claim a lack of time and technology are one of the obstacles, why knowledge inflows do not take place for people working in mobile working conditions.

7. Lack of time (Lundin & Magnusson 2002)

8. Lack of technology (Lundin & Magnusson 2002)

According to Holdt Christensen (2007) and Mohapatra et al. (2016) knowledge sharing should not be considered as a separated organizational activity transferring stocks of knowledge but rather as a part of ongoing organizational activities. They claim that even if companies recognize the need for organizational knowledge sharing they do not acknowledge that knowledge sharing incurs costs, and therefore tend to support knowledge sharing as if they were in situations of pooled interdependence. With this approach, there is a high possibility the knowledge sharing will fail. (Holdt Christensen 2007; Mohapatra et al. 2016)

9. Handling knowledge management as a separate activity and isolating it for example to HR (Holdt Christensen 2007; Mohapatra et al. 2016)

10. Capturing of tacit knowledge (Mohapatra et al. 2016)

2.5 Knowledge management strategies

Similarly as a company needs a different management strategy for post-graduate students and skilled experts, applicable knowledge management strategy is dependent on the type of managed knowledge. Hansen et al. (1999) claim all of the companies depending on smart people and the flow of ideas must choose a knowledge management strategy and that the knowledge management strategy needs to be aligned with the firm's competitive strategy. They claim that companies do not take a uniform approach to manage knowledge, but there are two different strategies for knowledge management (table 2). Hansen et al. (1999) call these two strategies codification strategy and personalization strategy. In codification strategy, knowledge is carefully codified and stored in databases, where it can be assessed and used easily by anyone in the company. Computers and information technology are in

the centre of the codification strategy, whereas in personalization strategy they are used mainly for communication between people. In personalization strategy, knowledge is strongly individual and is shared mainly through direct person-to-person contacts. (Hansen et al. 1999)

Table 2. How consulting firms manage their knowledge (Hansen et al. 1999)

Codification	Competitive strategy	Personalization
<p>Reuse economics:</p> <ul style="list-style-type: none"> • Invest once in a knowledge asset; reuse it many times. • Use large teams with a high ratio of associates to partners. • Focus on generating substantial overall revenues. 	Economic Model	<p>Expert economics:</p> <ul style="list-style-type: none"> • Charge high fees for highly customized solutions to unique problems. • Use small teams with a low ratio of associates to partners. • Focus on maintaining positive profit margins.
<p>People-to-documents</p> <ul style="list-style-type: none"> • Develop an electronic document system that codifies, stores, disseminates and allows reuse of knowledge. 	Knowledge Management Strategy	<p>Person-to-person</p> <ul style="list-style-type: none"> • Develop networks for linking people so that tacit knowledge can be shared.
<ul style="list-style-type: none"> • Invest heavily in IT; the goal is to connect people with reusable codified knowledge. 	Information Technology	<ul style="list-style-type: none"> • Invest moderately in IT; the goal is to facilitate conversations and the exchange of tacit knowledge
<ul style="list-style-type: none"> • Hire new college graduates who are well suited to the reuse of knowledge and the implementation of solutions. • Train people in groups and through computer-based distance learning. • Reward people for using and contributing to document databases. 	Human Resources	<ul style="list-style-type: none"> • Hire M.B.A.s who like problem-solving and can tolerate ambiguity • Train people through one-on-one mentoring. • Reward people for directly sharing knowledge with others.
<ul style="list-style-type: none"> • Andersen Consulting, Ernst & Young 	Examples	McKinsey & Company, Bain & Company

Hansen et al. (1999) highlight the significance of choosing the right knowledge management strategy since relying on the wrong strategy or trying to pursue both at the same time can quickly deteriorate a business. Successful companies tend to focus on either of the strategies and use the second one only as a supporting strategy. They claim there are three fundamental questions, which of the two strategies a company should follow:

- Does the company offer standardized or customized product or service?
- Does the company have a mature or innovative product or service?
- Do the people of the company rely on explicit or tacit knowledge to solve problems?

Based on answers to these three questions a company should be able to determine the favorable knowledge strategy.

Hansen et al. (1999) claim codification strategy fits well for the companies where service offering is really uniform and similar solutions can be easily reused. Companies that follow a standardized products strategy, are usually able to utilize the codification strategy. Codification strategy allows people to copy or reuse already proven practices into their work. However, the challenge companies often face is that documents are time-consuming to make and they cannot always denote the richness of the knowledge or the logic that had been applied to reach solutions. (Hansen et al. 1999)

According to Hansen et al. (1999), if a company's product or service is based on innovativeness, the personalization strategy tends to work better. Primarily, when workers rely on tacit knowledge to solve problems, the person-to-person approach works best. Intentions to turn tacit knowledge into explicit knowledge can lead to severe issues because workers are not necessarily able to acquire the needed knowledge from a codified source. According to Hansen et al. (1999), this was seen in Xerox, where the intention to codify instructions to repair copy-machine failed because maintenance engineers were not able to acquire the needed skills. However, Earl (2001) claims Airbus Industries have been able to successfully codify the technical know-how of airplane maintenance, but only to those who are qualified to use it.

Hansen et al. (1999) claim HP has successfully implemented a personalization knowledge management strategy to its organization by allowing and supporting people to travel and visit other units. Therefore, it can be concluded that the size of the company is not necessarily a constraint for personalization strategy, but needs excellent support from the management to be successful because person-to-person knowledge sharing requires expensive travelling and meeting time.

Using only one of the two strategies does not always bring the best results, and for example Bain & Company, provides background material and point experts for person-to-person knowledge sharing sessions. Additionally, if a company has multiple business units, which operate as a stand-alone company, it is possible to utilize both of the strategies in different units. However, if different units operate integrated only one strategy should be chosen. (Hansen et al. 1999) Based on the literature, Choi and Lee (2002) present three perspectives of knowledge management strategies: focused, balanced and dynamic. According to them, the chosen perspective determines how knowledge management strategy is followed. The focused view suggests that companies should only follow one strategy predominantly. On the other hand, the balanced view proposes that companies should find a balance between the two strategies and use them to support each other. Finally, the dynamic view suggests that firms align their strategies along with the spectrum from pure expertise to pure procedure depending on the characteristics of knowledge. Different authors find either focused (Hansen et al. 1999), balanced (Bierly & Chakrabarti 1996; Jordan & Jones 1997; Zack 1999) or dynamic view (Bohn 1994; Singh & Zollo 1998; Choi & Lee 2002) as the most effective perspective.

Even though companies have widely accepted the importance of knowledge for their competitive advantage, there are still differences in how they approach knowledge management. Hansen et al. (1999) conclude that some companies have put knowledge management at the top of their agenda while others have isolated it to functional departments like HR or IT if using it at all. According to them isolating knowledge management to functional departments can prevent its benefits to actualize. Therefore, it is essential to include knowledge management in daily operations.

2.6 Layers and mechanisms of knowledge management

Ardichvili et al. (2006) claim “knowledge management is a complex socio-technical system that encompasses various forms of knowledge generation, storage representation, and sharing”. Moreover, according to the work of Girard and Girard (2015) “knowledge management is a process of creating, sharing, using and managing the knowledge and information of an organization”. This study uses the definition of Girard and Girard (2015) seeing the knowledge management as a process. Literature widely accepts knowledge management happen in different levels of an organization (Mohapatra et al. 2016; Hilton 2017; Nonaka & Takeuchi 1995). Mohapatra et al. (2016) recognizes three layers of knowledge management and claim that knowledge management takes place in three different levels (figure 7.).

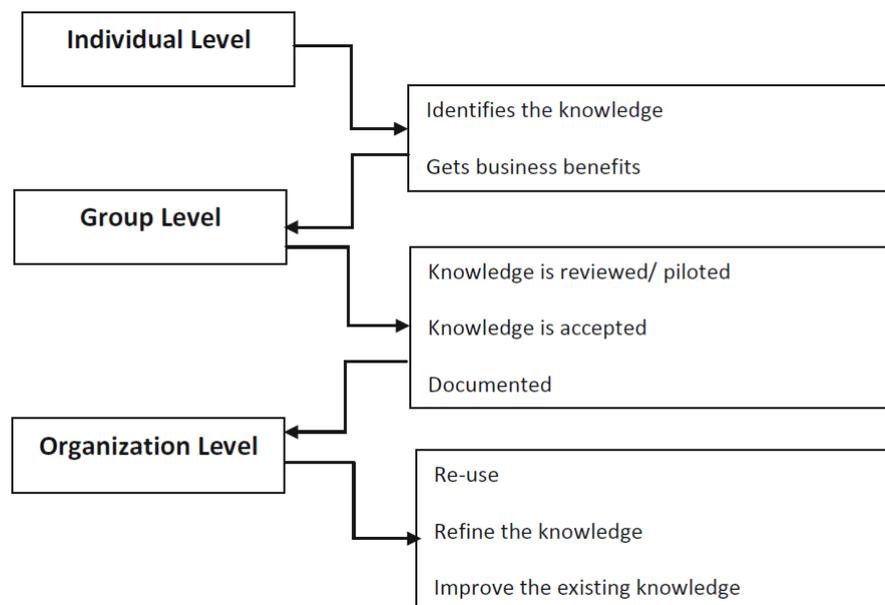


Figure 7. Three layers of knowledge management with layers in the left and actions in the right (Mohapatra et al. 2016)

Mohapatra et al. (2016) highlight that knowledge management takes place on three different layers. Each layer has characteristically different actions made by individual, group or organization. The first layer presents how individuals, who identify the knowledge, are the starting point of knowledge management. The importance of individuals for knowledge management is recognized by other authors as well (Hilton 2017). After an individual has

exploited the knowledge and benefitted from it, it is reviewed or piloted at the group level and accepted. After acceptance of knowledge in the group level, it is documented and ready to be re-used in organisational level. Knowledge can also be refined and improved. (Mohapatra et al. 2016) Similarly to three layers of knowledge management by Mohapatra et al. (2016), Nonaka and Takeuchi (1995) claim knowledge is created in the spiral of knowledge creation, where individual knowledge is strengthened by flowing through individual, group, and organizational levels.

The work of Alavi and Leidner (2001) supports the view of knowledge management being a process, but according to them the content and phases of knowledge management processes vary between authors. They claim that most of the different definitions of knowledge management processes include the following steps:

1. The process of creating knowledge
2. The process of storing and retrieving knowledge
3. The process of transferring the knowledge
4. The process of applying the knowledge

These four steps are also used in this study. Many authors identify these four elements of knowledge management (Alavi & Leidner 2001; Ardichvili et al. 2006; Cabrera & Cabrera 2005; Mohapatra et al. 2016). It can be concluded that, if knowledge management is a process with several steps, its success is depended on apparent roles and responsibilities for each of the steps. Otherwise, the process will not be able to deliver its promised value. Mohapatra et al. (2016) claim, when creating knowledge, a company should assign well-writing resources to create the knowledge to an explicit form. This claim supports the assumption that apparent roles and responsibilities are in the centre of successful knowledge management in any organization.

According to Alavi and Leidner (2001), there are three applications of knowledge management: internal benchmarking with the aim of sharing internal best practices, the creation of corporate directories and the creation of knowledge networks. These three applications are further introduced later in this study. Similarly to Alavi and Leidner (2001), Suurla's (2001) view of knowledge management supports the perspective that knowledge

management should be goal-oriented. It may be concluded that a company should always have a clear target where it is aiming with knowledge management.

Alavi and Leidner (2001) claim that the goal of knowledge management is not to make all tacit knowledge to explicit but to first decide the most valuable knowledge before turning it to explicit. The literature claims knowledge management targets to many benefits to an organization such as sharing best practices, increasing profitability and improving quality (Davenport and Klahr 1998; Davenport & Prusak 1998; Rehman, Ilyas & Asghar 2015).

Literature presents four mechanisms for knowledge management. Each mechanism consists of different methods or applications. The four major mechanisms and examples of their methods or tools are listed below:

1. Knowledge contributions to databases (Bartol & Srivastava 2002)
 - a. Creation of corporate directories (Alavi & Leidner 2001)
 - b. Creation of organizational databases (Alavi & Leidner 2001; Bartol & Srivastava 2002)
2. Formal interactions (Bartol & Srivastava 2002)
 - a. Internal benchmarking with the aim of sharing best practices (Alavi & Leidner 2001; Bartol & Srivastava 2002; O'Dell & Greyson 1998)
 - b. Cross-divisional conferences (Bartol & Srivastava 2002)
 - c. Personnel rotation (Sveiby 2001)
 - d. Mentoring concept (Hansen et al. 1999)
3. Sharing knowledge in informal interactions (Bartol & Srivastava 2002; Lundin & Magnusson 2002; Rehman et al. 2015)
4. Sharing knowledge in communities of practice (Bartol & Srivastava 2002)
 - a. Creation of communities of practice (Bartol & Srivastava 2002)
 - b. Creation of knowledge networks (Alavi & Leidner 2001)

Additionally, based on Earl's (2001) knowledge management system, Bartol and Srivastava (2002) identified four mechanisms for individuals to transfer their knowledge in organizations: storing of knowledge to organizational databases, transferring knowledge in formal interactions within or across teams and units, transferring knowledge in informal

interactions among individuals and transferring knowledge within communities of practice. As mentioned earlier in the study Alavi and Leidner (2001) claim there are three applications of knowledge management: internal benchmarking with the aim of sharing internal best practices, the creation of corporate directories and the creation of knowledge networks.

Cross-divisional conferences and internal benchmarking with the aim of sharing best practices are forms of the formal interaction across teams and units. Sveiby (2001) presents personnel rotation as an effective method to share knowledge among colleagues in different organizations or different organizational levels. On the other hand, informal interaction happens according to Lundin and Magnusson (2002) for example in situations where co-workers meet physically during the day in the offices. Rehman et al. (2015) recognized a strong positive relation between a number of informal interactions and knowledge sharing. However, informal interactions rarely happen in the case organizations environment, where knowledge sharing needs to happen also between people in different continents. Mechanisms based on interactions can be argued to be in the core of personalization strategy, which heavily relies on person-to-person knowledge transfer.

Practically the concept of communities of practice is a form of knowledge network or the other way around. Knowledge network relies on people, with similar background and expertise sharing their practices to solve daily challenges. Many authors highlight the importance and benefits of the concept of communities of practice, but some claim the concept is still not fully understood. “The concept of communities of practice has in recent years become one of the most popular tools for enhancing knowledge sharing – even though no one actually knows how to practice, or cultivate, a community of practice” (Holdt Christensen 2007). Ardichvili et al. (2006) state that the most recognized benefit of communities of practice is their ability to generate and disseminate tacit knowledge.

A contribution of knowledge to organizational databases is the key in codification strategy, where tacit knowledge is codified into explicit form and shared with wanted stakeholders. It can be argued this application relies heavily on people’s absorptive capability to learn proactively. Additionally, the knowledge to be learned should be standard and independent from the area, where it is applied so that it can be readily utilized elsewhere.

As Holdt Christensen (2007) has stated the type of interdependencies involved, the type of knowledge to be shared and the resources available determine how knowledge sharing is to be practiced. Furthermore, it can be argued that the chosen knowledge management strategy will significantly effect on which applications to choose and how to use them. As sharing of best practices is recognized as the most tangible part of knowledge management by O'Dell and Grayson (1998), it is chosen as the second theory part of this study to analyse the current state of the case company's knowledge management.

3 SHARING BEST PRACTICES

The objective of this chapter is to answer partly to the first supportive research question and address knowledge management more thoroughly since the best practice sharing is recognised as a part of knowledge management by various authors (Szulanski 1999; Bhutta & Huq 1999). Additionally, this chapter is used as the basis for the following empirical part. The relevant literature on the concept of sharing of best practices and its significance for an organization (O'Dell, Grayson & Essaides 1998) is investigated in this chapter. This chapter begins by explaining the concept of the best practice and its importance for companies. The chapter continues then by introducing methods to create best practices expressed in relevant literature. After the creation methods have been discussed, different methods to store and share best practices are introduced. Finally, the literature review in this chapter handles different obstacles and tools for implementing best practices locally.

3.1 A best practice and its significance to an organization

It is meaningful to determine the concept of best practice and discuss about its significance before reviewing the theory of best practice sharing. According to different authors, the sharing of best practices is one of the most tangible parts of knowledge management with widely recognized business benefits (O'Dell, Grayson & Essaides 1998; Szulanski 1999; Bhutta & Huq 1999). Best practice sharing can improve both the top line and the bottom line of a company. Szulanski (1999) defines best practice as “a practice that is performed in a superior way somewhere within the organization providing better results than known alternatives within or outside the company”. This definition of best practice is also used in this study. As knowledge management can be seen as a process of creating, storing and retrieving, transferring and applying knowledge, similar process –thinking can be utilized for best practices also as they are a form of knowledge. Best practice can be seen as created when an opportunity has been discovered, a solution to it developed or discovered and the developed or discovered solution been evaluated as the best alternative existing. Best practice is then ready to be stored, retrieved and transferred. After transferring the best practice, it still needs to be utilized by the receiving party.

3.2 The creation of best practices

Since the internal best practice is an already existing practice performed in a superior way somewhere within the organization providing better results than known alternatives within or outside the company (Szulanski 1999), it is already created by someone. Therefore, the creation of knowledge in the case of best practice starts from a discovery of an opportunity. An opportunity for transfer exists immediately when a gap in knowledge and the knowledge to address the gap can be found in the organization. Finding an opportunity might be challenging when existing operations are tenuously understood or when relevant, objective and timely measures of performance are missing. (Szulanski 1999) Literature recognizes some tools for discovering best practices:

1. Internal benchmarking (Bhutta & Huq 1999; O'Dell & Grayson 1998; Elmuti & Kathawala 1997)
2. Technical audits by R&D experts (Bhutta & Huq 1999)
3. Internal conferences (Bhutta & Huq 1999)
4. "Who knows what"-lists (Borgatti & Cross 2003)

Benchmarking is seen in literature as a widely accepted tool for finding best practices. The benefits of internal benchmarking are also widely understood in the literature. O'Dell and Grayson (2003) claim internal benchmarking and transfer of best practices are one of the most visible parts of knowledge management. Bhutta and Huq (1999) support this by claiming internal benchmarking is "a process to establish the ground for creative breakthroughs". They claim "many organizations publicize what they have achieved, but it is unusual for them to be open on more mundane facts of how this transformation was made to work". "The essence of benchmarking is the process of identifying the highest standards of excellence for products, services, or processes, and then making the improvements to reach those standards – commonly called best practices" (Bhutta & Huq 1999). O'Dell and Grayson (1998) define internal benchmarking as "a process of identifying, sharing, and using the knowledge and practices inside its own organization".

However, internal benchmarking as a source of best practices has some downsides. First, it does not involve customers' opinion and if the product or service is obsolete, no

improvements will make it competitive. Secondly, internal benchmarking does not involve the employees, who would make the possible upcoming improvements, in the process. Thirdly, benchmarking is costly. Fourthly, benchmarking results often go out of date quite rapidly. (Bhutta & Huq 1999) O'Dell and Grayson (2003) add that just recognizing best practices in internal benchmarking does not make them spread like wildfire to elsewhere in the organization. The success of benchmarking relies heavily on the identification of critical performance measures. Performance measures should be decided in a way that they match and contribute to the overall business target. (Bhutta & Huq 1999) It can be concluded that finding best practices is hard, if not impossible, without efficient and accurate performance management system.

Additionally, Bhutta and Huq (1999) suggest technical audits and internal conferences as sources for discovering best practices. It can be argued technical audits require very experienced auditors who know the latest performance level of a company or sufficient performance management system so that superior performance compared to others can be discovered during the audit. Internal conferences, on the other hand, provide possibilities for informal or formal discussions between personnel which might reveal differences in the performance level of different units.

Literature also presents expert lists as a robust method to increase the discovery of best practices. According to Borgatti and Cross (2003), the discovery of best practices could be improved by creating knowledge of "who knows what". Also, other authors recognize corporate directories improving the discovery of best practices (Alavi & Leidner 2001; Bartol & Srivastava 2002). "Who knows what"-lists or corporate directories offer the possibility to look for people who know the superior performance inside the organization. However, it can be argued that people should have an incentive to use time and contact these experts for corporate directories to be effective.

Even, if a company can identify opportunities with a reliable performance management system, further investigation needs still to be done. Szulanski (1999) claims that after finding an opportunity, a gap and knowledge to address that gap, they need to be further investigated because the reason for superior performance is seldom understood by the source. It can be argued it is essential to do proper analysis by a function with the visibility to other units,

who can evaluate the opportunity because based on the work of Borgatti and Cross (2003) information seeker is not always capable of evaluating the source of information. It can be argued as well that evaluation of best practices, as well as discovering them, needs a proper performance management system for being successful. Bhutta and Huq (1999) claim performance indicators are often determined already in the planning of the benchmarking phase and are used to evaluate the best performer. Whether the success of a shared best practice can be known beforehand even with excellent analysis can still be questioned as according to Bhutta and Huq (1999), getting measurable improvements can usually take at least three months.

3.3 The storing of best practices

As stated in the second chapter, the knowledge management strategy steers the knowledge flows in an organization. As best practices are a form of knowledge, it can be said the knowledge management strategy chosen by the organization determines how the best practices are stored. If best practices do not require innovativeness, they can be codified into organizational databases. (Hansen et al. 1999). Codification is time-consuming and not always possible due to a limited absorptive capacity of personnel (Hansen et al. 1999). As Hansen et al. (1999) state, codification strategy tends to work in environments with low variability, where on the other hand personalization of knowledge is required, if the operative environment varies a lot. In the personalization strategy, the best practices are stored within individuals (Polanyi 1962) and organizational culture (Alavi & Leidner 2001; Massingham & Al Holaibi 2017).

In the case of the codification strategy, the knowledge of individuals or an organization needs to be converted into an explicit form. The conversion of tacit knowledge to explicit form in codification strategy is visualized in figure 8 below.

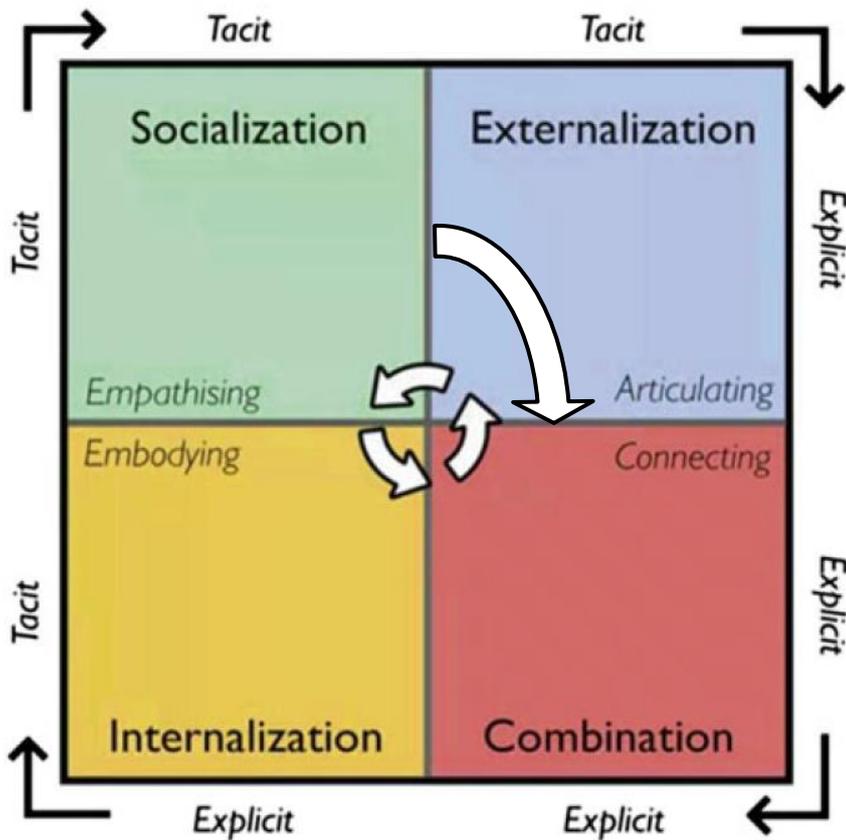


Figure 8. Externalization of best practice in the SECI model: The codification of tacit best practice into explicit form to be shared

If a company chooses to follow codification strategy, it needs to do the externalization in the SECI model and turn tacit best practices to explicit form (Nonaka, Toyama & Konno 2000) (figure 8). Mohapatra et al. (2016) claim codifying knowledge is the basis for sharing knowledge like best practices. They state best practice sharing should always be goal-oriented and tied closely to business targets. Additionally, according to them, when a best practice is identified and ready to be codified for sharing, there are four principles for codification:

1. Deciding what business goals the codified knowledge will serve
2. Identifying existing knowledge necessary to achieve strategic intent
3. Evaluating existing knowledge for usefulness and the ability to be codified
4. Determining the appropriate media for codification and distribution

Even, if the best practice could not be codified, the similar approach helps an organization to prepare for sharing tacit knowledge.

3.4 The sharing of best practices

Similarly, it can be said the knowledge management strategy chosen by the organization determines how the best practices are shared. An organization can either share codified explicit best practices through organizational databases or transfer tacit best practices in person-to-person interactions. As a form of knowledge, the conversion of best practices follows the SECI model (Nonaka, Toyama & Konno 2000). Therefore, the same four mechanisms for sharing knowledge can be applied for sharing best practices as well (figure 9).

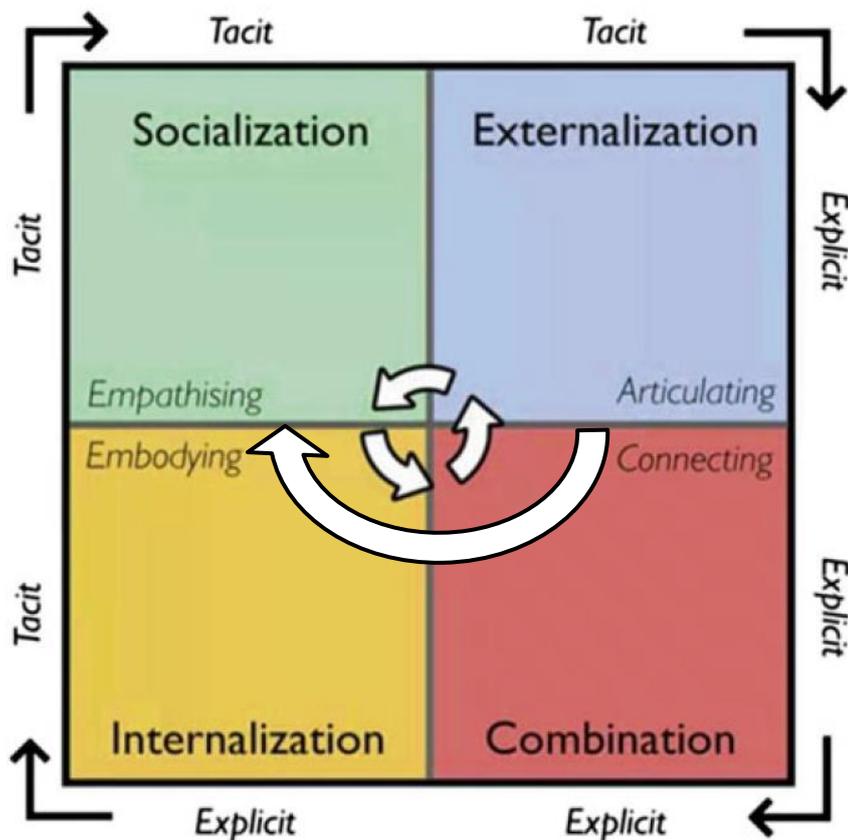


Figure 9. Combination and internalization of best practice in the SECI model: Sharing of best practice happens in codification strategy when giver combines relevant information for receiver and receiver learns from codified and shared best practice

During the sharing of best practice knowledge goes through combination and internalization phases in the SECI model (figure 9). Before the actual sharing, knowledge might be combined or modified to meet the requirements of a receiver. Internalization phase takes place when a receiver has received the shared explicit best practice and turn it to tacit skills by learning. On the other hand, when sharing of best practice happens in the personalization strategy, the tacit knowledge of an individual is shared socialized in person to person interactions. This is represented in figure 10 below.

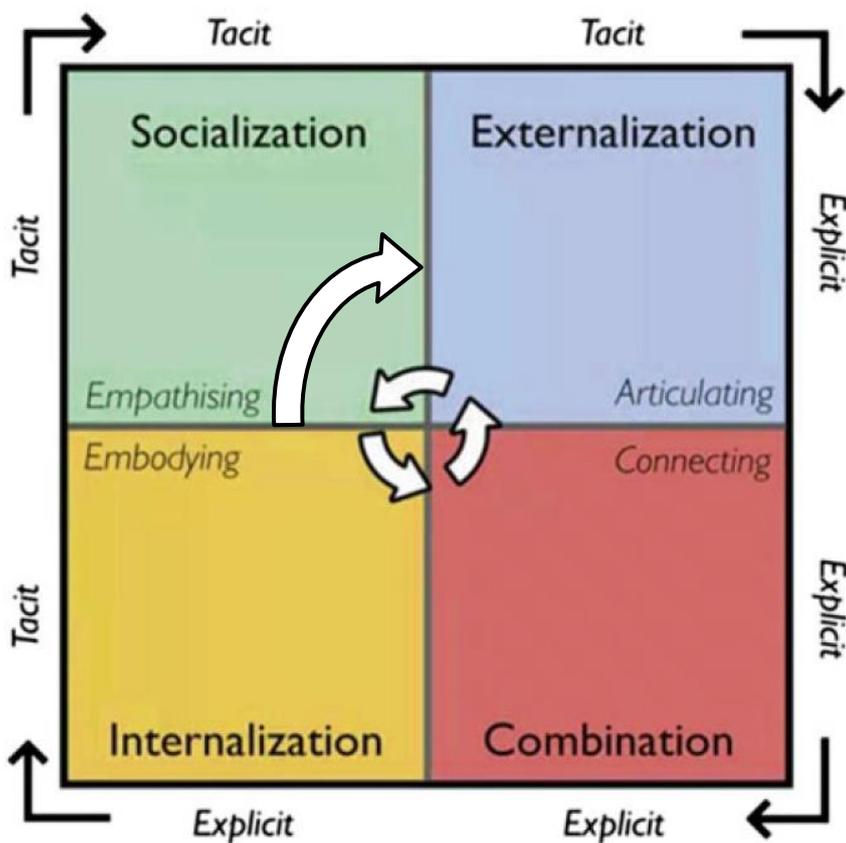


Figure 10. Socialization of best practice in the SECI model: Sharing of best practice happens in the personalization strategy when tacit knowledge of an individual is shared knowledge is socialized

Depending on whether the best practice can be shared through a codified format or it must be shared in person-to-person interactions, the same four formats for sharing knowledge can be used for sharing best practices as well.

1. Best practice contributions to databases
 - a. Creation of corporate directories (Alavi & Leidner 2001)
 - b. Creation of organizational databases (Alavi & Leidner 2001; Bartol & Srivastava 2002)
2. Formal interactions (Bartol & Srivastava 2002)
 - a. Internal benchmarking with the aim of sharing best practices (Alavi & Leidner 2001; Bartol & Srivastava 2002; O'Dell & Greyson 2000)
 - b. Cross-divisional conferences (Bartol & Srivastava 2002)
 - c. Personnel rotation (Sveiby 2001)
 - d. Mentoring concept (Hansen et al. 1999)
3. Sharing best practices in informal interactions (Bartol & Srivastava 2002)
4. Sharing best practices in communities of practice (Bartol & Srivastava 2002)
 - a. Creation of communities of practice (Bartol & Srivastava 2002)
 - b. Creation of knowledge networks (Alavi & Leidner 2001)

Even though the sharing channels would exist, many authors have identified that flow of knowledge does not necessarily happen by itself (Brown & Duguid 1998; Alavi & Leidner 2001; Holdt Christensen 2007). As the flow of best practices is one sort of knowledge flow, the results of the work of Govindarajan and Gupta (2000) can be applied in the context of best practice sharing. Govindarajan and Gupta (2000) propose the outflow of knowledge from a unit is depended on:

1. The value of a subsidiary's knowledge stock
2. The existence and richness of transmission channels linking a subsidiary to other units

This means more knowledgeable a unit is the more likely the knowledge will flow out from it. The more a unit has the best practices, the more likely other units are to contact them. Same can be applied with the existence and richness of transmission channels linking units to each other. The more there are communication channels between units and the more they are used, the better the outflow of best practices is. Additionally, Govindarajan and Gupta (2000) propose the inflow of knowledge into a unit is depended on:

1. The existence and richness of transmission channels linking a subsidiary to other units
2. The motivational disposition of a subsidiary to seek for and accept knowledge
3. The capacity of a subsidiary to absorb incoming knowledge from other units

The amount of communication channels and their active usage also improves the inflow of best practices to a unit. Govindarajan and Gupta (2000) highlights as well the importance of the motivation and absorptive capacity of the receiving party. According to them, the receiving unit needs to have the motivation to seek and accept knowledge for sharing of best practices to be effective. Furthermore, they claim improving the topic related knowledge of receiving party and homophily of the receiving unit will increase the absorptive capacity of the receiving party. Szulanski (1996) supports this view by highlighting the significance of both the source and the receiver of best practice: “transfers of best practice are seen as dyadic exchanges of organizational knowledge between a source and a recipient unit in which the characteristics of the source and the identity of each recipient both matter”.

There is no consensus between the authors on the effect of extrinsic rewards to the motivation of individuals to complete a specific task (Deci & Ryan 1985; Deci, Koestner & Ryan 1999; Eisenberger & Cameron 1996). Bartol and Srivastava (2002) concluded that there are two necessary prerequisites for the reward system to be effective: “it should be possible for the reward giver to observe or record the target behaviour and to assess its value”. Additionally, Hansen et al. (1999) claim that “the two knowledge management strategies call for different incentive systems”. They claim that in the codification model, managers need to develop a system encouraging people to write down what they know and to get those documents into the electronic format. Codification is a time-consuming task and requires a real incentive. Hansen et al. (1999) give an example of Ernst & Young where contributions to the document databases are part of their annual performance reviews. On the other hand, Hansen et al. (1999) claim that “incentives to stimulate knowledge sharing should be very different at companies that are following the personalization approach”. At Bain & Company, managers are rewarded for sharing knowledge directly with other people with an incentive which can even embody for as much as one-quarter of their annual compensation. (Hansen et al. 1999)

3.5 The implementation and usage of best practices

Only sharing the best practice with an organization does not force it to use it. Proper implementation of best practice is often required as several authors claim knowledge need to be often modified to meet the receiver's requirements (Alavi & Leidner 2001; Bhutta & Huq 1999). Furthermore, many authors admit implementing best practices is not easy. Literature recognizes many barriers to implementing best practices in an organization:

1. The “not-invented-here” syndrome (Katz & Allen 1982)
2. Skepticism toward external sources (Katz & Allen 1982)
3. Over-reliance on local knowledge (Katz & Allen 1982)
4. Lack of time (Lundin & Magnussen 2002; Grol & Grimshaw 2003)
5. Lack of competence or knowledge (Govindarajan & Gupta 2000; Grol & Grimshaw 2003)

Grol and Grimshaw (2003) claim it is highly likely that the barriers exist on different levels. Efficient implementation of best practices often requires supportive organizational structure, proper tools and process to overcome these barriers (Terziovski, Sohal & Samson 1996). Research about implementing best practices is widely conducted in the field of healthcare (Terziovski et al. 1996; Tucker, Nembhard & Edmondson 2007; Grol & Grimshaw 2003). Whether similar tools work in industrial context might be questioned. Literature recognizes the following tools to have a significant impact on implementing best practices to a healthcare organization:

1. Project or pilot teams (Tucker et al. 2007)
2. Change agents (Terziovski et al. 1996)
3. Goals setting (Terziovski et al. 1996; Shin, Taylor & Seo 2012)
4. Change agenda (Terziovski et al. 1996)
5. Communication about benefits (Grol & Grimshaw 2003; Shin et al. 2012)
6. Training materials and training (Grol & Grimshaw 2003)

Tucker et al. (2007) see project teams useful for implementation of best practices because even well-motivated individuals working without support are likely to find it difficult to

effect organizational change. They claim “project teams can help overcome barriers to change because they introduce commitment to results and promote engagement in learning by individuals directly responsible for carrying out the organization’s work” (Tucker et al. 2007). Terziovski et al. (1996) emphasize the importance of local key people leading the change with a clear target and change agenda. Grol and Grimshaw (2003), on the other hand, claim it is vital to recognize change barriers on different organizational levels and adjust change strategy for each of the layers separately. They claim securing a commitment by highlighting benefits and by increasing the competence level of personnel will help the implementation. However, Grol and Grimshaw (2003) conclude that purely offering training materials has only a limited effect. Shin et al. (2012) added that to drive effective change in an organization, goals and their benefits need to be clear to employees.

Method of assessing improvements over time is crucial to effective adoption of best practices. Sustaining the change in an organization over time is crucial since most of often the time for tangible benefits to be realized is more than three months. (Bhutta & Huq 1999)

4 KNOWLEDGE MANAGEMENT AND SHARING INTERNAL BEST PRACTICES IN GLOBAL SERVICE BUSINESS

In this chapter, the author of this study combines the relevant theories of knowledge management and best practice sharing and applies them to the context of a multinational service company. The best practice sharing is investigated thoroughly to get a detailed understanding of knowledge management. First, the literature review is used to define the requirements for effective knowledge management and best practices sharing in a global context, thus providing a structure for the conceptual framework. Later in the chapter, the characteristics of each of the steps in the process of best practice sharing in a multinational context are represented. Different requirements, methods and tools to identify best practices remotely in a global context are introduced. The storing, sharing and implementing of best practices are covered similarly in the latter half of this chapter.

4.1 The conceptual framework

This study concentrates on the knowledge management and sharing of best practices among the coordinators of the case company's field services. Literature review recognises different relationships and theories for knowledge management and sharing of best practices (figure 11). A relationship between needed knowledge in an organization, desirable knowledge management strategy and suitable methods or tools for KM is introduced in the literature (Hansen et al. 1999). Additionally, different obstacles for knowledge management were proposed by multiple authors (Govindarajan & Gupta 2000; Grol & Grimshaw 2003; Katz & Allen 1982; Holdt Christensen 2007; Mohapatra et al. 2016; (Nonaka and Takeuchi, 1995; Szulanski, 1996, 2003; Lundin & Magnusson 2002). The impact of a global environment (Ardichvili et al. 2006) and organizational culture are also recognised by different authors (Collins & Smith 2006; Chang & Lin 2015). Furthermore, the importance of sharing of best practices is widely accepted in the literature (O'Dell, Grayson & Essaides 1998; Szulanski 1999; Bhutta & Huq 1999).

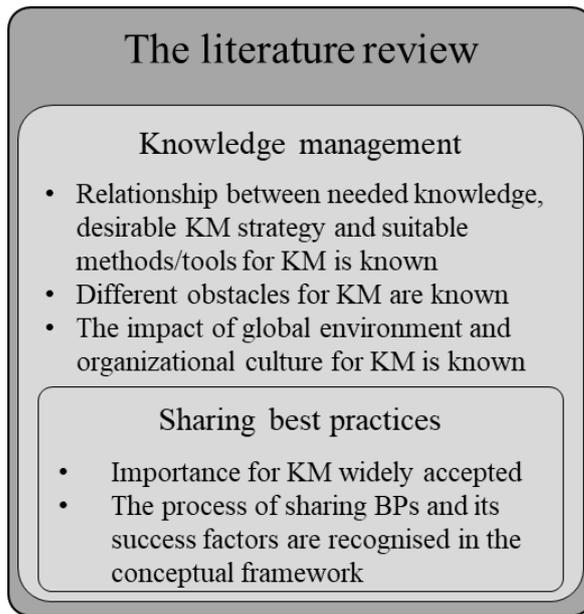


Figure 11. Relationships and theories recognised in the literature which are used later to create the conceptual framework

Coordinators work mainly on coordinative or administrative tasks supporting company's field services engineers to deliver and invoice services. Sharing internal best practices among coordinators in a multinational environment is a challenging task due to long distances, cultural differences and complex dependencies. Skills to accomplish daily operations are versatile and require business, customer and technical knowledge. Diverse knowledge requirements create requisites for the applicable knowledge management strategy (Hansen et al. 1999). Knowledge needs to be handled in both individual and social dimensions (Spender 1996) and successful transfer of best practices requires cultural differences to be recognised (Ardichvili et al. 2006; Cabrera & Cabrera 2002). The process of sharing best practices, however, follow the already defined process of knowledge management: creating, storing, sharing and implementing of best practice. Each of the steps has requirements to be successful, which are introduced in the conceptual framework (figure 12).



Figure 12. The conceptual framework

The previously represented figure 12 illustrates the conceptual framework of this study. Each of the seventeen building blocks in the conceptual framework can be seen as a requirement when a multinational service company desires to effectively manage its knowledge and share best practices. The conceptual framework illustrates the prerequisites, which lead to successful knowledge management and sharing of best practices in a multinational context.

4.2 The impact of favourable organizational culture on knowledge and best practice sharing

Favourable organizational culture is the basis for successful knowledge sharing in any company (Collins & Smith 2006; Chang & Lin 2015). Hilton (2017) claims that any organization must strive to learn and by doing so develop capabilities distinguish it from those of its rivals. The work of Chang and Lin (2015) highlights the importance of company culture for knowledge management. They state that results- and job-oriented company cultures have positive effects on employee intention in the knowledge management culture. In the results- or job-oriented cultures, the focus of personnel is merely in finishing of a particular task or reaching the given targets. This entrepreneurial culture encourages employees to search and share needed knowledge. On the other, tightly controlled company culture has adverse effects on knowledge management of a company, since people tight with stick rules (Chang & Lin 2015).

4.3 The identification of internal best practices in the global service business

Identification of performance gaps is recognised as the basis for best practice sharing. Performance gaps can be identified through reporting or formal interactions between stakeholders, like internal benchmarking and audits. Additionally, the importance of personal relations and informal knowledge sharing is well recognized in the literature (Bartol & Srivastava 2002). However, in the context of multinational service business, chances for informal knowledge sharing are rare. This increases the importance of formal interactions and well-developed performance management system. With formal interactions, the challenge is often travel-related costs (Bhutta & Huq 1999). Companies are often not willing to pay for the lost working hours and other travel costs if an apparent gap in performance is not already addressed. To be able to identify a gap in performance, a multinational company should have a performance management system in place, which allows a company to objectively evaluate the performance of its sub-units.

Even though, modern online services allow a cheap and fast way to connect with people from all over the world, there is a need to recognize performance so that correct stakeholders can be connected with each other. Objective and accurate performance measurement system

would allow the case company to identify the people to share and receive knowledge and best practices. Furthermore, a capability to identify performance gaps remotely can be seen as a way to increase the motivational disposition of a subsidiary to seek for and accept knowledge (Govindarajan & Gupta 2000).

According to different authors, it is important not to isolate knowledge management strategy into support function like HR (Holdt Christensen 2007; Mohapatra et al. 2016). This means knowledge management should be on the agenda of operative functions and they should also have visibility to the performance outside of their unit. Visibility to other sub-functions' performance can be created with previously mentioned formal interactions or operative indicators. Literature does not have consensus on how performance should be measured to secure effective knowledge sharing. Richard, Devinney, Yip and Johnson (2009) claim that even though organizational performance has enjoyed great attention from researchers, there is still no consensus among them what performance is and how it is measured. They distinguish organizational performance from organizational effectiveness by stating that organizational performance is measuring firms' outcomes like profits, market share or total shareholder return, where on the other hand effectiveness concentrates on both organizational and internal performance. In the case of identification of performance gaps, it can be argued that a company should concentrate on measures of organizational effectiveness.

Once the measurement system is in place and sub-units can identify best-performers and build relationships with them. Based on the work of Govindarajan and Gupta (2000), the possibility to recognize the best-performer will increase the value of the best performer's knowledge stock in the eyes of other sub-units and increase the likelihood of contact. The number of connections between the best performer and other sub-units will then increase the outflow of knowledge. However, before a best practice can be shared, the type of knowledge should be recognized to choose the correct way to distribute it. Knowledge type can be recognized with the previously presented question pack expressed by Hansen et al. (1999).

Chang and Lin (2015) highlight the importance of appropriate organizational culture for successful knowledge sharing. They claim it is apparent different organizational cultures have either a positive or negative effect on knowledge management of a company. A

company should drive either result- or job-oriented company culture and thereby boost its employees to search for or create new knowledge. Result- or job-oriented company cultures are cultures, where an individual is encouraged to take risks and seek new knowledge if successful finishing of a job requires it.

4.4 The storing of internal best practices in the global service business

Typical solutions for storing best practices are different databases or corporate social media if a multinational service company chooses to follow the codification strategy (Hansen et al. 1999; Behringer & Sassenberg 2015). Codifying knowledge in a multinational environment can face issues because sharing knowledge is not always beneficial for employees. There might be a fear of losing jobs in more expensive and developed countries if a company can transfer the same knowledge to a less expensive country. However, Behringer and Sassenberg (2015) claim that higher the perceived usefulness of information the stronger the intention for knowledge contribution is. Therefore, a company should think what it is aiming towards with codification of knowledge. Additionally, language and cultural aspects are primarily present in a multinational context.

For companies relying on tacit knowledge, the importance of employee satisfaction grows because the knowledge is lost, when the employee leaves the company. Literature recognizes many factors affecting positively to employees satisfaction such as employee empowerment (Byham & Cox 1998), flexible benefits (Barber, Dunham & Formisano 1992) and transformational leadership (Men 2014).

4.5 The sharing of internal best practices in the global service business

As mentioned earlier, the type of knowledge to be shared determines the way how knowledge should be transferred. A company should evaluate, if the best practice can be codified effectively or whether it needs to be transferred via person to person interactions. In a multinational context, formal interactions require existing online tools or costly travelling. The challenge in a multinational context is that the relationship between employees is more difficult to establish, which has an adverse effect on knowledge flow (Daghfous 2004).

Furthermore, the sharing of knowledge is always an interaction between two parties: best practice giver and receiver. The challenge in multinational companies is often that the information giver and receiver often have different capabilities (Barney 1991). He claims organizations tend to choose their resources and capabilities differently and in different places. Different capabilities effect on organizations' absorptive capacity. Absorptive capacity can be divided into four factors: acquisition, assimilation, transformation and exploitation. Daghfous (2004) gathered several internal factors from different authors affecting firms' absorptive capacity (table 3).

Table 3. Internal factors that affect a firm's absorptive capacity (Daghfous 2004)

Internal factor	Effect on absorptive capacity	Factors of absorptive capacity affected
Prior knowledge base	Positive relation	Acquisition
Individuals absorptive capacity	Positive relation	All factors
Level of education and academic degree	Positive relation	Acquisition, assimilation, transformation
Diversity of backgrounds	Positive relation	Assimilation, transformation
Presence of gatekeepers	Positive relation	Acquisition
Investment in R&D	Positive relation	Acquisition
Organizational structure	N/A	Assimilation, transformation, exploitation
Level of internal communication	Positive relation	Assimilation, transformation
Level of organizational bureaucracy	Negative relation	Exploitation
Organizational culture – empowerment of employees	Positive relation	Transformation
Size	Positive relation / Negative relation	Acquisition, exploitation
Organizational inertia	Negative relation	Exploitation
HRM (recruitment, job rotation, reward systems)	N/A	All factors

The cumulateness is one of the key characteristics of learning. Therefore, prior knowledge base, individual absorptive capacity, level of education and academic degree and diversity of backgrounds all have an impact on a firm's absorptive capacity. An individual or an organization faces challenges to recognize new valuable knowledge if the required capability to evaluate the received knowledge is missing. (Daghfous 2004) Similar backgrounds and equal education between the best practice giver and receiver increase the likelihood of

successful transfer. This can be inferred from the work of Cohen and Levinthal (1990), who claim that the ability to assess and deploy outside knowledge is largely a function of the level of prior related knowledge. They even claim knowledge should be in the related area, where an individual would like to acquire new knowledge. Even, if the best performer would have been recognized, but the receiver has no prior expertise, a successful transfer is unlikely to happen. Research of Bhutta and Huq (1999) support the view that best practices cannot just be taken from somewhere and implemented elsewhere. The resources employed to do the job and the way how things are done in both units need to be analyzed before adopting a process.

Additionally, the relation between individuals' and organizations' absorptive capacities is well known in the literature (Cohen & Levinthal 1990; Daghfous 2004). Most effective way to enhance absorptive capacity of an organization is to enhance the absorptive capacity of an individual. Cohen and Levinthal (1990) present the following requisites to help an organization to gain needed absorptive capacity:

1. Companies should be committed to enhance and leverage their knowledge by investing in their resources learning programs
2. Companies should encourage employees to communicate across the functional boundaries
3. Companies should ensure employees have time to learn
4. Companies should promote a culture of change
5. Companies should build physical and virtual knowledge marketplaces
6. Companies should include knowledge sharing as criteria of performance evaluation
7. Companies should conduct internal seminars and workshops to share organizational knowledge through informal means

Organizational size, structure and bureaucracy have all an effect on the absorptive capacity of a company. A large company with complex and bureaucratic structure often faces challenges in acquisition, assimilation, transformation and exploitation of knowledge like best practices because of a large number of organizational layers and gate-keepers knowledge need to bypass. (Daghfous 2004) Govindarajan and Gupta (2000) claim that usually in large multinational corporations knowledge flow happens more easily from the parent corporation to sub-units than the other way around. This means that, in the

environment of the case organization, it is likely there are challenges to share best practices through the central FS function to other units if knowledge does not flow upstream due to a complex organizational structure.

Organizational culture and inertia also have an impact on absorptive capacity (Daghfous 2004). Chang and Lin (2015) recognised results- and job-oriented organizational cultures to have a positive effect on knowledge sharing as well. Concentration on results and finishing off a job encourages employees to share their knowledge they think might be valuable to others. In contrast, a tightly controlled culture was recognised to have a significant negative impact on an individual's, and therefore also on organization's, intention to store received information.

4.6 The implementation and usage of internal best practices in the multinational service business

In the multinational, context the challenge is often that the complexity of an organization increases with the growing size (Feinman 2011). Complex and heterogeneous organization increases the need to modify the knowledge to meet the knowledge receiver's requirements (Alavi & Leidner 2001; Bhutta & Huq 1999). Grol and Grimshaw (2003) highlight the need to secure the competence and the time to implement practices. Additionally, the need to build up trust and relationship increases, when the receiver is implementing practices outside of its unit (Katz & Allen 1982).

5 RESEARCH CASE, METHODOLOGY, PROCESS AND LIMITATIONS

The following chapter introduces the research case, methodology and process. The qualitative research methodology was chosen for studying specifically how the case company shares knowledge and best practice. The research process followed the chosen methodology and the empirical part of the study was designed based on the literature review and chosen theories.

5.1 Research case introduction

This study concentrated on knowledge management of coordinators in the case company's field services. The focus is to investigate how coordinators share knowledge and best practices. The case company has a wide-spread service network consisting of several units in different continents. Services business is divided into four areas in the case company mainly with a continental split. Business areas are North Europe, South Europe and Africa, the Middle East and Asia and the Americas. Each business area consists of multiple service units.

The motivation to choose this research case came from a best practice proposal from one of the case company's service units, referred as "Unit A" from now on, to improve the global field services administrative process. The proposer unit was seen as a more developed unit than the average unit in the case company and therefore the proposal created a need to investigate how well earlier process improvements had been implemented globally. For other units to benefit from the proposed best practice, receiving units should have a similar competence level than the proposer since the better competence level improves the absorptive capacity of an organization (Daghfous 2004).

Additionally, the proposal created a need to investigate how such a best practice could be effectively shared with all of the sub-units. Wide-spread global presence creates a need to effectively share knowledge from unit to unit and from the central FS function to units in the case company. Since the service units were not seen as entirely identical, there was a danger that the best practice should be modified during implementation to meet the local standards

(Daghfous 2004). Personalization of best practices increases the costs in such a complex service network as in the case company and cuts the benefits of sharing them. Furthermore, the case company had the interest to boost the knowledge management of its coordinators to reach better global process discipline.

Therefore, the target for the four process audits was to map how similarly field service and workshop processes were followed compared to Unit A in three remaining selected service units of the case company and how the knowledge flow between the central FS function and service units is happening. Additionally, the usage of the administrative tools was mapped to see how well codified instructions and updates are received in service units from the central FS function. This study concentrated on administrative tasks with eight global administrative tools. Tools are named from A to H and they are mainly supportive tools for administrative perspective.

5.2 Research methodology

The goal of this study is to gain an in-depth understanding of knowledge management and best practice sharing as methodologies and propose steps how the case company could improve its current way of working. Therefore a qualitative research methodology was chosen for this work. The basis of qualitative research is to present the actual state of the chosen object and describe it as comprehensive as possible (Hirsjärvi, Remes & Sajavaara 1997). Traditionally case studies have been used in the areas such as psychology, sociology, political science, business, education, nursing and community planning (Yin 2014). Qualitative research method can, therefore, be seen as suitable for researching topics such as organizational knowledge and best practice sharing.

This study is conducted as a single case study since according to Yin (2003) a case study design should be considered when the focus of the study is to answer either on how or why explored events take place. According to Baxter and Jack (2008), there are several different types of case studies. The descriptive single case study with multiple embedded units was chosen since it allows the researcher to “describe an intervention or phenomenon and the real-life context in which it occurred” (Yin 2003). The descriptive method, therefore, allows

the researcher of this study to compare current status in the real-life context with the relevant literature. The goal set by the researcher is to describe the data as they occur. (Zainal 2007) Additionally, including multiple embedded units allows the researcher to explore the case in several sub-units and analyse the results within, between or across the sub-units (Baxter & Jack 2008). Therefore, multiple embedded units enable the author of this study to compare four different business areas and receive a general view of the status quo in the whole case company.

5.3 Data collection and research process

This study has a descriptive and qualitative approach. The importance of correct selection of data collection method cannot be omitted (Harrell & Bradley 2009). In the research, the data was collected to understand the actual state of knowledge management in the case company. Data was gathered with five interviews, a survey and four process audits taking place in four different service locations. The usage of various data collection method is often used if the target is to obtain different kinds of information from multiple sources (Harrell & Bradley 2009). Additionally, case company documents, such as organizational charts, were used to gather data about the current status of knowledge management in the case company. Each of the three methods is presented in this section. The analysis of current situation and data collection methods are presented in figure 13.

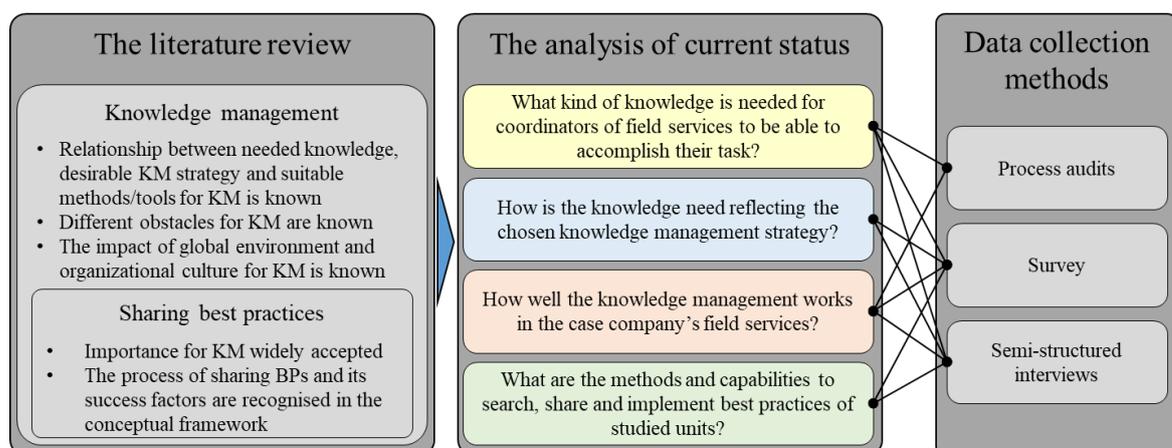


Figure 13. The analysis of current status and used data collection methods are done based on the literature review

As stated earlier, the data collection and the research process were conducted with interviews, survey and process audits. Firstly, four audits, a survey and five interviews were used to examine what kind of knowledge was needed for a single coordinator to accomplish her daily task. Secondly, the survey and five interviews examined the existing knowledge management strategy and how knowledge is transferred centrally from the central FS function to different areas and between areas. Thirdly, four audits, the survey and five interviews examined how well the knowledge management works in the case company's field services. The idea of audits was to see how well different processes were followed and how well the current knowledge management practices work. Fourth, the survey and five interviews were used to investigate how different areas shared or sought information about best practices developed elsewhere in the case company and what kind of knowledge is needed in different positions. Each of the four areas of current state analysis is colour-coded in figure 13. Interviews, a survey and audits were conducted at several organizational levels and locations consisting of both operational and the central FS function. The literature reviews of knowledge management and sharing of best practices provided the framework for the data gathering. The whole data gathering process took place internally removing possible gatekeepers (Saunders, Lewis & Thornhill 2009) for data access.

5.3.1 Process audits

Massingham and Al Holaibi (2017) claim that knowledge management can be used to improve process management in a company. They claim organizational knowledge is needed for an individual to follow the organization's guidelines and therefore process discipline was used as an indicator of knowledge management effectiveness in this study. Additionally, formal audits have been recognised as an effective tool to gain diagnostics about the knowledge level of an organization (Aalbers 2009). Therefore, four process audits were chosen to be the first data collection method. Conducted process audits are presented in table 4. The target of process audits was to investigate the need of knowledge in studied units and the quality of the inflow of new knowledge into units. The target was to audit how well studied units had received and implemented new knowledge from the central FS function. Furthermore, the audits revealed what kind of knowledge is needed in the case company's field services.

The audits were approved by all the area vice presidents allowing the author of this study to get access to needed information. All of the audits to studied units were conducted by the author of this study together with the central FS function to secure correct validation of processes. Also, the author of this study was knowledgeable about the topics of the audits.

Table 4. Conducted process audits

Location	Duration	Date	Area
Unit A	4 days	13.-16.11.2017	North Europe
Unit B	2 days	5.-6.3.2018	South Europe
Unit C	2 days	8.-9.3.2018	North America
Unit D	2 days	22.-23.3.2018	Asia

The duration of audits in studied units varied but they followed the same structure for securing comparable results between the units. The first of the audits was four days long and was used to secure successful audits in the remaining units. All of the audits were also done within six months to secure similar maturity of units. All of the units were well informed about the audits and had time to prepare for them. Audits started with a short introduction to the topic and auditors gave reasoning for the activity. During the audits, participants were asked different open-ended questions about the local way of working. Open-ended questions were used to allow participants to describe the situation in more detailed. Open-ended questions are typically used in qualitative research allowing the participants to describe the phenomena as detailed as possible. (Yin 2003) Furthermore, auditors followed actual orders from the first customer contact until the sent invoice and watched how steps in the process were actually conducted to gain an in-depth understanding of the real way of working. All of the audits were written down to a pre-designed template.

The results of the process audits were summarized and presented in matrixes showing how well local field services and workshop processes followed the global procedures. Additionally, the usage of each used tool and system was mapped similarly to matrixes for comparison of service units. These matrixes are later presented in this study.

5.3.2 Conducted interviews

“Interviews are discussions, usually one-on-one between an interviewer and an individual, meant to gather information on a specific set of topics” (Harrell & Bradley 2009). Semi-structured interviews were chosen as a data collection method for this research even though Saunders et al. (2009) claim it fits better for exploratory studies. Using a desirable structured interview would have been difficult since the positions of five interviewees were different. Semi-structured interviews offer a possibility for a researcher to delve deeply into a topic and to understand thoroughly the answers provided. In semi-structured interviewing, a pre-designed guide is used, with topics and questions that need to be covered, but the interviewer has some discretion about the order in which questions are asked. Questions are standardized to ensure that the researcher covers the correct material. (Harrell & Bradley 2009)

The target for the interviews was to investigate how the central FS function and areas perceived the knowledge management strategy in the field services and to gather information about how needed knowledge was shared between the studied units and the central FS function. Interviews with the central FS function and areas followed only semi-structured agenda and were adjusted based on the position of an interviewed person. In these interviews, participants were asked different guidelines affecting knowledge flows from the central FS function to service units and between different service units. Participants were also informed about the basic theories of knowledge management and best practice sharing. Working history and personal relationship with the interviewees allowed the author of this study to gain access to the needed information of different personnel. Additionally, there was a common interest with the author of this study and interviewees to finish the study. Furthermore, each of the interviews was handled anonymously giving the interviewees a possibility to answer freely to asked questions. The table 5 below represents the type and duration of interviews and the roles of the interviewees.

Table 5. Conducted interviews

Area or Function	Role	Duration	Method
The central FS function	General Manager Field Services	44 minutes	Virtual meeting
The central FS function	General Manager, Process development & Commissioning	33 minutes	Virtual meeting
Area B	General Manager Area Field Services & Contract Management	60 minutes	Virtual meeting
Area C	General Manager Field Services	30 minutes	Virtual meeting
Area D	General Manager Technical Services & Field Services	40 minutes	Virtual meeting

Meetings' duration was between 30 minutes and an hour. From the central FS function, the head of the function and the head of process development were interviewed. From area organizations, area field services general managers were interviewed. Area field services general managers are responsible for field services in their respective continental area. They support and provide inputs for development discussions and target setting of the field services managers in their respective area. (Company material 2018) Three out of four area field services general managers were interviewed. "Area B" is the continental area where "Unit B" is located et cetera. Due to the organizational change in Area A, the respective general manager position was open during the conduction time of this study and therefore, an interview was not possible. However, it can be argued that three interviews are enough to get a picture of the current situation in the case company since the area structure is similar in all four areas (Company material 2018 A).

All of the five interviews were virtual meetings with pre-designed structure and were recorded. The pre-designed structure was used to secure the quality of the data-set (Saunders et al. 2009). Only the author of this study and the interviewee were present in each of the interviews. Interview themes (Saunders et al. 2009) were designed based on the four key areas of the current state analysis presented in figure 13. Specific interview guides are represented in tables 6 and 7.

Table 6. The interview guide used with members of the central FS organization

1.	Do you think there is a specific knowledge management strategy for Field Services? If yes, how is it?
2.	How is the current knowledge management strategy? Has it more features of codification strategy or personalization strategy?
3.	How would you describe the responsibility areas for the knowledge management in field services?
4.	How would describe the primary methods and tools for sharing knowledge with coordinators in service units?
5.	How are the key users chosen?
6.	How is the knowledge level of the key users maintained?
7.	How are the key users maintained?
8.	How often do key users contact each other?
9.	How do key users contact each other?
10.	How does the training of key users happen?
11.	How is the visibility of the performance and ways of working in different units?
12.	Is there a way internal benchmarking among the blue collars?
13.	What are the main challenges in the knowledge sharing between the central FS function and service units and between service units?
14.	How are the best practices shared currently?

The interview guide with the central FS function concentrated on how the central field services saw its role as an owner of knowledge. The target was to understand, if a chosen knowledge management strategy existed and if used methods were aligned with it. The questions from 1 to 3 discussed existing knowledge management strategy and built a picture of its current state. The questions from four to 13 were related to the effectiveness of the current knowledge management strategy. The last question was related to the applications and capabilities to search, share and implement best practices of the studied units.

Table 7. The interview guide used with members of area organizations

1.	How do you see the tasks of coordinators in field services? Are they mostly highly variable or standard tasks?
2.	How do people receive information to solve their daily issues?
3.	How is the knowledge level of field services personnel kept up to date? Do you think there is a systematic way to keep the knowledge level of personnel up to date?
4.	How does the flow of information from the central FS function to service units happen? What are the primary methods?
5.	How is knowledge shared within the area or outside the area? What are the primary methods?
6.	What are the main barriers to identify best practices?
7.	How the difference of service units affect the sharing of best practices?
8.	What are the barriers to sharing of best practices, if best practice is already identified?
9.	What are the barriers to implementing best practices?
10.	What is the responsibility of area field services general manager in knowledge management?

The interview guide with area organization concentrated on how areas received the information from the central FS function. Additionally, the knowledge flows inside and between areas were investigated. The target was to understand if a chosen knowledge management strategy was seen similarly in the receiving area organizations as in the central FS function. The first question investigated the needed knowledge for coordinators to successfully manage their daily tasks. The second question built a picture of existing knowledge management strategy. The questions from three to five were related to the effectiveness of the current knowledge management strategy. The questions from six to nine handled the applications and capabilities to search, share and implement best practices of the studied units. At last, the responsibility of area field services general manager in knowledge management was discussed.

5.3.3 Survey

“Surveys are fixed sets of questions that can be administered by paper and pencil, as a Web form, or by an interviewer who follows a strict script” (Harrell & Bradley 2009). A survey was chosen as a data collection method because it allows a researcher to utilize significant samples. (Harrell & Bradley 2009). The personnel of studied units was sent a survey with ten multiple choice questions. The survey was approved by the service units’ general managers before it was sent to coordinators allowing the author of this study to gain access to needed information. The main target of the survey was to investigate how different personnel in different locations and positions saw the status of needed knowledge and knowledge management in the case company’s field services. Additionally, the ways how knowledge and best practices were shared was investigated. The survey structure is seen in table 8 below.

Table 8. Survey structure

1.	What is your position?
2.	What is your service unit?
3.	How would you describe your daily tasks?
4.	How do you receive information to solve issues in your daily tasks?
5.	Is there a local systematic way to share information about best practices or process and system updates like regular meetings held by local management?
6.	How do you receive the information about procedure, process or system updates?
7.	How locally found best practices are shared with other units?
8.	Choose applicable barriers to identification of global best practices
9.	Choose applicable barriers to transferring global best practices
10.	Choose applicable barriers to effective implementation of best practices

The structure of the questionnaire was done based on the areas in figure 12 and its results are later presented in this study. The importance of sample size is highlighted by Harrell and Bradley (2009). For this research, the survey was sent out to all relevant coordinators, a total number of 103, in the investigated service units. The minimum sample was set to 52 answers to secure high enough response rate with the maturity of coordinators.

5.4 Research limitations

Due to the limited available time for this study, some of the factors affecting the results of this study was not investigated. It is possible that the utilization of the correct usage of processes and tools as an only indicator of the effectiveness of knowledge management is not entirely reliable. There might be other factors affecting the use of processes and tools than knowledge management, such as poor systems or management. Additionally, only a minority of service units were investigated in this study and therefore it gives only directional results.

6 RESULTS

The target for the empirical work was to answer to the research question: “What are the improvement areas of the case company’s field services’ knowledge management?” by comparing the state of the art situation in the case company with methods and tools presented in the relevant literature. This chapter introduces the results of conducted four interviews, survey and four process audits.

6.1 Type of knowledge needed for coordinators in studied units

The type of knowledge needed was investigated through a survey and five interviews with the central FS function and area organizations. Additionally, company material was used to gain a deeper understanding required knowledge in the units. Since the favourable knowledge management strategy is depended on the type of knowledge needed to be share, the type of knowledge must be addressed (Hansen et al. 1999). The white collars in the service units were asked how they would describe their daily tasks. Based on the work of Nonaka (1994), an assumption was made that standard tasks can be codified as explicit knowledge and tasks with high variability require tacit knowledge. The results of the questions can be seen in figure 14.

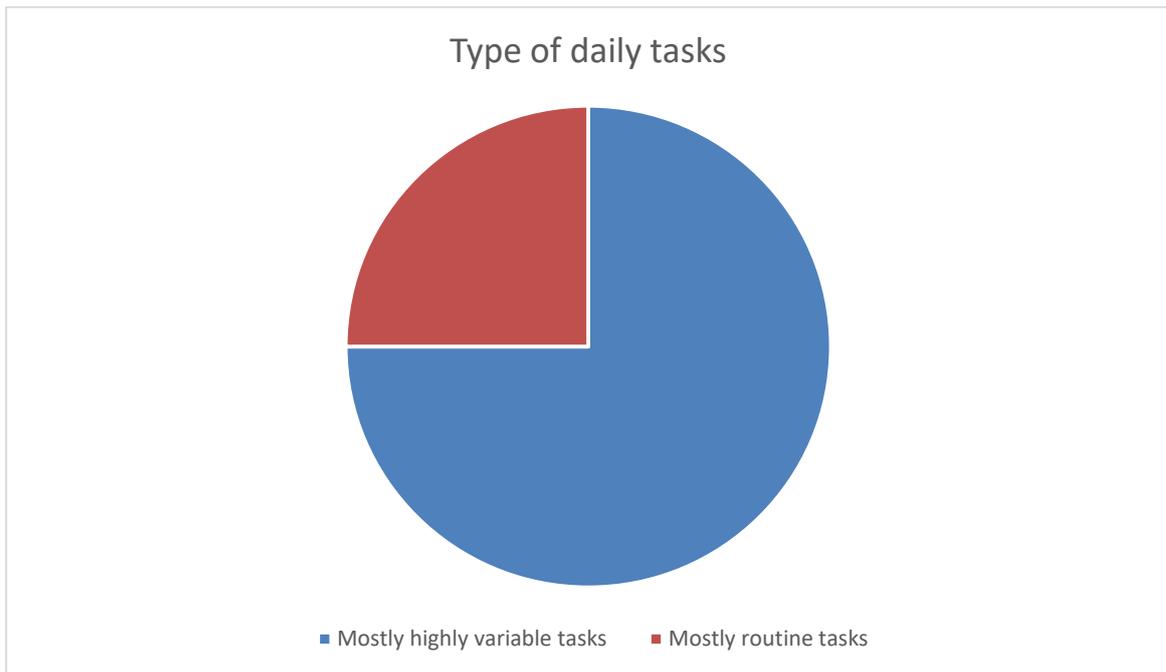


Figure 14. The type of tasks been done by the coordinators based on the results of the survey

The type of daily tasks varied between positions. Only administrative coordinators saw their tasks mainly as routine. All the remaining types of coordinators saw their tasks mainly highly variable. Therefore, an assumption can be made that administrative coordinators' daily tasks rely mainly on explicit knowledge and the rest of the coordinators rely mainly on tacit knowledge.

Furthermore, also all of the three interviewees in areas perceived that required tasks for different coordinators are mainly variable. Interviewees concluded that the tasks for different coordinators themselves might be quite standard, but each of the field service jobs has specific characteristics due to a different customer, product or location. However, the standard routines were seen to increase as coordinators gain experience. Results of the survey together with interviews indicate there is a similar image about the coordinators' role both in the management and worker level.

6.2 Existing knowledge networks

During the five conducted interviews, three different sharing knowledge networks (Alavi & Leidner 2001) were formed. In the first knowledge network, the sharing of best practice or other knowledge occurs between service units inside an area organization. In the second knowledge network, the sharing of best practice or other knowledge happens between two different area organizations or between an area organization and the central FS function. In the third knowledge network, the sharing of best practice or other knowledge happens between the central FS function and an area organization but not in the manager level. All the five interviewees had a similar point of view that there are three critical roles in the knowledge sharing between areas and the central FS function: members of the central FS function, local key users and area field services general managers. All the three knowledge networks are represented in the three figures below. The orange area represents the people involved in knowledge sharing in each of the networks (figure 15).

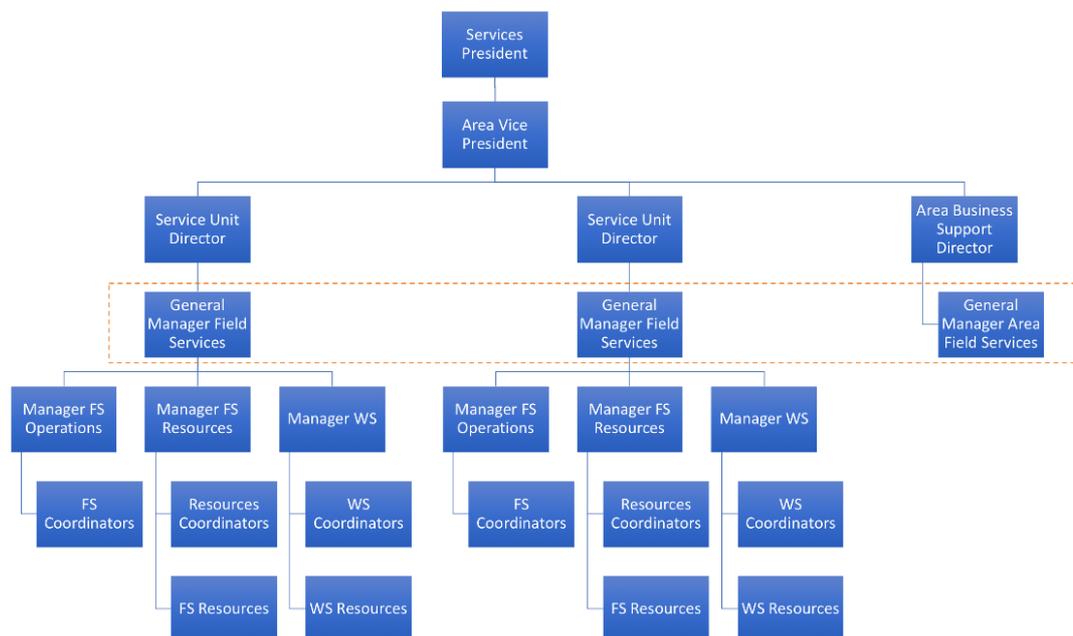


Figure 15. The first knowledge network: the existing knowledge network for sharing knowledge and best practices within an area (Case company 2018b)

All the three interviewed area field services general managers identified combined meetings between field services general managers of different service units as an important channel for sharing knowledge between service units. Area FS general managers and service unit FS

general managers form the first knowledge network. This knowledge network has combined meetings, usually virtually, which are arranged by area field services general managers. Knowledge is then shared into the service units by the service unit general managers. The second knowledge network is presented in figure 16.

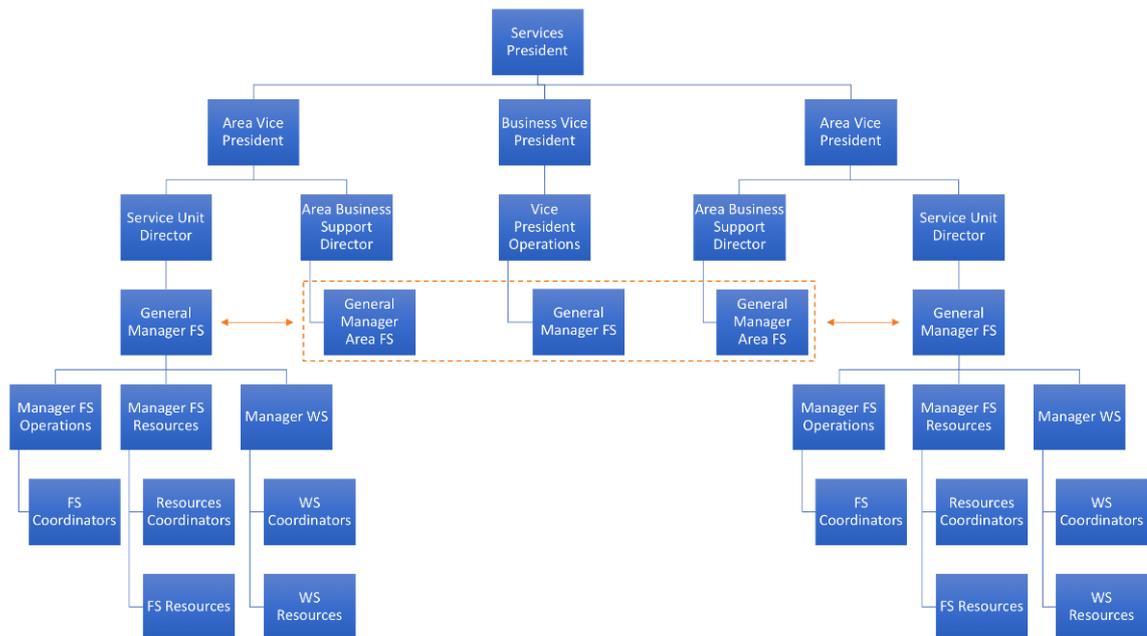


Figure 16. The second knowledge network: the existing knowledge network for sharing knowledge and best practices between two areas or between an area organization and the central FS function (Case company 2018b)

The second knowledge network is formed by area FS general managers and central FS function general manager. In the second knowledge network, area organizations share best practices or other knowledge with each other. Five interviewees saw the central FS function as an important factor in the knowledge sharing. Similarly to the first knowledge network, also in the second network field services general manager meetings are held, but in this case, they are arranged by the central FS function. Most often these sessions are held as virtual meetings. Additionally to the virtual meetings, different codified channels, such as newsletters and emails, are used to share knowledge between parties. Furthermore, the results of the survey indicated that coordinators might contact colleagues outside of their own service unit directly and indicates that not all of the knowledge sharing happens in managerial level. The third knowledge network is presented in figure 17 below.

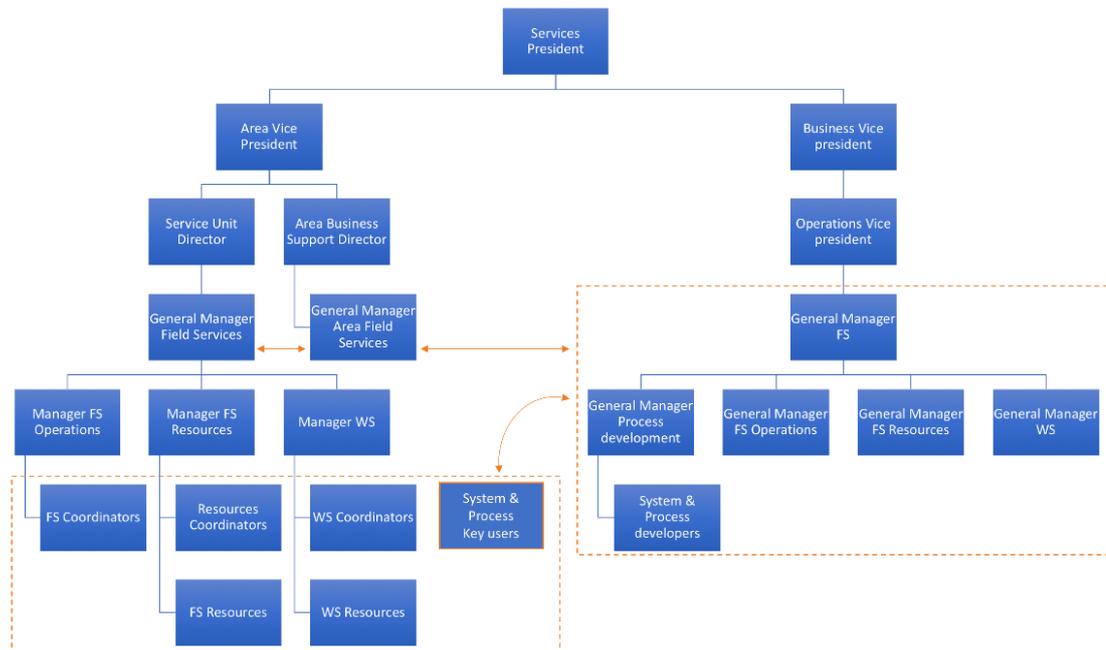


Figure 17. The third knowledge network: the existing knowledge network for sharing knowledge and best practices between an area organization and the central FS function (Case company 2018b)

According to the interviews with the central FS function, the role of the key user is important in the third knowledge network. The sharing of best practices or other knowledge takes place in the lower level of an area organization and the role of the key user is to bring the knowledge into the area organization. The knowledge flow to local end users should happen through the key users. Therefore, the success of the best practice and knowledge sharing relies heavily on the resourcing and capability of the key user. According to the interviews, when a rollout of a new tool or process is taking place, key users and a rollout manager are appointed. When the project is ready, the amount of key users is often reduced. The revising of skills of the remaining key users is critically depended on their manager's interest. According to the interviews, the skills management of key users is on a fairly good level during the implementation but often weakens after some time from the rollout. Weakened knowledge management can result in a lack of information about the system or process update. Additionally, key users often change and there is no valid process of training newcomers. Training is offered by the central FS function, but there are differences between locations how often training are received. There are common forums for key users, where they can share their experiences with the systems and propose possible best practices. The effectiveness of this community of practice (Bartol & Srivastava 2002) can still be

questioned. Additionally, according to the interview with the central FS function, the visibility to the knowledge sharing disappears after knowledge is shared with key users. Whether or not the local key user can share best practices and knowledge locally, is, therefore, depended on the local management.

The hierarchical and complex organization might be one of the reasons for limited knowledge flow (Daghfous 2004). There are multiple organizational layers, which a feedback loop from end-users needs to pass before it reaches the process owner. Similarly, process updates or identified best practices need to come through many organizational layers.

6.3 Existing knowledge management strategy and its effectiveness

Two interviews with the central FS function concentrated on how the key stakeholders saw the status of knowledge management in field services. The central FS function was asked what kind of knowledge management strategy is it following or if there is any strategy. Additionally, the central FS function was asked what the responsibility areas in knowledge transfer are and what the main challenges in the sharing of best practices are. Similar kinds of interviews were then arranged with relevant members of area organizations. Additionally, a survey was used to investigate, whether the strategy is visible in the lower levels of organizations.

6.3.1 The existing knowledge management strategy

The central FS function concluded there is a specific strategy for both coordinators and engineers of field services. In both cases, the knowledge strategy combines both codification and personalization strategy. However, the strategies for coordinators and engineers differ a lot. Whereas the responsibility about knowledge management of engineers is officially on a specific training function of the case company, the responsibility about knowledge management of coordinators is not as well defined. The responsibility about the competence level of both coordinators and engineers is on their superiors, but the competence requirements are more clearly defined and better followed for engineers. There is a specific tracking system of competences for engineers, but a similar database is missing for

coordinators. Additionally, the errors in administrative processes are harder to detect since there is no detailed reporting in place. Therefore, it is hard for managers to identify gaps in the knowledge level of their team members.

The knowledge is shared both through informal interactions and codified sources. Therefore, the balanced perspective of knowledge management (Choi & Lee 2002) can be seen as the existing perspective in the case company's field services. There is a lot of specific training materials dedicated to coordinators of field services which are offered through several internal channels of the case company. An abundant amount of training materials was also seen among the coordinators, as most of the respondents identified codified instructions and procedures as a used source of knowledge (figure 18). 23 out of 56 respondents of the survey said they use both verbal interactions with colleagues and codified procedures to gain knowledge to solve daily issues. Additionally, 16 respondents out of 56 recognised procedures as their primary source of knowledge.

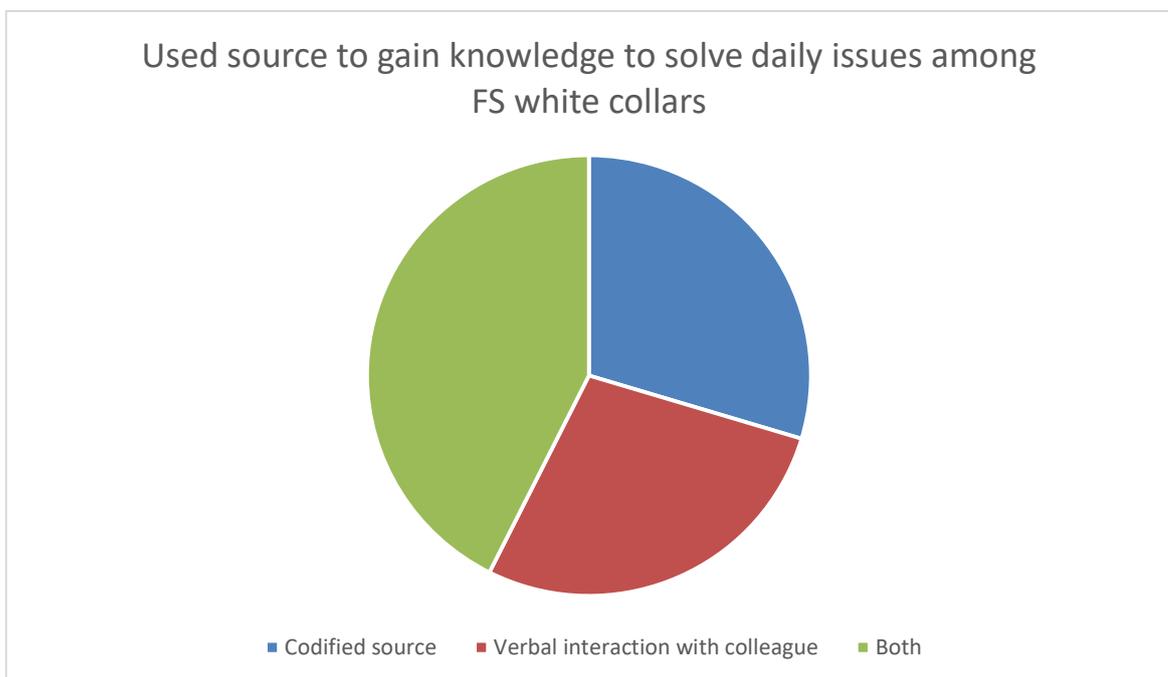


Figure 18. The used sources of knowledge among the white collars

Participants saw both the verbal sharing of information with superior or colleagues and instructions or procedures as essential sources to gain knowledge. Most of the participants responded using both verbal and codified sources. Surprisingly the source of knowledge did

not correspond with the type of daily tasks. Personnel doing highly variable tasks might have relied on explicit knowledge sources and vice versa. The source of codified material or informal interactions partner was most often a colleague inside respondents' own unit (figure 19).

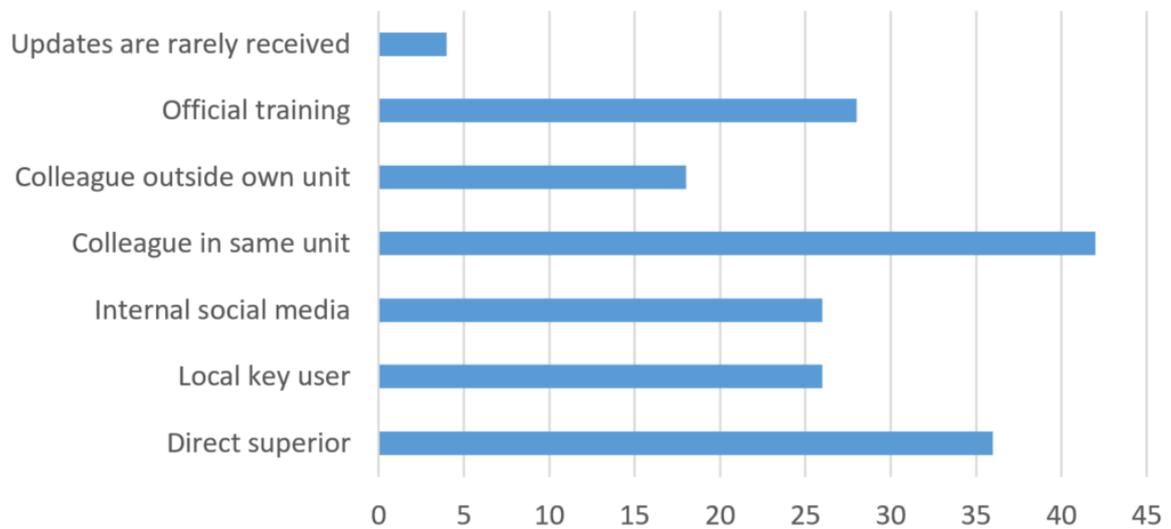


Figure 19. The source of information about the procedure, process or system updates: the primary source was a colleague inside the own unit

The second most common source of knowledge was the direct superior. Additionally, the central FS function, responsible for process and system development of field services, offers face to face training for specifically chosen people in the units. Training is offered mainly to people locally responsible for specific tools or processes. These people form the group of local key users, who should be the contact people to local end users. However, quite often there are other participants than only key users joining the sessions. The effectiveness of key user concept can be questioned since local key users were seen only the fourth most common source of information about the procedure, process or system updates.

The survey revealed that the usage of both codification and personalization strategy in the knowledge management. Surprisingly the source of knowledge did not correspond with the type of daily tasks. Personnel doing highly variable tasks might rely on explicit knowledge sources and vice versa.

6.3.2 The effectiveness of the current knowledge management practices

The effectiveness of the current knowledge management practices was investigated through a survey and formal process and tools audits. As earlier mentioned, the survey was used to investigate how different coordinators received the information solve daily issues or information about best practices and process updates. Most of the participants responded using both verbal and codified sources. Only approximately half of the participants said that knowledge sharing about best practices and process or system updates is systematically done by the local management (figure 20).

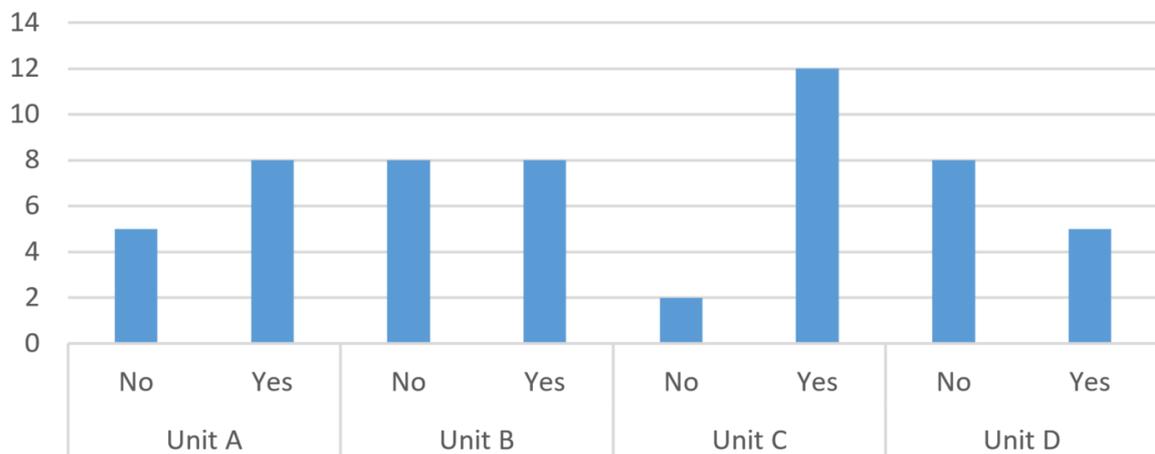


Figure 20. The existence of a systematic way to share information locally about latest best practice, process or system updates in place in studied units

The maturity of personnel in units A and D recognized there is a systemic way to share information locally about the latest best practice, process or system updates. On the other hand, similar practices were not in place in units B and C. There was not a clear correlation between the existence of a systematic way to share information locally and results of process and tools audits.

Process and tools audits took place to observe how the knowledge strategy was received at the end user level of the case company's field services. All the material collected during audits and interviews were summarized by the case company's central FS function responsible for the process in question in this research. All of the results were collected to three different matrixes and given colour ratings presented below in figure 9 based on the

judgement of the central FS function of the case company. Colour ratings were given by the central FS function so that tools with green are used according, tools with yellow are used only partially according and tools with red are not used according to global procedures. Results of the tools and systems audit are seen in table 9.

Table 9. The results of conducted tools audit

	Tool A	Tool B	Tool C	Tool D	Tool E	Tool F	Tool G	Tool H
Unit A	Green	Green	Yellow	Green	Yellow	Yellow	Yellow	Yellow
Unit B	Green	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Green
Unit C	Yellow	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Green
Unit D	Green	Yellow						

According to global procedures	Partially according to global procedures	Not according to global procedures
--------------------------------	--	------------------------------------

None of the units was using all the tools correctly and even large gaps in the knowledge level of individuals were identified. Massingham and Al Holaibi (2017) claim the lack of needed skills or understanding of processes can cause deviations in process discipline. The results of this study support this claim. Some of the tools were globally in better use than others, suggesting that either the tool itself is better or the implementation has been more successful. Still, the most of the units had the knowledge to use tools at least partially correct. Furthermore, it can be argued there might be other reasons for low usage level than limited knowledge management such as lack of resources and time or other managerial priority.

Process audit results were collected to a matrix so that each tool in use in a particular part of the process was mapped with a letter of L or G depending on whether there was a local (L) or a global (G) solution in place. For one unit one of the steps was not done at all and it was given only a marking (-). Each way of working received a colour rating, green, yellow or red, based on, if it met the standard in global procedures, met only partially the standard in global procedures or did not meet the standard in global procedures. For certain parts of the process, there was not any global procedure in place and colour ratings were not conducted. For workshop process steps in the process were given a number from 1 to 12 expressing the

whole global end to end process. The result of the workshop process mapping is seen in table 10.

Table 10. The results of the workshop process mapping

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10	Step 11	Step 12
Unit A	G	G/L	G	G	L/G	G	L	L	G	L	G/L	G
Unit B	G	G/L	G	G	L/G	G	L	L	G/L	G	G/L	G
Unit C	-	G/L	G/L	-	G	-	L	L	G	L	G/L	G
Unit D	G	G/L	G	L	L/G	G	L	L	G/L	L	G/L	G

According to global procedures	Partially according to global procedures	Not according to global procedures	No global procedures in place
--------------------------------	--	------------------------------------	-------------------------------

Similarly, to the results of the tools audit, deviations in the knowledge level of participants was also recognised in the workshop process audit. Even the process itself varied between the units, but also local solutions in different parts of the process were often identified.

For field service process similar naming was done giving each step in the process a number from 1 to 11. The local way of working was similarly mapped with a letter of L or G depending on whether there was a local (L) or a global (G) solution in place. Colour marking was also done similarly with a traffic light system with previously mentioned criteria. The result of field service process mapping is seen in table 11.

Table 11. The results of field service process mapping

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10	Step 11
Unit A	G	G/L	G	G	L/G	G	G	G	L	G	G
Unit B	G	G/L	G	G	L/G	G	G	G/L	G	G	G
Unit C	G	G/L	G/L	G	G	G	G	G	L	G	G
Unit D	G	G/L	G	L	L/G	L	G	G/L	L	G	G

According to global procedures	Partially according to global procedures	Not according to global procedures	No global procedures in place
--------------------------------	--	------------------------------------	-------------------------------

The results of the field service process audit were similar to the results of the workshop process audit. Deviations in the knowledge level of participants were also recognised in the

case of field service process. The process itself was better known and followed, but still, local solutions existed in different parts of the process.

6.4 Intermediaries and barriers to search, share and implement best practices in studied units

A survey was used to investigate how personnel in service units saw their capability to search, share and implement best practices. First of all, the used channel for sharing locally identified best practices was investigated in a survey. The results are represented in figure 21 below.

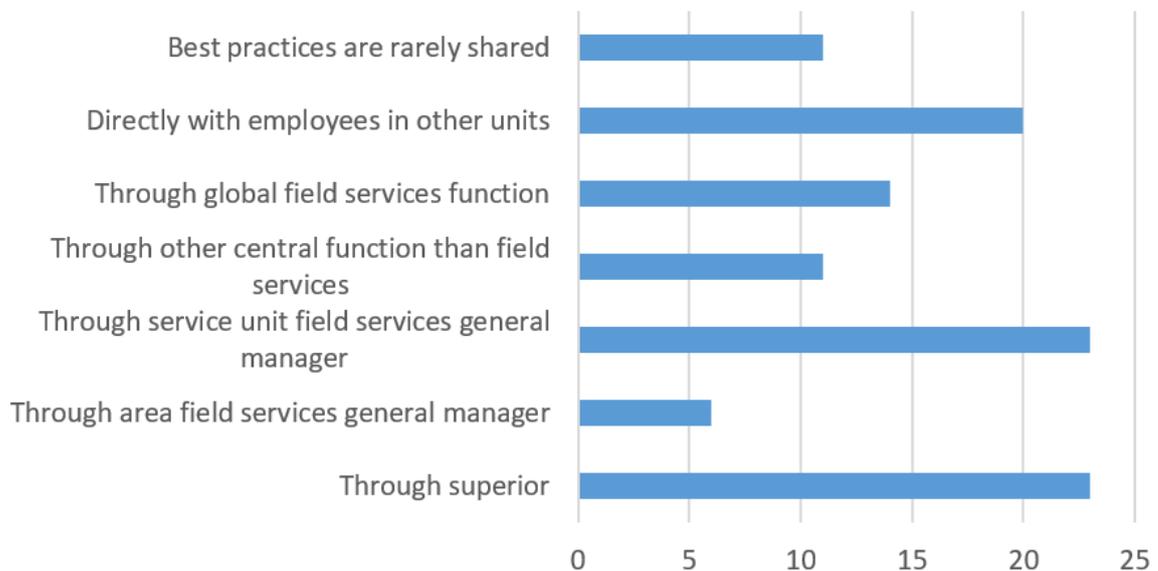


Figure 21. The existing channels to share locally identified best practice proposed by coordinators

Own superior, local service unit field services general manager or a colleague in another unit were seen as three principal intermediaries for sharing locally identified best practices with other service units. Results of the survey supported well the results of interviews highlighting the importance of service unit field services general managers as the link outside of the service unit. Results of the survey also showed that area field services general managers are relatively distant from a single coordinator since only six coordinators saw them as a link to other service units.

The survey was also used for investigating the existing barriers for identification of best practices. The available answer options were created based on the literature review, but a possibility to propose other answers was also given. Coordinators' judgements on existing barriers for identification of best practices are represented in figure 22 below.

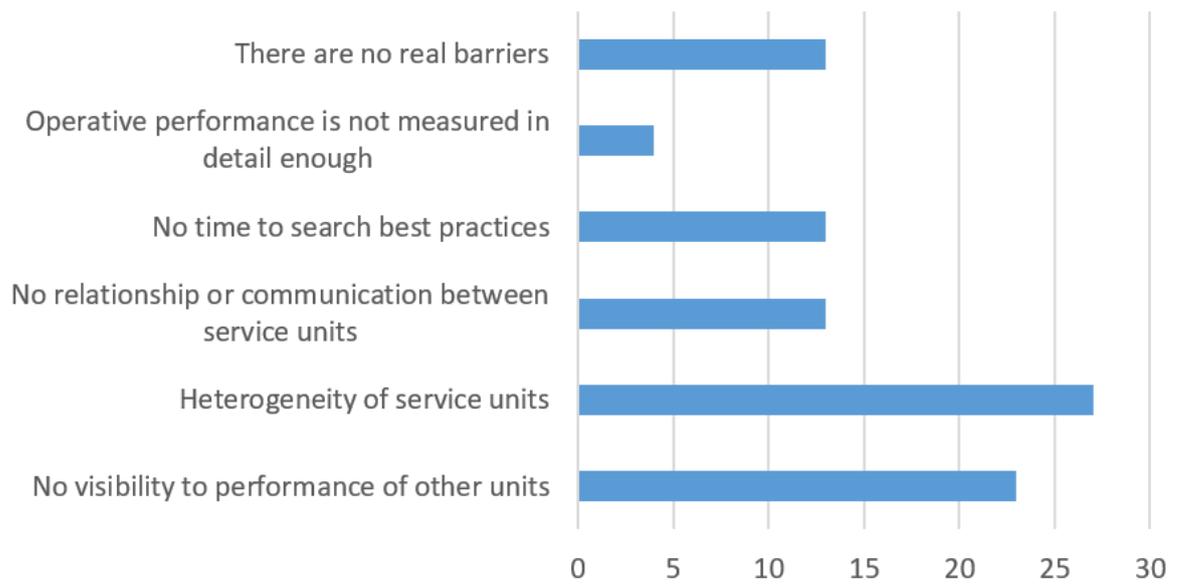


Figure 22. The existing barriers to identify best practices

The two main barriers for not being able to identify best practices were the heterogeneity of service units and lack of visibility to the performance of other service units. The difference in size, competences, way of working and resources were seen to harm the possibility to identify best practices. Results support the proposed theory of heterogeneous organization's impact on sharing knowledge (Daghfous 2004; Alavi & Leidner 2001; Bhutta & Huq 1999). Lack of visibility to other units' performance was seen as the second most significant barrier for identification of best practice. Respondents had left comments in the survey that they are not able to tell whether their way of working is the best or not. This result, on the other hand, supports the need of visible performance management system by Govindarajan and Gupta (2000) and the case company's lack of knowledge of knowledge (Borgatti and Cross, 2003; Gupta and Govindarajan, 2000; O'Dell and Grayson, 1998).

The survey was similarly used for investigating the existing barriers to transferring of best practices. Again, the available answer options were created based on the literature review,

but a possibility to propose other answers was also given. Coordinators' judgements on existing barriers for transferring of best practices are represented in figure 23 below.

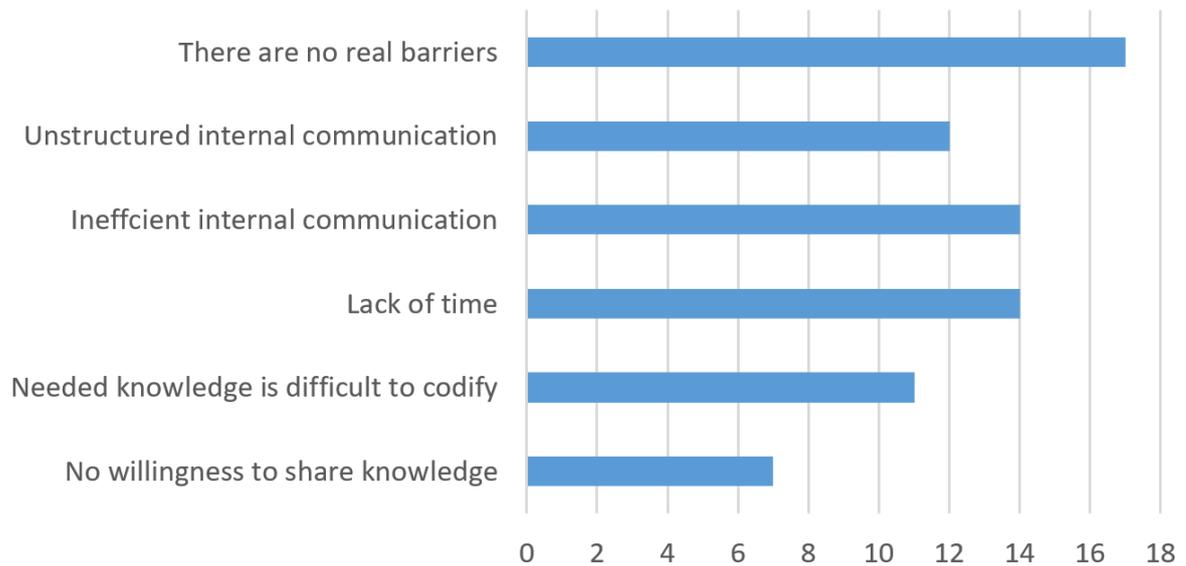


Figure 23. The existing barriers to transfer best practices

17 coordinators felt confident they can share the best practices once the identification of best practices has been successful. Inefficient or unstructured communication together with lack of time (Lundin & Magnusson 2002) were seen as the most relevant barriers to sharing of best practices. However, only seven coordinators out of 56 felt there is a culture of reluctance to share knowledge (Cabrera and Cabrera, 2002; Osterloh and Frey, 2000). A favourable culture where knowledge sharing is encouraged (Helander, Kukko & Virtanen 2010) was also supported in the five interviews with the central FS function and area organizations.

At last, the survey was used for investigating the existing barriers to implementing the best practices into use locally. Again, the available answer options were given based on the literature review, but a chance to propose other answers was also given. Coordinators' judgements on existing barriers for implementation of best practices are represented in figure 24 below.

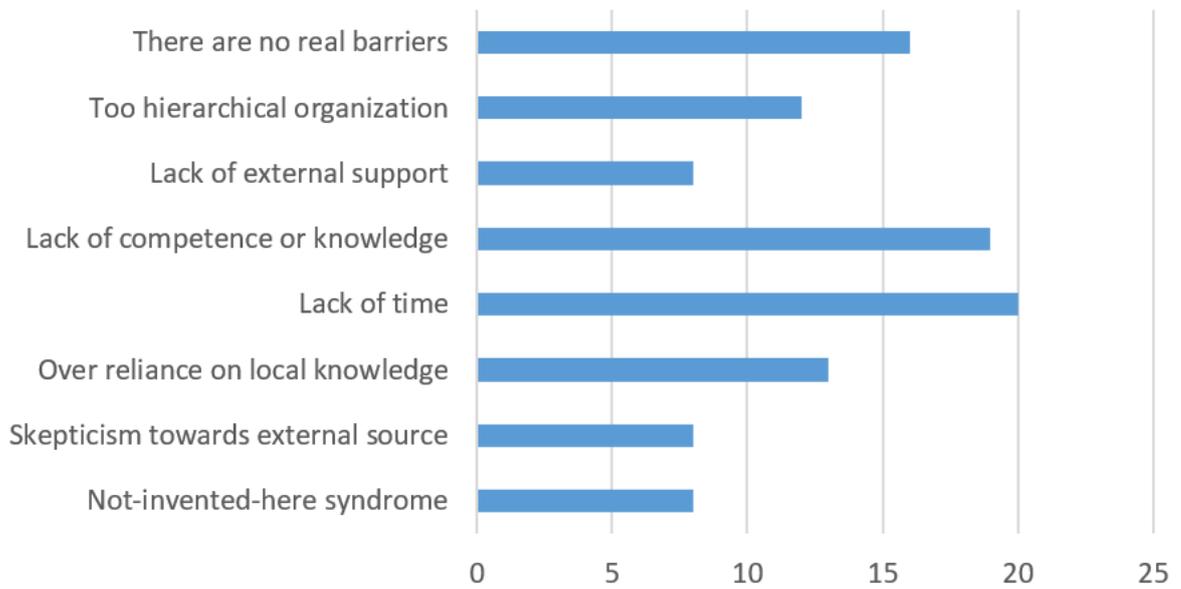


Figure 24. The existing barriers to implement best practices

Similarly to the transfer of knowledge, cultural issues were not seen as a significant barrier to the implementation of best practices. Lack of time, competence and knowledge were seen as significant barriers (figure 24). On the other hand, 16 coordinators did not see barriers to implementing best practices. Therefore, there might be differences in the set of tools for implementation (Tucker et al. 2007; Terziovski et al. 1996; Grol & Grimshaw 2003; Shin et al. 2012) available in different units.

7 CONCLUSIONS

The conclusions of this study are introduced in this chapter. First, an overview of research questions is made and answers to them given. Second, the limitations of this research are explained. At last, the author of this study proposes topics for future research.

7.1 Overview of supportive research questions

The purpose of this research was to study how the knowledge management and sharing of best practices could be improved among the coordinators in the case company's field services. The literature review created the structure for the analysis of current status. Answers for supportive research questions were partly given in the literature review and partly in the empirical part (figure 25).

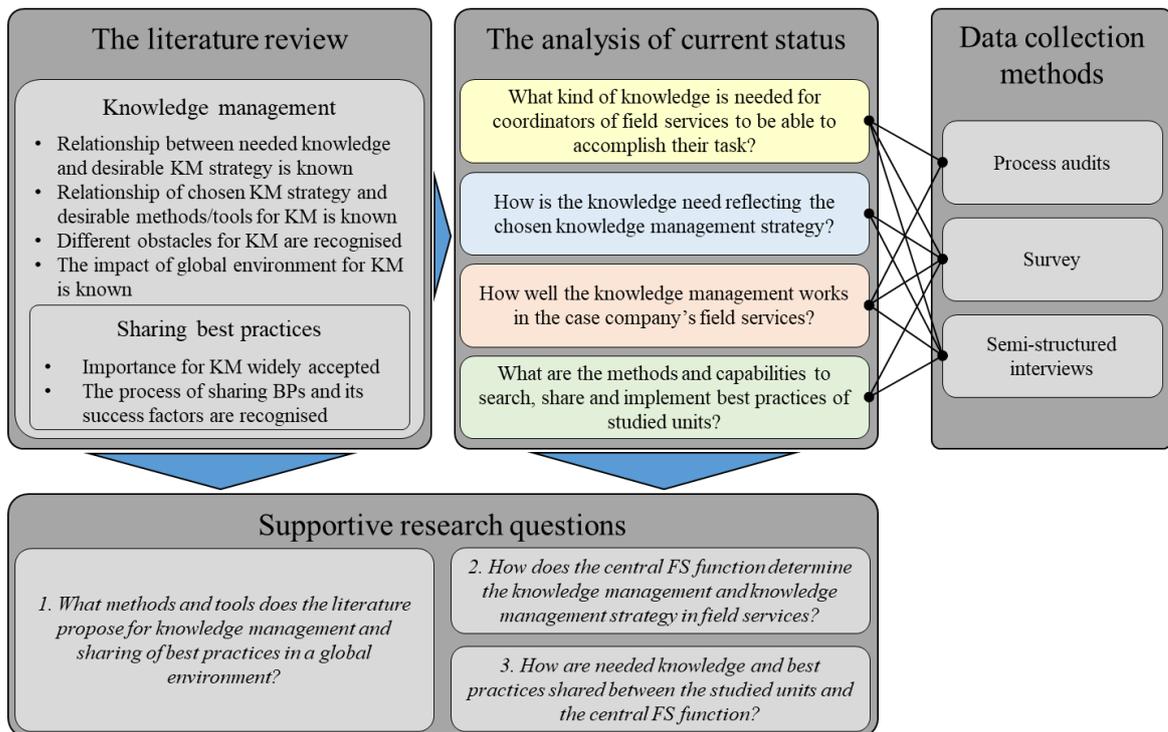


Figure 25. Literature review, the analysis of current status, data collection methods and supportive research questions

The purpose of this study was reflected in the supportive research questions and the research question.

- Supportive research question 1: *What methods and tools does the literature propose for knowledge management and sharing of best practices in a global environment?*

This supportive research question is answered in the conducted literature review on the topic of this study. The presented topics in this study were knowledge management, knowledge management strategy, knowledge management methods and sharing of best practices.

- Supportive research question 2: *How does the central FS function determine the knowledge management and knowledge management strategy in field services?*

This supportive research question is answered more thoroughly in the empirical part of this study. The empirical part of the study supported that there is a culture of sharing in the case company. Personnel felt they are encouraged to share and learn from each other. The importance of knowledge management was also emphasized by the central field service function. However, existing knowledge management strategy is stronger for the field services engineers than coordinators.

The needed knowledge for the case company's coordinators was identified to be achieved merely through experience. The results suggest tasks done by the coordinators are mainly highly variable due to changing customers, situation or locations. Knowledge management in the case company's field services combines both codification and personalization strategies and, therefore, the balanced perspective of knowledge management (Choi & Lee 2002) can be seen as the existing perspective. The central FS function, which owns the process and is responsible for the process and system development, codifies the knowledge to procedures, process charts and training materials. Additionally, the central FS function offers person to person training, when systems are developed or trained.

- Supportive research question 3: *How are needed knowledge and best practices shared between the studied units and the central FS function?*

This supportive research question is answered more thoroughly in the empirical part of this study. There are existing knowledge networks, which take place mainly on a managerial

level. Knowledge sharing happens, but most often it takes place between different general managers and not between coordinators. General managers should then act as a messenger to their respective organizations. However, conducted audits revealed that even general managers are not always able to tell the correct way of working for specific coordinators. Additionally, a key user is appointed for each system or process in use. Key users should in theory form a community of practice where system or process improvement proposals and best practices are shared through specific forums. Additionally, key users receive training from the central FS function. Local key users should then act as a local system and process experts, who have locally the latest and most up to date knowledge. Furthermore, the local process responsibility is on the local line manager, who should also receive the latest process developments through internal communication channels and global procedures.

The results of the empirical study highlighted there is a significant gap between the knowledge levels of the central FS function and the group of coordinators. The conducted process and tools audits provide an overview of how well global procedures and instructions are being understood and followed in the case company's field services. Results of audits showed significant gaps also in the process and tools discipline. This can be seen as an indication of the ineffectiveness of knowledge management in the case company's field services. This finding is in line with the previous studies showing that knowledge is difficult to share effectively (Nonaka and Takeuchi, 1995; Szulanski, 1996, 2003).

The empirical part of this study also showed reasons for ineffective knowledge management. One of the main reasons for defective knowledge level is that there is no apparent and working strategy or process how knowledge management should be handled for the coordinators in the case company's field services. The main challenge in knowledge flows is that the responsibilities are not clear to the organization. There is no common alignment about who should know what and who is responsible for making sure people's knowledge level is high enough. The lack of alignment for what are the required skills for coordinators, makes it challenging to create a proper knowledge management strategy as the type of skills is not well defined. There is an existing key user concept, but it is not working properly. One of the challenges is that the key users have often been appointed during the implementation of a certain process or system, but their skills have not been maintained efficiently enough. As new employees have entered the company, they have received their knowledge and skills

from a local key user or colleague and they learn the local way of working. The lack of systematic knowledge management of key users is problematic in situations where the local key user has not received the latest knowledge from the central FS function. In the worst cases, people did not even know the local key user or the key user did not exist. This finding is in line with the previous studies showing that knowledge management should be on the agenda of the performing unit. (Holdt Christensen 2007; Mohapatra et al. 2016) The central FS function alone cannot manage the knowledge of coordinators globally.

The results of the empirical work emphasize the importance of local person to person support when it comes to efficient transfer of knowledge. The effectiveness of knowledge transfer from the central FS function to service units can be only achieved when there is a local person taking responsibility for receiving information and making sure received information triggers local actions. Even though the knowledge would have been codified with quality, there is a danger that personnel is not able to find this information. The knowledge management in the case company's field services relies heavily on personal attitude and skills of local management. Best results were seen in units where local management took the responsibility that personnel have access to the latest knowledge about relevant tools and systems. The main issue was that different units saw the responsibility for the knowledge management of administrative field services personnel differently.

In the case of sharing best practices, two major barriers were identified as the heterogeneity of service units and the lack of visibility of the performance. The heterogeneity of service units makes it hard to copy and implement best practices between service units. Each unit has partly its own way of working which forces best practices to be modified according to the local needs instead of direct deployment (Alavi & Leidner 2001; Bhutta and Huq 1999). Additionally, estranged units might lack common identity (Brown and Duguid, 2000; Davenport and Prusak, 1998) and relation between receiver and sender of knowledge (Davenport and Prusak, 1998; Hansen 1999). It also makes it hard to find globally well-working solutions since units might be different from competence or size point of view. Furthermore, the lack of visibility on the performance of different units prevents internal benchmarking and sharing of best practices. As service units do not necessarily know there has been new knowledge generated, they are not proactively seeking it either. Lack of visibility prevents the identification of the performance gap and therefore the opportunity

for sharing of best practice to take place. Additionally, people are not necessarily able to say, if their way of working is the best in the company or not. Therefore the knowledge dilemmas from Cabrera and Cabrera (2002) were also visible in the case company based on the empirical part of this research. Additionally, colleagues in operational level rarely meet each other, which prevents the sharing of knowledge in informal or formal interactions from happening.

7.2 Overview of the research question

The purpose of this study was to investigate how the knowledge management and sharing of best practices could be improved among the coordinators in the case company's field services. The research question is answered based on answers of supportive research questions as represented in figure 26 below.

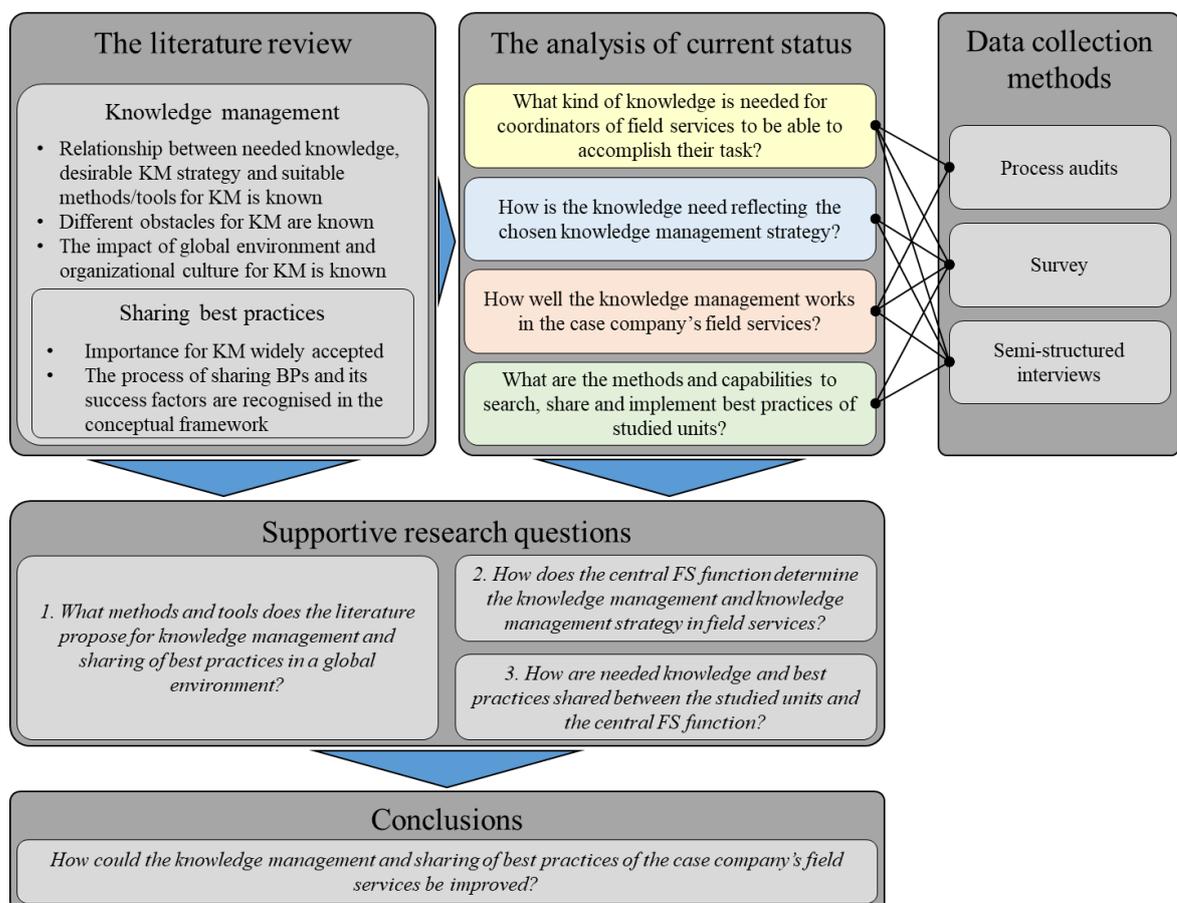


Figure 26. Answering to the research question based on supportive research question

The target of this study was to give improvement proposals for the case company's field services and the purpose was reflected in the research question.

- Research question: *How could the knowledge management and sharing of best practices of the case company's field services be improved?*

Improvement proposals for the case company's field services are presented in this section. Obstacles for efficient knowledge management presented in the literature review of this study were also well seen in the case company's field services. The knowledge management in the case company's field services could be improved by:

1. Improving the use of already existing knowledge networks
2. Defining and communicating responsibilities and requirements more clearly
3. Improve HR practices by determining required skills for a specific coordinator position

There is already an existing knowledge network consisting of different members of the central FS function and area organizations. Notably, the role of key users should be emphasized. Secondly, one of the reasons for the considerable diversity in service units' ways of working is partly due to how instructions and processes have been codified. Codification has been made partly in a level which allows room for improvisation. The desired way of doing different processes is not completely apparent in all parts of the organization. Therefore, instructions do not force one single way of doing things. Additionally, management communication has left some space for local judgement, whether standard global processes are mandatory to be followed. Whether a tightly controlled standard global process is a desired direction for the case company can be questioned, since the adverse effect to knowledge management of the tightly controlled company culture is well-known by Hilton (2017).

Thirdly, since knowledge management is greatly affected by the absorptive capacity of individuals, considerable attention should be put on HR practices. Knowledge management should not be put on the responsibility of HR, but caution should be put on the fact that people have time to develop their skills. The cumulativeness of knowledge means that

knowledge makes new knowledge. Additionally, skills requirements for certain positions should be clearly defined and be globally applicable to secure a possibility for a similar way of working in different service units. An effort should be put on clarifying, what are the needed capabilities for specific positions in field services. Clarification would improve line managers' capability to address gaps in knowledge and requirements would work as a baseline for offered training. Equal knowledge level between units should improve the flow of best practices between the units (Daghfous 2004).

On the other hand, there are three improvement areas for sharing of best practices in the case company's field services:

1. Improving the visibility of operative performance with a performance management system
2. Generating "who-knows-what"-lists based on the benchmarking with the operational metrics
3. Increasing available time of employees for sharing best practices

The sharing of best practices in the case company's field services could be enhanced by improving the visibility of operative performance with a performance management system. The case company should create a performance management system with operational metrics to enable a comparison of units and the identification of best practices. Operational metrics should be available to all units, so they could proactively seek better-performing peer units. Reliable and precise operative performance management system would be the foundation of the needed gap analysis. Optionally, "who-knows-what"-lists could be generated based on the benchmarking with the operational metrics. Additionally, lack of time was also identified as an obstacle for sharing best practices. Managers should make sure team members have an adequate amount of time to search and learn new knowledge to be implemented in a local unit.

8 SUMMARY

The motivation to choose this research case came from a best practice proposal from one of the case company's service units to improve the global field services administrative process. The proposal created a need to study how knowledge management and sharing of best practices could be improved among the coordinators in the case company's field services. The objective of this study was to explore the existing methods and propose improvements for managing the knowledge of coordinators and sharing best practices in the case company's field services. The current status was investigated with a descriptive single case study with multiple embedded units where the data was gathered through four audits, survey and five interviews. Findings of the empirical part were then compared to the relevant theories of knowledge management and sharing of best practices.

The results of the empirical of this study highlighted there is a knowledge management strategy in the case company's field services. However, many of the obstacles presented in the literature for effective knowledge management and sharing of best practices existed also in the case company. Existing knowledge networks, definition and communication about responsibilities and requirements and current HR practices were the main three improvement areas for the knowledge management in the case company's field services. On the other hand, the sharing of best practices in the case company's field services could be enhanced by improving the visibility of operative performance with an applicable performance management system.

The most important area for future research is the measures used in the operative performance management system. The investigation of functional measures for internal benchmarking should be done. Additionally, the effect of global standards on organizational learning could be investigated. Tightly controlled culture can harm the innovativeness of an organization (Chang & Lin 2015), but on the other hand, standards are the basis for improvement and the global adaptability of proposed best practices. It could be argued there is always balancing needed between the global and local ownership of development work and it could be further investigated.

REFERENCES

Albers, J. A. 2009. A practical approach to implementing knowledge management. *Journal of Knowledge Management Practice*, vol. 10, 1, pp. 1-14.

Alavi, M. & Leidner, D. E. 2001. Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS quarterly*, vol. 25, 1, pp. 107-136.

Ardichvili, A., Maurer, M., Li, W., Wentling, T. & Stuedemann, R. 2006. Cultural influences on knowledge sharing through online communities of practice. *Journal of knowledge management*, vol. 10, 1, pp. 94-107.

Arnold, J.R.T., Chapman, S.N. & Clive, L.M. 2008. *Introduction to Materials Management*. New Jersey: R.R. Donnelley & Sons Company.

Barber, A. E., Dunham, R. B. & Formisano, R. A. 1992. The impact of flexible benefits on employee satisfaction: A field study. *Personnel Psychology*, vol. 45, 1, pp. 55-74.

Barney, J. 1991. Firm resources and sustained competitive advantage. *Journal of Management*, vol. 17, 1, pp. 99-120.

Bartol, K. M. & Srivastava, A. 2002. Encouraging knowledge sharing: The role of organizational reward systems. *Journal of Leadership & Organizational Studies*, vol. 9, 1, pp. 64-76.

Baxter, P. & Jack, S. 2008. Qualitative case study methodology: Study design and implementation for novice researchers. *The qualitative report*, vol. 13, 4, pp. 544-559.

Behringer, N. & Sassenberg, K. 2015. Introducing social media for knowledge management: Determinants of employees' intentions to adopt new tools. *Computers in Human Behavior*, vol. 48, pp. 290-296.

Bhutta, K. S. & Huq, F. .1999. Benchmarking–best practices: an integrated approach. *Benchmarking: An International Journal*, vol. 6, 3, pp. 254-268.

Bierly, P. E. & Chakrabarti, A. K. 1996. Technological learning, strategic flexibility, and new product development in the pharmaceutical industry. *IEEE Transactions on Engineering Management*, vol. 43, 4, pp. 368-380.

Bohn, R. 1994. Measuring and managing technological knowledge. *Sloan Management Review*, vol. Fall, pp. 61–73.

Borgatti, S. P. & Cross, R. 2003. A relational view of information seeking and learning in social networks. *Management science*, vol. 49, 4, pp. 432-445.

Brown. J. & Duguid, P. 1998. Organizing Knowledge. *California Management Review*, vol. 40, 3, pp. 90-111.

Brown. J. & Duguid, P. 2000. Balancing act: How to capture knowledge without killing it. *Harvard Business Review*, vol. 78, 3, pp. 73-80.

Byham, W. C. & Cox, J. 1998. Zapp!: The lightning of empowerment: How to improve quality, productivity, and employee satisfaction. Ballantine Publishing Group.

Cabrera, A. & Cabrera, E. F. 2002. Knowledge-sharing dilemmas. *Organization studies*, vol. 23, 5, pp. 687-710.

Cabrera, E. F. & Cabrera, A. 2005. Fostering knowledge sharing through people management practices. *The international journal of human resource management*, vol. 16, 5, pp. 720-735.

Case company. 2018a. FS Procedures. Not published.

Case company. 2018b. HR Master Data. Not published.

- Chang, C. L. H. & Lin, T. C. 2015. The role of organizational culture in the knowledge management process. *Journal of Knowledge management*, vol. 19, 3, pp. 433-455.
- Choi, B. & Lee, H. 2002. Knowledge management strategy and its link to knowledge creation process. *Expert Systems with Applications*, vol. 23, pp. 173–18.
- Churchman, C. W. 1971. *The Design of Inquiring Systems: Basic Concepts of Systems and Organizations*. New York: Bencis Books.
- Cohen, W. M. & Levinthal, D. A. 1990. The implications of spillovers for R&D investment and welfare: a new perspective. *Administrative Science Quarterly*, vol. 35, pp. 128-152.
- Collins, C. J. & Smith, K. G. 2006. Knowledge exchange and combination: The role of human resource practices in the performance of high-technology firms. *Academy of management journal*, vol. 49, 3, pp. 544-560.
- Daghous, A. 2004. Absorptive capacity and the implementation of knowledge-intensive best practices. *SAM Advanced Management Journal*, vol. 69, 2, pp. 21–27.
- Davenport, T. & Klahr, P. 1998. *Managing Customer Support Knowledge*. *California Management Review*, vol. 40, 3, pp. 195-208.
- Davenport, T. H. & Prusak, L. 1998. *Working Knowledge: How Organizations Manage What They Know*. Boston: Harvard Business School Press.
- Deci, E. L. & Ryan, R. M 1985. *Intrinsic motivation and self-determination in human behaviour*. New York: Plenum press.
- Deci, E. L., Koestner, R. & Ryan, R. M. 1999. A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin*, vol. 125, 6, pp. 627-668.

- Earl, M. 2001. Knowledge management strategies: Toward a taxonomy. *Journal of management information systems*, vol. 18, 1, pp. 215-233.
- Eisenberger, R. & Cameron, J. 1996. Detrimental effects of reward: Reality or myth?. *American psychologist*, vol. 51, 11, 1153-1166.
- Elmuti, D. & Kathawala, Y. 1997. An overview of benchmarking process: a tool for continuous improvement and competitive advantage. *Benchmarking for Quality Management & Technology*, vol. 4, 4, pp. 229-243.
- Fahey, L. & Prusak, L. 1998. The Eleven Deadliest Sins of Knowledge Management. *California Management Review*, vol. 40, 3, pp. 265-276.
- Feinman, G. M. 2011. Size, complexity, and organizational variation: A comparative approach. *Cross-Cultural Research*, vol. 45, 1, pp. 37-58.
- Girard, J.P. & Girard, J.L. 2015. Defining knowledge management: Toward an applied compendium. *Online Journal of Applied Knowledge Management*, vol. 3, 1, pp. 1-20.
- Grol, R. & Grimshaw, J. 2003. From best evidence to best practice: effective implementation of change in patients' care. *The lancet*, vol. 362, 9391, pp. 1225-1230.
- Gupta, A. K. & Govindarajan, V. 2000. Knowledge flows within multinational corporations. *Strategic management journal*, vol. 21, 4, pp. 473-496.
- Halawi, L. A., Aronson, J. E. & McCarthy, R. V. 2005. Resource-based view of knowledge management for competitive advantage. *The electronic journal of knowledge management*, vol. 3, 2, 75.
- Hansen, M. T. 1999. The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits. *Administrative science quarterly*, vol. 44, 1, pp. 82-111.

Hansen, M. T., Nohria, N. & Tierney, T. 1999. What's Your Strategy for Knowledge? *Harvard Business Review*, vol. 77, 2, pp. 106-116.

Harrell, M. C. & Bradley, M. A. 2009. Data collection methods. Semi-structured interviews and focus groups. Santa Monica CA: Rand National Defense Research Inst.

Helander, N., Kukko, M. & Virtanen, P. 2010. Cutting costs and making profits through knowledge management. [www document]. [Accessed 19 April 2018]. Available <https://www.intechopen.com/books/knowledge-management/cutting-costs-and-making-profits-through-knowledge-management>

Hilton, B. J. 2017. Transnational Knowledge: Its Creation and Distribution Exploiting Entrepreneurship and Organisational Behaviour. *In Proceedings of the 60th Annual Meeting of the ISSS-2016 Boulder*, vol. 1, 1.

Hirsjärvi, S., Remes, P. & Sajavaara, P. 1997. Tutki ja kirjoita. Helsinki: Tammi.

Holdt Christensen, P. 2007. Knowledge sharing: moving away from the obsession with best practices. *Journal of knowledge management*, vol. 11, 1, pp. 36-47.

Huang, Z. 1998. Extensions to the k-means algorithm for clustering large data sets with categorical values. *Data mining and knowledge discovery*, vol. 2, 3, pp. 283-304.

Jordan, J. & Jones, P. 1997. Assessing your company's knowledge management style. *Long range planning*, vol. 30, 3, pp. 392-398.

Katz, R. & Allen, T. J. 1982. Investigating the Not Invented Here (NIH) syndrome: A look at the performance, tenure, and communication patterns of 50 R & D Project Groups. *R&D Management*, vol. 12, 1, pp. 7-20.

Lundin, J. & Magnusson, M. 2002. Walking & Talking – Sharing best practices. *Wireless and Mobile Technologies in Education*, pp. 71-79.

Massingham, P. & Al Holaibi, M. 2017. Embedding Knowledge Management into Business Processes. *Knowledge and Process Management*, vol. 24, 1, pp. 53-71.

Men, L. R. 2014. Strategic internal communication: Transformational leadership, communication channels, and employee satisfaction. *Management Communication Quarterly*, vol. 28, 2, pp. 264-284.

Mohapatra, S., Agrawal, A. & Satpathy, A. 2016. Designing Knowledge Management-Enabled Business Strategies. Switzerland: Springer.

Nonaka, I. 1994. A Dynamic Theory of Organizational Knowledge Creation. *Organization Science*, vol. 5, 1, pp. 14-37.

Nonaka, I. & Takeuchi, H. 1995. The knowledge-creating company: How Japanese companies create the dynamics of innovation. Oxford: Oxford university press.

Nonaka, I., Toyama, R. & Konno, N. 2000. SECI, Ba and leadership: a unified model of dynamic knowledge creation. *Long range planning*, vol. 33, 1, pp. 5-34.

O'Dell, C. & Grayson, C. J. 1998. If only we knew what we know: Identification and transfer of internal best practices. *California management review*, vol. 40, 3, pp. 154-174.

O'Dell, C. S., Grayson, C. J. & Essaides, N. 1998. If only we knew what we know: The transfer of internal knowledge and best practice. New York: Simon and Schuster.

Osterloh, M. & Frey, B. S. 2000. Motivation, knowledge transfer, and organizational forms. *Organization science*, vol. 11, 5, pp. 538-550.

Polanyi, M. 1962. Personal Knowledge. Chicago IL: University of Chicago Press.

Rehman, W. U., Ilyas, M. & Asghar, N. 2015. Knowledge sharing, knowledge management strategy and performance: a knowledge based view. *Pakistan Economic and Social Review*, vol. 53, 2, pp. 177-202.

Richard, P. J., Devinney, T. M., Yip, G. S. & Johnson, G. 2009. Measuring organizational performance: Towards methodological best practice. *Journal of management*, vol. 35, 3, pp. 718-804.

Saunders, M., Lewis, P. & Thornhill, A. 2009. Research methods for business students. Harlow: Pearson education.

Shin, J., Taylor, M. S., & Seo, M. G. 2012. Resources for change: The relationships of organizational inducements and psychological resilience to employees' attitudes and behaviors toward organizational change. *Academy of Management journal*, vol. 55, 3, pp. 727-748.

Singh, H. & Zollo, M. 1998. The impact of knowledge codification, experience trajectories and integration strategies on the performance of corporate acquisitions. Conference of the Academy of Management, 1998, San Diego, U.S.

Snyder, C., Wilson, L. & McManus, D. 1998. Knowledge Management: A Proposed Process Model. Americas Conference on Information Systems, December, Baltimore, U.S.

Spender, J. C. 1995. Organizations Are Activity Systems, not Merely Systems of Thought. *Advances in Strategic Management*, vol. 12, B, pp. 151-172.

Spender, J. C. 1996. Organizational knowledge, learning and memory: three concepts in search of a theory. *Journal of organizational change management*, vol. 9, 1, pp. 63-78.

Suurla, R. 2001. Teknologian arviointeja. 6: Avauksia tietämyksen hallintaan: helmiä kalastamassa: loppuraportti. Helsinki: Edita.

Sveiby, K. E. 2001. A knowledge-based theory of the firm to guide in strategy formulation. *Journal of intellectual capital*, vol. 2, 4, pp. 344-358.

Szulanski, G. 1996. Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic management journal*, vol. 17, S2, pp. 27-43.

Szulanski, G. 1999. The process of knowledge transfer: A diachronic analysis of stickiness. *Organizational behavior and human decision processes*, vol. 82, 1, pp. 9-27.

Szulanski, G. 2003. *Sticky knowledge: Barriers to Knowing in the Firm*. London: Sage.

Terziovski, M., Sohal, A. & Samson, D. 1996. Best practice implementation of total quality management: multiple cross-case analysis of manufacturing and service organizations. *Total Quality Management*, vol. 7, 5, pp. 459-482.

Tucker, A. L., Nembhard, I. M. & Edmondson, A. C. 2007 Implementing new practices: An empirical study of organizational learning in hospital intensive care units. *Management Science*, vol. 53, 6, pp. 894-907.

Yin, R. K. 2003. *Case study research: design and methods*. 3 ed. Thousand Oaks, CA: Sage.

Yin, R. 2014. *Case study research: design and methods*. 5 ed. Los Angeles: Sage.

Zack, M. H. 1999. Developing a knowledge strategy. *California management review*, vol. 41, 3, pp. 125-145.

Zainal, Z. 2007. Case study as a research method. *Jurnal Kemanusiaan*, vol. 9, pp. 1-6.