Knowledge transfer in IT-service organizations
– A qualitative case study researching a boundary object theory perspective on knowledge transfer through information systems, in an ITIL context

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Abstract

Knowledge management is seen as a hot topic in order for organizations to become effective and utilize the knowledge residing within the organization. The most important factor in knowledge management is believed to be the knowledge transfer, which is the process of transferring knowledge between two parties. A context in which knowledge and knowledge transfer are especially important is within the best practice framework ‘ITIL’ and IT-service organizations. Therefore, the purpose with this study is to analyze how knowledge is transferred through information systems in an ITIL organization, and how the transfer process can be further understood by incorporating individual perspectives on knowledge. Besides that, our purpose is to identify factors influencing the knowledge transfer from both the organizations and the ITIL framework. The reason for this is that knowledge transfer through information systems in an ITIL context is rather underexplored, previous research regarding this is mainly focusing on putting knowledge in repositories and make it available, which is believed to create certain implications regarding the individual perspective in the creation and transfer of knowledge through information systems. These implications are something that has not been explored, which is a knowledge gap we intend to fill with this thesis. That is why we have constructed three research questions regarding how the organizations understand what valuable knowledge is, what factors that is influencing their knowledge transfer, and how these previously individual aspects can be further understood by applying the boundary object theory on knowledge transfer through information systems.

From a multi case study with semi structured interviews we could collect a valuable collection of empirical data, that was collected from six respondents representing three organizations. By applying the interpretive and social constructivist research philosophy with an abductive methodological approach, previous research and the boundary object theory in combination with the theory of knowledge creation we could analyze our empirical data. Our study shows that the perspective on valuable knowledge is something with direct relation to ITIL, and highly connected to what its contribution is to the core business that the IT-service organization is helping. Valuable knowledge is also seen as stored knowledge. We can from our study also see that there are four predominant forces influencing the knowledge transfer process. We identified that the overall perspective on what knowledge is in the organization, how and what the organization values as knowledge, the ITIL framework and their knowledge management strategy directly influenced knowledge transfer.

Our main finding in this study is that when organizations are transferring knowledge through information systems the individual perspective on both knowledge, knowledge creation and the knowledge transfer is one of the most important to keep in mind. The knowledge in the information systems is a way to communicate among individuals, and a way to translate one individual’s knowledge to another, hence is the individual creating the knowledge an important factor to acknowledge. We can see that aspects such as experiences, skills, insights, purposes, perspectives and contextual understandings highly influence the knowledge being created, hence the possibility to create rich knowledge at the receiver of knowledge. These aspects also
influence whether the stored knowledge has any tacit elements, which seems to facilitate learning more for the receiving individual.

**Keywords:** Knowledge management, Knowledge transfer, Knowledge repositories, Explicit knowledge, Tacit knowledge, Knowledge articles, Information Systems, Boundary object theory, Theory of knowledge creation, Individual factors, ITIL, IT Service Management
Preface

With this thesis we are now at our very end of the road at our two-year IT and Management Master’s Programme at Linköping University. The work with the thesis has provided both a challenging but stimulating journey where we have had the opportunity to use and acknowledge the knowledge we have gathered throughout our years in the world of academia. We believe that this thesis has encapsulated the guiding words in this Master’s Programme: The individual, the technology and the organization. This thesis has provided us with valuable lessons and insights that we strongly believe will be of use in the future.

We would also like to express our appreciation to our mentor Johanna Sefyrin who has provided us with invaluable insights and feedback when we have stumbled on challenges. But also, guided us through the work by continuously challenging us and making us achieve a better thesis. We would also like to thank our colleagues from the program. Through great discussions, help, coffee breaks, Game of Thrones theory discussions and one or two beers has made this thesis possible. Last of all we want to address a special thanks to Jonas Nord and Gabriel Wåhlberg for great help and valuable discussions.

Finally, we want to address a special thanks to the involved respondents and organizations who contributed with valuable information in order to make this study possible. Thank you.

Linköping, June 2019

Carl Krigsman

Armin Zahirovic
“I wish there was a way to know when you are in the good old days before you have actually left them”

- Andy Bernard, The Office
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In the introduction chapter will we provide the reader with a description of knowledge management, knowledge transfer and the ITIL framework. We will describe the subject by presenting the background, our problem and this study’s purpose. The problem and purpose will make up the foundation for our three research questions that will guide this paper. In the final part of this chapter we will provide a description of our target audience, the limitation and delimitation with this thesis, and finally presenting the structure of the paper.
1.1 Background

What is a company’s most valuable asset? Some of you may answer it as having the best product, the best service, the best information systems, however the well cited and reputable management guru Peter Drucker has another answer.

“The most valuable assets of a 20th-century company was its production equipment. The most valuable asset of a 21st-century institution (whether business or non-business) will be its knowledge works and their productivity.”

- Drucker (1999, p. 79)

What Drucker (1999) implies is that the most valuable asset that a company has and needs to maintain is the employee’s portable knowledge. The author means that the situation is particularly tricky since the pure asset for an organization is not necessarily the employee itself but rather the employee’s knowledge and ability to put it to good use.

Fast forwarding from 1999 to 2019, the same dilemma remains, perhaps on an even larger scale. The increased use of information systems, digitalization and the process of going digital; globalization and the erasing of boundaries of where a company can be based and operate are all part of the world we live in today. The age of information and globalization affect an organization in multiple ways. Quast (2012) explains that 174 newspapers read by everyone in the world each day is equivalent to the amount of data one person receives a year, which is a lot. Whether the study is conducted in a home or work environment it gives us a good indicator of the direction that our information and data-heavy society is heading. Another aspect is the annual report from Work Institute (2018), which explains that the turnover rate keeps increasing, a trend which is putting companies in awkward and expensive positions since knowledgeable personnel are quitting their jobs. Regarding globalization, Farrer (2019) explains that the remote workplace is becoming more and more common, and the trend seems to point toward continuous increase in remote and ‘virtual’ workplaces. These aspects create a situation where information, data and knowledge suddenly play an even more important role for an organization since it is obvious that the information and data are in larger quantities, more spread out in the organization and may disappear with a company’s turnover.

The implication of these developments has put “Knowledge Management” (KM) as an important area of focus for today’s organizations (Alavi and Leidner, 2001; Alvesson, 2004; Dalkir, 2005). Even though the name “Knowledge Management” may imply a rather straightforward understanding of the phenomenon, Duffy (2001, p. 64) explains that knowledge management has been given a variety of definitions, such as “a formal process that engages an organization’s people, processes, and technology in a solution that captures knowledge and delivers it to the right people at the right time.”, and “the discipline of enabling individuals in an organization to collectively acquire, transfer, and leverage knowledge to achieve business objectives.”. Nath (2015) on the other hand is conceptualizing the phenomenon in terms of its
potential benefits. The author explains that organizations are constantly striving to perceive and generate value through the use, reuse and transfer of knowledge in an effective manner, hence creating value through intellectual and knowledge-based assets. Based on these definitions and explanations it is clear that knowledge management as a phenomenon requires a prerequisite understanding of what knowledge is, and that it is related to some type of organizational ‘value’.

Dastyar, Kazemnejad, Sereshgi and Jabalameli, (2017) explain that knowledge management is considered an organization’s hidden success factor for increased competitive advantage, which can be related to both efficiency and organizational performance. Furthermore, knowledge management is viewed as an essential strategic component for the survival, development and growth of an organization (Attia and Eldin, 2018). Knowledge management is a broad concept and consists of a vast number of variables that has an impact on how knowledge is perceived, understood and used. Wu and Hu (2018) argue that organizations strive to create knowledge synergies by coordinating process-oriented uses of knowledge. Furthermore, these processes consist of the fundamental implications of knowledge creation, transfer, storage, and application (Wu and Hu, 2018). Lahti and Byerlein (2000) argue that within knowledge management knowledge transfer is the most important part. Knowledge transfer can be seen as an exchange phase where knowledge between a source and a receiver is being transferred (Ren, Deng and Liang, 2018).

One area where information and knowledge are vital, and much needed to be managed is within IT service management (ITSM) (Conger and Probst, 2014). The importance stems from the way an IT service management organization functions and how the work is conducted. The great focus on support and delivering services require knowledgeable personnel that can handle this in an effective manner, which is why knowledge management plays an important role in service organizations. Goldkuhl and Nordström (2014) describe ITSM as an architectural framework focusing on defining, managing and delivering IT services within an organization. Agutter (2013), Iden and Eikebrokk (2015), Galup, Dattero, Quan and Conger (2009) explain that ITSM is a highly important factor in today’s organizations due to the fact that organizations are dependent on information systems for their survival. The authors mean that organizations need to be effective and efficient in delivering high quality IT services for the customers, i.e. the core business, which in return will save both time and money. There are different ITSM frameworks, both Agutter (2013) and Goldkuhl and Nordström (2014) mean that the framework: ITIL (Information Technology Infrastructure Library) is one of the most used and cited. Agutter (2013) and Weng and Weng (2009) explain that knowledge management and knowledge transfer in ITIL is a way to support the service delivery with the right information, to the right person and at the right time, which is fundamental in supporting the organization’s core business.

Trusson, Doherty and Hislop (2014) describe that ITIL is an IT supporting framework and is built with the intention to support an organization’s IT service delivery. Since the framework is created to support the IT service organization, the knowledge management in ITIL is very much built upon information systems, and different digital repositories. They mean that the
information system for knowledge transfer is to a great extent the main part of the knowledge transfer within ITIL. These systems often include different databases and repositories where information/knowledge can be transferred. Weng and Weng (2009) also explain that the vast majority of knowledge transfer in ITIL is done by and through different information systems. Their research also shows that the ITIL framework do not put a lot of emphasize on other forms of knowledge transfer than through standardized and codified systems.

1.2 Problem

According to Wikström, Eriksson, Karamehmedovic and Liff (2018) knowledge is recognized by a vast number of researchers as an intangible asset that is valuable and provides competitive advantages to companies since it is hard to replicate. However, in order to maintain valuable knowledge within the organization, it is necessary to understand the communication channels used, where and how to store the knowledge, and how to transfer the right type of knowledge, in order to maintain and sustain a competitive advantage (Wikström et al., 2018). Even though previous research has found that organizations raises the importance of knowledge management, Hume and Hume (2016) argue that the implementation of a knowledge management framework often depends on the size of the organization. They found that larger organizations would have an easier time benefitting from knowledge management than smaller ones.

Doda (2017) argues that knowledge management and knowledge itself has raised its importance in today’s economic knowledge model which focuses on know-how capacity, judgmental characteristics, and experience that may be of value to organizations and their success. The awareness of knowledge management is not something new, yet there are instances that show that companies struggle with this phenomenon. Alavi and Leidner (2001) raise this issue by presenting a study conducted by the consultancy company KPMG in 1998, showing that 43 percent of the companies that participated in the study suffered setbacks from losing key staffs which in turn affected supplier and customer relations. 13 percent of the companies were facing loss of income when a key member left the organization. Massingham (2018) conducted a five-year longitudinal study and found similar types of setbacks and implications from knowledge loss. Both Doda (2017) and Massingham (2018) provide an insight of the possible implications of not maintaining knowledge. Another study that Alavi and Leidner (2001) present and that was steered by Cranfield University in 1998, showed that the majority of organizations believed that they had the knowledge necessary within the organization, but struggled with finding, adopting and using it. This demonstrates the importance of having multiple perspectives, partly a strategic understanding that the organization has important knowledge tied to individuals, but also that there must be some form of knowledge management in order to utilize the knowledge.

Agutter (2013) explains that knowledge management is one of the most nebulous areas of service management, which is the process of managing services efficiently, and for several reasons. What Agutter (2013) describes regarding how nebulous the knowledge management
process is in ITIL might explain why some organizations are not adopting it, or why there is no clear description regarding how to use it. Marrone, Gacenga, Cater-Steel and Kolbe (2014) examine what aspects of ITIL that organizations choose to implement when they implement ITIL, and from their research they found that the knowledge management process is barely recognized, hence not a part of the framework that organizations choose to implement.

As previously mentioned in the background (chapter 1.1), Lahti and Byerlein (2000) argued that the knowledge transfer process is seen as the most important part of knowledge management. However, even if this is the case it does not mean that it is the simplest one. There have been different views regarding what knowledge transfer is and how it can be defined. Authors such as Szulanski (1996) argue that the simplicity of knowing that a sender and receiver exists qualifies as a decent definition whilst other such as Ko, Kirsch and King (2005) finds the perspective of only recognizing a sender and a receiver too simple and insufficient, hence not encapsulating the whole phenomenon. This raises the importance of understanding of how different people interpret and understand this phenomenon.

In order to understand how knowledge transfer is seen in an organizational context and what influences knowledge transfer it is important to step back to the basics and increase the understanding of what knowledge actually is. First and foremost, knowledge can be categorized into different categorizations which means that there is not one absolute defined type of knowledge. Oftentimes knowledge is divided into explicit and tacit knowledge (Nonaka, 1994). Explicit knowledge according to Lahti and Beyerlein (2000) is seen as more codified and formal form of knowledge which means that it has been expressed in forms of words and numbers. Tacit knowledge however is knowledge that is bound within the individual and is difficult to share and formalize (Becerra-Fernandez and Sabherwal, 2010). The issue here is that the knowledge transfer procedure in ITIL focuses according to Conger and Probst (2014) on having standardized templates and documentations, hence emphasizing explicit knowledge, at the same time the authors argue that there are certain areas within ITIL that needs a more comprehensive knowledge transfer, hence more tacit. This limits the knowledge transfer procedure since the vast majority of the knowledge transferred in ITIL is conducted through information systems (Weng and Weng, 2009; Conger and Probst, 2014; Trusson et al., 2014). Agutter (2013) describes that much of the knowledge transfer in ITIL is to document, which also indicates an emphasis on codifying knowledge.

Conger and Probst (2014) further argue that the mentality today is the constant strive to achieve better knowledge transfer through new technologies and methodologies. The authors mean that both organizations and today’s research is heavily focused on what new technologies and methodologies can contribute with regarding knowledge transfer. However, Conger and Probst (2014) argue that there is a lot of important knowledge to be gained studying and optimizing whatever technology and methodology for knowledge transfer that is already in use.

Knowledge transfer through information systems is something that has been researched before. Information systems in a knowledge context are according to Moreno and Cavazotte (2015)
referred to the design and development to support and enhance organizational processes of
knowledge properties such as knowledge creation and transfer. Conger and Probst (2014) argue
that the mentality to put knowledge in a repository is not sufficient enough in order to fully
utilize knowledge transfer through information systems. This is something that Gilbert, Morse
and Lee (2007) add to by explaining that knowledge management and knowledge transfer in
ITIL organizations is not going to work “by itself” but must have some important aspects in
place. The authors point out that the organization must think about the people, the process and
the technology in order for knowledge transfer to work. Trusson et al., (2014) further develop
this perspective. They mean that it is important to realize that when knowledge is transferred
with a system as an intermediary, the transfer process turns two folded. One process is to
provide knowledge, and the other is to receive, or retrieve knowledge. They argue that this is
necessarily not a problem, however it adds a further dimension, which is the people creating,
transferring and receiving knowledge. What both Trusson et al., (2014) and Conger and Probst
(2014) mean is that the individuals become an even more important part of the transfer.
However, what the literature fails to deliver is to present how the knowledge transfer procedure
within an ITIL context has to be done in order to solve these problems. They only provide a
basis of what needs to change, and what aspects should be taken into consideration.

From this we can see that all of a sudden different perspectives on knowledge are influencing
even more. Conger and Probst (2014) argue that different perspectives regarding if the
knowledge in an ITIL organization is a solution to a problem or if it is understanding the
problem itself. Another aspect where differences in perspective can be influential is described
by Alavi and Leidner (2001). They mean that how an individual considers what knowledge to
transfer to a system, that is how an individual values knowledge, and what knowledge mean to
them will heavily affect what knowledge is being transferred and how well the individual’s
knowledge is transferred, which Trusson et al., (2014) also argue for. What an individual values
as knowledge can be problematic since what an individual finds valuable can be invaluable for
another. There can hence be challenges when a communication process is taking part between
individuals. For example, lack of common understanding may lead to disagreements between
parties which can result in poor outcomes (Ko et al., 2005). Some of the reasons for the lack of
understandings may be of social and cultural instance or that the people having these
conversations have different knowledge bases and hence result in communications flaws
(Dennis, Fuller and Valacich, 2008).

As we can see from our presentation of our problem, knowledge management and especially
knowledge transfer are two important but complex areas for organizations to focus on. Previous
research emphasize that it is hard to utilize knowledge management, and a good knowledge
transfer method. ITIL as a framework does have a knowledge management process, however it
is seldom recognized or used by organizations, making the actual knowledge transfer in ITIL
organizations rather underexplored, at least in depth. What previous research tell us is that ITIL
organizations’ knowledge transfer focus on putting knowledge into repositories and databases.
This is believed to create certain implications regarding the individual perspective in creating
and transferring knowledge through information systems. Previous research regarding this tell
us that knowledge transfer through information systems is well described in regard to what the implications are and what aspects that should be taken into consideration in order to further understand knowledge transfer. However, there is no previous research regarding how this is to be achieved, which we identify as a knowledge gap that can be filled.

We believe that boundary object theory is a way to further understand these individualistic implications on knowledge transfer through information systems in an ITIL context by interpreting the knowledge created in the repositories as a boundary object. This will add a dimension to knowledge and knowledge transfer, which have not previously been explored. By applying boundary object theory, we believe that the knowledge transferred through information systems will obtain certain attributes which different individuals with different perspectives can use in order to create knowledge between individuals and groups in the organization. By incorporating the individual and its perspective in the creation and transfer of knowledge will allow us to adopt a new approach in understanding knowledge transfer through information systems in an ITIL context, hence fill the knowledge gap previously mentioned.

1.3 Purpose

Based on the problem we described in the previous section (chapter 1.2), the purpose of this study is to analyze how knowledge is transferred through information systems in an ITIL organization and how it can be further understood by incorporating individual perspectives on knowledge and the transfer of it by applying the boundary object theory.

1.4 Research questions

We have chosen to condense our problem and purpose down to three research questions. The questions form the basis of covering the gap of knowledge we identified in our problem and thus bring new knowledge and insight to the field. The three questions we intend to answer in this study are the following:

1. How do the studied organizations and respondents understand what valuable knowledge is?
2. What factors influence how the studied ITIL organizations are transferring knowledge?
3. How can knowledge, transferred through an information system be further understood as a knowledge transfer method by applying the boundary object theory?

1.5 Target audience

The study and its findings will have an importance to organizations that have been part of the study as well as other organizations that have questions regarding knowledge transfer in an ITIL context. We also believe that our findings in this study will contribute to the research field
of knowledge management and ITIL. Besides the academic focus, we also believe that this study will be found useful for practitioners since we intend to shed light on aspects that can be used to further develop the knowledge management initiative within organizations that has ITIL as an implemented framework.

1.6 Limitations and delimitations

This study aims to identify ITIL organizations that incorporate knowledge management in their day-to-day work. Our study is focusing on the service-desk and the different line supports working with the incident and problem management process. This means that other processes in ITIL are not of interest and will not be taken into consideration. Furthermore, the aspect of knowledge transfer is of particular interest and will be the focus of the study. However, we will be enlightening other aspects that might be of essence for the investigation of knowledge transfer, such as knowledge repositories and knowledge creation. However, these aspects will not be the main part of the study. Furthermore, the ITIL framework will not have a significant role besides the context the of the influence it has on the knowledge management of the studied organizations.

1.7 Structure of the paper

The structure for this paper is constructed as figure 1 illustrates.

Figure 1. Structure of the paper. Krigsman and Zahirovic (2019).

Chapter 1. Introduction: In the introduction we present the background for our problem, our problem, the purpose and our research questions. We end the chapter by highlighting our target audience, the limitations and delimitations with the study and an outline of the paper.

Chapter 2. Methodology: In the methodology we present our understanding, chosen philosophy and our methodological approach that constitute the foundation for our study. We also present our literature selection, how we have gathered, transcribed and analyzed our empirical data. The chapter ends with ethical aspects, operationalization and criticism.

Chapter 3. Theoretical frame of reference: This chapter starts off with a conceptualization of knowledge. After that we present and discuss previous research regarding knowledge, valuable knowledge, organizational knowledge and knowledge transfer. The chapter ends with a presentation of the boundary object theory and the theory of knowledge creation, as well as our combination of these two.
Chapter 4. Empirical data: The empirical data starts off by a presentation of the studied organizations and the respondents. The chapter continues with a presentation of our gathered data, categorized by: Knowledge in ITIL Service organizations, Knowledge management within the problem and incident process, Knowledge transfer to solve problems and incidents and Knowledge management strategy.

Chapter 5. Analysis: In our analysis we discuss and compare our theoretical frame of reference in relation to our empirical data. The analysis is structured from the empirical data, previous research as well as our research questions which concluded in three main themes: Knowledge transfer in ITIL organizations, Factors influencing knowledge transfer and Knowledge articles as knowledge transfer methodology.

Chapter 6. Conclusions: In the conclusion the results are compiled based on the analysis as well as our purpose and research questions. The chapter ends with a summary of our contributions.

Chapter 7. Future research and reflection: Our paper ends with a chapter with suggestions for future research as well as our own reflection regarding our thesis.
Chapter 2. *Methodology*

*During this chapter we will be providing the research method that will act as the ground pillar of the study and its fundamental approach of how the study will be conducted as well as the philosophical perception and view that we have adopted. Furthermore, we discuss why we have chosen to use qualitative research methods through interviews and multiple cases to approach the study. Furthermore, we discuss the level of generalizability that case studies and interviews impact the study, how ethical perspectives have taken into consideration regarding our interview respondents, and, how the gathered empirical data has been analyzed. Lastly, we reflect the methodological approaches we have chosen to use by presenting alternative ways that could have been of particular interest if the study was to take place again.*
2.1 Our understanding

During our studies we have encountered opportunities and challenges within the field of informatics and have seen the complex nature of the structures and processes which organizations continuously strive to improve and optimize. Since we both have our Bachelor’s in informatics but from different universities, we have seen some differences and similarities that universities advocate and promote to be some of the reasons why organizations face challenges. However, during our Master’s in IT and Management we have gathered a deeper understanding as well as the ability to further analyze why these reasons still exists. We have also come to the realization that in order to tackle the holistic impact of these processes and structures, there is a need to go through the details and solve them first.

By having this mentality, we believe that some suggestions and discussions during this study can contribute to further improve the knowledge management within ITIL and deeper understand the causes and roots that strike this area. By combining our knowledge what we have gained through previous experiences and academic careers, we believe that this is possible and realizable, which will have a weight on our thesis outcome. Furthermore, Carl Krigsman has previously had a position in an IT-service line support which has also given us some insight in the ITIL area.

2.2 Research philosophy

To conduct the study, we will be using a qualitative approach since we believe it has the capacity to help us reach our overall expectations with the study, and to increase our understanding of the phenomenon knowledge management in an ITIL context and in particular the knowledge transfer aspect. The main reason for using a qualitative approach is, as Bryman (2011) indicates; that qualitative research focuses on having an interpretative nature and constructionism. Furthermore, Bryman and Bell (2013) argue that quantitative approaches favor numerical values with more objective tendencies over contextual and subjective understandings of a given situation. In addition, Bryman and Bell (2013) argue that quantitative methods can add an extension of unreliableness of the statistical empirical generated data, since the participants may have misunderstood terms, contexts or similar interpretations which could influence the results. Since we strive to increase the understanding of how the knowledge transfer procedure in an ITIL context is being done, we are confident that a qualitative approach will help the study achieve this, and ultimately contribute in finding suitable findings of the relations between knowledge management and knowledge transfer in an ITIL context.

Our interpretation forges in social constructionism which according to Alvesson and Sköldberg (2018) stem from the phenomenology but in recent years has been linked to postmodernism. In social constructionism reality is not a given premise and thus is not of natural descent. It is more seen as a construct of social factors which have forged our reality (Alvesson and Sköldberg, 2018). Social constructionism is a multi-dimensional idea where there are no fixed theories and where a contingent process is inevitable which allows constant discussion of social
constructionism. However, the ground pillar of social constructionism can be linked to basic four steps presented by Hacking (1999, p.5-14) where obvious statements are informed throughout the texts that social constructionists have created, but where these statements or ‘points’ as Hacking (1999) refers it to are then pinpointed to raise discussions. These four steps are:

1. X need not have existed or need not be at all as it is. X, or X as it is at present, is not determined by the nature of things; it is not inevitable.
2. X is quite bad as it is
3. We would be much better off if X were done away with, or at least radically transformed.
4. In the present state of affairs X is taken for granted; X appears to be inevitable.

According to Alvesson and Sköldberg (2018) these steps convert itself from quite an obvious statement (1) to inherently questionable one in the end (4), which is the point of social constructionism at its essence. There have been a lot of modern thinkers that have forged their own interpretation of social constructionism like Marx, Mannheim, Gergen and Latour.

Latour is of particular interest to us since he advocates a second layer or what Alvesson and Sköldberg (2018) refers to ‘second wave’ of social constructionism. The difference between Latour and the previous authors is that he believes that there is an external actor which is outside the human form which also impacts social construction realities in a micro perspective. The reason for this is that he believed that these actors had a life of its own. As bizarre as that sounds Alvesson and Sköldberg (2018, p.39) clarify this statement by contextualizing from an organizational perspective saying that:

“...most of us know that organizations, organizational subunits, groups, etc., take on something of a life of their own. The same is true of technical systems such as IT systems in organizations or plans and projects: they have a life of their own and are not more passive products.”

A clear distinction is also that for this to manifest into the arguments, there is a need to redefine the term “Social constructionism”. ‘Social’ does not refer to the creation of constructions by something social, but moreover that the construction process itself is social. This means that the construction is real and can hence be referred to realist constructionism (Alvesson and Sköldberg, 2018).

We believe that this type of approach allows us to understand how knowledge is interpreted within organizations and how the knowledge is then used, created and transferred within the organizations through knowledge management. The definition of knowledge will probably vary in the organizations because of its multi-faceted nature, which is why we had to contextualize the term in our own interpretation.
Even though we chose to have a constructionist approach, we have taken both positivism and
the critical paradigm into consideration, which are both related and recognized within the
qualitative approach (Walsham, 1995; Myers, 1997).

Positivism is seen as a philosophical interpretation which mostly bases itself within the
scientific field (Myers, 2013). However, it does not purely align itself in this field. Auguste
Comte who is seen as the Universal Philosopher of Positivism believed according to Hasan
(2016) that sociological distinction had a metaphysical stage which is in a pre-scientific phase,
and hence should be based on scientific laws rather than contemplations. This means that Comte
advocated facts beyond values and assumptions, which he debates did not belong to the
scientific field. In later years Positivism has been developed and modified as Logical
Positivism, which aims to analyze meaningful knowledge statements to determine the scientific
consideration and status that these statements inherit (Hasan 2016). Positivism can be justified
as seeking objective meaning through knowledge by understanding logic, productivity and
efficiency (Green, 2017). By having this objective stance, the deep understanding of complex
natures will not be sufficed which according to Remenyi, Money and Swartz (1998) is not a
suitable approach for management and business studies, which is the main reason we are not
adopting this approach. In order to understand the complex nature of knowledge management
within an ITIL context there is a need to experience different interpretations from different
people that are involved with this framework. Having a fully objective stance will need a
quantification effort of gathered data, which may be difficult if the knowledge management
process has not been recognized by the majority of the organizations that uses ITIL.

Another perspective within the philosophical agenda is the critical theory. Critical theory is a
method that is used in both the scientific field and the interpretive paradigm (Steffy and Grimes,
1986). Furthermore, it is seen as a reflective system on the social institutionalism based on
empirical and interpretive components. This implies that discussions or theories should have
critical reflective tendencies of subjective matters and what is being observed, as such is the
case in hermeneutic (Steffy and Grimes, 1986). One criterion within the critical paradigm which
Myers (2013) points out is that in order to adopt this view, one must have gathered enough
knowledge in this area to discuss the matters. Due to our limited time we cannot expect
ourselves to achieve an expertise in this field. However, we believe that this does not stop us in
finding suitable arguments and discussions based on the empirical data we have gathered to
shed a light on the subject. Another reason why we believe a partly critical approach may be
suited is that this subject has not been researched to the degree as in this study, which indicated
that a critical perspective had a positive impact on the study, its arguments and discussions.
This is especially true when considered the two theories we applied, Nonaka’s and Takeuchi’s
(1995) theory of knowledge creation and Star and Griesemer (1989) Boundary object theory,
which will be introduced in chapters 3.7-3.9.

However, since a study of this sort has not previously been carried out regarding knowledge
transfer within an ITIL context, we believe a social constructivist perspective can deepen the
discussions and help us find a profound way regarding these matters. We believe that this view
plays a substantial role in how we perceive our surroundings and how the reality is forged by us. Even though we will mainly focus on this view, we will also have some instances of a critical view, mostly because we believe that a critical view is healthy both for the subjective and objective aspects of the social constructed reality. In addition, we believe that this would allow us to add additional value to the study by complementing perspectives from these areas.

Since we are focusing on understanding the phenomenon of knowledge transfer in an ITIL context, we believe that the best and most suitable approach would be a case study, which is described more thoroughly in chapter 2.12.2. Bryman (2011) defines the case study as a comprehensive and profound study of one or more interrelated phenomena, where the focus is to understand and highlight aspects regarding that unique case. We believe that since we have a well-defined and delimited context and research questions the case study provides the most advantages.

2.3 Methodological approach

The methodological procedure was conducted through an abductive approach. This approach encourages iterative processes between theory and empirical data (Le Duc, 2011). This allows us to increase our understanding of both the theory and the data that has been gathered, and enables the ability to iteratively work with both ends. This will not only increase our understanding of the theoretical framework, but also help us find suitable complementary perspectives during the study, which allow us to identify whether a theory is relevant or not in each context. Even though we found this approach to be the most suitable one, we did consider both deductive and inductive approaches.

The deductive approach focuses on the authors’ gathering relevant theory which works as a ground pillar to understand and interpret the empirical data (Bryman, 2011). Furthermore Saunders, Lewis and Thornhill (2016) argue that a deductive approach needs a hypothesis and theory which can be proven and realized through empirical data. Additionally, Heyes, Stephens, Ngo and Dunn (2018, p.1333-1334) describe the deductive approach as:

“...involves determining whether an inference necessarily follows from a given set of premises (e.g., if we know that “Birds have property X” and that “sparrows are birds” then deductively it follows that “Sparrows have property X”)”

Given this explanation and applying it to Bryman’s (2011) fundamental understanding of the theory which can be seen as ‘Birds have property X’ and the empirical data is that ‘sparrows are birds’, this from a theoretical point of view will be seen as ‘sparrows have property X’. In addition, Jacobsen, Sandin and Hellström (2002) argue that the deductive approach is part of the positivistic agenda which, as previously discussed being unsuitable for a study of this kind.
Inductive reasoning focuses on the relations between theory and empirical data by crafting the theory as a result by the found data. This allows the research questions to adapt and take shape over time (Bryman and Bell, 2013). Heyes et al., (2018, pp. 1334) describe induction as:

“...involves assessing the plausibility or likelihood of an inference given the premises (e.g., if we know that “Sparrows have property X” then it may seem likely that this property is shared by other birds, even though this inference is not logically valid).”

In this case the empirical data is the observation that the sparrows have property X, as a conclusion the observer believes that the likeliness of other birds sharing the territory with the sparrows is high, but has no understanding of why, which indicates the necessity of a search for a suitable theory to strengthen the empirical data. According to Collis and Hussey (2009) this methodological approach leaves room for interpretation during times where lack of knowledge of a certain field of study is present, which Saunders et al., (2016) mean could be useful during these times.

Even though the inductive approach can be applied to our study, we believe that the empirical data would not be sufficient in the search of a deeper analysis regarding knowledge management and ITIL. Mostly due to the lack of theories combining these subjects. Finding suitable theories would be an impossible task with the limited time we have. An abductive approach would give us both the freedom of finding relevant theories from the start, but also give us the ability to work with the empirical data as well as the theories in an iterative process as we previously stated.

The abductive approach allowed us to work both deductively and inductively by first and foremost finding theories which we believed were suitable for our field and then adapted them depending on the empirical data that was gathered.

2.4 Literature selection

Knowledge management, knowledge transfer and ITIL are three areas of substantial size, in order to find relevant literature, the need of narrowing the search field was significant. Firstly, we began searching for literature that had a combination of the keywords ‘ITIL’, ‘knowledge management’ and/or ‘knowledge transfer’ through various databases such as PubMed, Google Scholar and Unisearch. However, we soon realized that the literature was restricted because of this desired combination which led us to search for a broader spectrum by isolating these keywords. The danger with this approach is that the results can be misleading because of the quantity of the articles that are shown. This leads to an amount of literature which has no relevance at all and can contribute to an illegitimacy to our study. In order to tackle this, we decided to modify these isolated keywords by extending and aligning them to organizational contexts within the area of business, IT and management to add legitimacy to the sources used in our thesis. Furthermore, we had to investigate whether the literature we found had a profound evaluation and reasonable arguments of the keywords. By understanding how the authors
portray the arguments and reasoning of these keywords, we could later decide if the literature was desirable for our study.

2.5 Qualitative interviews

Based on our research questions and purpose we identified that multiple methods for collecting data could be used. Since our choice of a case study, we believe that a great starting point was interviews.

Since the research topic about knowledge transfer within an ITIL context is relatively unexplored we believed that interviews would be the best approach. Bryman and Bell (2013) describe three kinds of interviews, ‘Structured’, ‘Semi-structured’ and ‘Non-structured’. According to Bryman and Bell (2013) structured interviews are standardized interviews that contain the same contextual starting-point and grants the interviewees’ equal opportunities to answer the questions and have replies that are in response to identical cues. In order to get a preciseness of the desired answer, there is a need to have specific questions with a fixed range of answers to choose from (Bryman and Bell, 2013). Since our current field has not previously been explored in a deeper context, restricting and limiting our interviewees’ answers would not help us fully understand this phenomenon. This leaves us with the two other alternatives.

Bryman (2011) describes semi-structured interviews as a more flexible approach where one takes a starting point from defined themes and some predefined questions in order to let the interview guide itself. The questions are of a more general form which allows the sequence questions to vary (Bryman and Bell, 2013). Unstructured interviews allow the researcher of having a written guide of the topics that can be discussed. In some cases, the researches can ask one single question and the interviewee answers the question while having the power to steer the answer how she/he desires (Bryman, 2011). Furthermore, unstructured interviews tend to mimic regular topic of conversations, which in our case can be problematic because this could mislead the study by introducing new concepts that might not have a relevance to our study.

To minimize the risk of misguiding and directing our participants we believe that semi-structured interviews could provide a more genuine and wholesome experience for both us as researchers but also for the interviewees. This allowed us to create an interview-framework which involved having a number of questions, topics and potential sub questions if needed. By doing this we gave the participants enough freedom to express themselves freely when answering each question, but limited their topic of discussion which was a good approach since there were no room for misdirections.

2.5.1 The interviews

The interviews were conducted and located at the participants’ organizations for their convenience. Each interview was held by both the authors. One author was asking the main questions while the other author focused on understanding the context and came up with sub
questions. According to Kvale and Brinkmann (2014) the author that acts like an accessor is actively part of the discussion, but also analyzes the content and forges sub questions. Furthermore, Kvale and Brinkmann (2014) argue that this system works like a game of chess where the accessor responds to the actions given by the participants and can hence act truthfully to them. However, this does not mean that both authors were restricted in their position and could intervene. We wanted to give an authentic and genuine feeling during the conversations by acting natural and not raise any inconvenience towards the participants.

The interviews were done in conference rooms, where no third party could hear the conversation. The length of the interviews was dependent on the participants’ knowledge of the topic and how well they were involved in the topic. A reasonable length according to us is where there is enough time to let the participants express their thoughts and feelings, but where there is a time constraint that does not allow the interviews to become a burden for the participants. We decided that a time limit around 90 minutes was reasonable. Table 1 below demonstrates the organizations, the participants and how long each interview was.

<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Organization</th>
<th>City</th>
<th>Position</th>
<th>Interview Length/Min</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Coordinator</td>
<td>Organization 1</td>
<td>Linköping</td>
<td>Coordinator</td>
<td>92</td>
</tr>
<tr>
<td>2</td>
<td>The Group manager</td>
<td>Organization 1</td>
<td>Linköping</td>
<td>Group Manager for first line support</td>
<td>92</td>
</tr>
<tr>
<td>3</td>
<td>The Problem manager</td>
<td>Organization 2</td>
<td>Norrköping</td>
<td>Incident and problem manager</td>
<td>62</td>
</tr>
<tr>
<td>4</td>
<td>The Information owner</td>
<td>Organization 2</td>
<td>Norrköping</td>
<td>Group manager for first line support</td>
<td>62</td>
</tr>
<tr>
<td>5</td>
<td>The Incident manager</td>
<td>Organization 3</td>
<td>Norrköping</td>
<td>Incident manager and Service-desk manager</td>
<td>76</td>
</tr>
<tr>
<td>6</td>
<td>The Service person</td>
<td>Organization 3</td>
<td>Norrköping</td>
<td>Second-line support</td>
<td>76</td>
</tr>
</tbody>
</table>

*Table 1. Interview and participants information.*
2.6 How truthful are interviews?

When researchers ask whether interviews are truthful or not, they discuss whether they fulfill the criteria of being reliable and valid. These two aspects are common in both the quantitative and the qualitative field and are hence both used. However, some researchers like Bryman and Bell (2013) argue that these two terms are insufficient and needs a deeper analysis and extension in regard of the qualitative method. The reason for this is that these terms have the tendency to reflect an absolute truth, which is desired within the quantity field but is not achievable only by these terms in the qualitative field. Bryman and Bell (2013) argue that there is not only one truth but multiple truths which can be affected by different aspects, which is why they advocate the importance of reliability, transmittability, trustworthiness and authenticity.

We value these aspects highly and tried to follow these principles as much as possible when we conducted our interviews. The reason for this is not that we blindly follow a guide that researches have created, but more to fulfill our duty to make this study legitimized and verified to an extent that surpasses expectations.

2.7 Reliability

To increase the reliability of the study we informed our participants about the purpose of the study as a part of the initial contact. By genuinely explaining the purpose of the study, their role as interviewees and how the gathered data would be presented, we tried to make the participants realize the importance of the study and its contribution. We also offered anonymity to make them more comfortable and honest when providing answers. According to Bryman and Bell (2013) this approach provides trust between both parties.

2.8 Transmittability

When the data has been gathered there is a need to understand the underlying context of what has been said. There is hence an importance according to Bryman and Bell (2013) to identify terms and constructions of sentences that can have an impact on the study’s outcome. By transcribing and recording the interviews, we could simply rewrite and thoroughly analyze the conversations. This enabled the ability to further analyze the data gathered and hence connect the analyzed material to the theory.

2.9 Trustworthiness

To add trustworthiness to the study and its empirical data, there is a need to introduce the empirical data in an objective stance and limit the researcher’s ability to affect their views into the study (Bryman and Bell, 2013). We followed this principle by clarifying for the readers of this study how the study was conducted and why it was conducted in a certain way to further increase the trustworthiness.
2.10 Authenticity

The importance of objectivity during the interviews is necessary. Disregarding personal beliefs is needed to create an authentic and believable study. Not having any personal agenda is important so that there are no variables that can impact the study (Bryman and Bell, 2013). To avoid these issues, we tried to follow our interview guide as much as possible and adding sub questions that relates to the main questions without having any personal sayings.

2.11 Selection process

The selection process regarding our respondents was finalized by adhibiting an approach called targeted selection sampling which according to Bryman (2011) is defined as strategically finding available individuals and targeted organizations in order to satisfy the relationship between the research questions and the selection process.

Since knowledge management within ITIL was established in version three of ITIL there is a risk that companies have not yet adopted knowledge management to its full potential. Therefore, it is necessary to identify companies which are working with knowledge management as well as finding specific individuals that has the knowledge and capacity to take part in this research to answer specific questions. That is why we believe that this approach was suitable and accepted. Even though an approach like this is recognized, it has its limitations. Bryman and Bell (2013) argue that some of the disadvantages with this method is that the data that is generated can be hard to generalize since the data cannot be directly connected to a certain population. Even though the grade of generalizability is lower, there is a need to find suitable respondents in our case. Since not all ITIL organizations are acknowledging knowledge management and Sweden is not the largest populated country, there is a need to identify specific targets because of the lack of quantity. For this reason, we believe that this approach gave us the opportunity to conduct the study in an acceptable level by acknowledging its limitations, but enforcing its strengths.

In order to find potential interviewees, we first had to identify organizations that already had adopted ITIL v3. The challenge however was not only in finding the correct version, it was also finding organizations that acquired knowledge management. The identification process started as a general search effort of organizations that had an ITIL framework implemented. In most cases there were no descriptions whether the organization had ITIL or not, and we had to identify personnel which had a title that resembled ones from ITIL. After the identification process we contacted the potential interviewees either by mail or phone where we introduced ourselves and described the purpose of the study. If they agreed on the conditions and the interviews, we then came to an agreement where and how the interview would take place.
2.12 Generalizability

2.12.1 Qualitative research

Generalizability is one of those areas that can be seen as problematic in the field of IS research since few researchers dedicate their time to conceptualize the phenomenon. This means that a discussion about generalizability is required in order to conceptualize it (Tsang and Williams, 2012). First, it is necessary to understand that there are possibilities to generalize data from qualitative studies. Weis and Willems (2016) argue that there are possibilities to identify a general phenomenon that are recurrent in universal structures. This means that there are possibilities that similar conclusions may have been made in similar instances and hence can raise the rate of generalizability (Weis and Willems, 2016). To understand how to increase the generalizability of a study, there is need for us to understand the fundamental principles of the phenomenon

Lee and Baskerville (2003) argue that the phenomenon within interpretive research does not aim to have fully covered data or laws of nature, but focus more on having a defined context rather than a broad approach. The goal within qualitative research is usually to identify and explain a case by finding similarities and differences that can be linked to a generalized context (Lee and Baskerville, 2003). This kind of methodological approach in qualitative studies raises a dilemma between researchers from the quantitative and qualitative studies. Bryman (2011) argues that there is a critique from the quantitative field arguing that qualitative research involves high level of subjectivism and is closely linked to individual interpretation of a given context. This affects generalizability since the grade of replication is low, which can be seen as problematic since the researcher is seen as the key figure within the qualitative research (Bryman, 2011). This can further lead to difficulties generalizing the conclusion outside the given context, which the critics argue regarding case studies. Lee and Baskerville (2003) mean that the conclusions found in case studies cannot be representative for a population and should hence be representative for a given theory instead. However, Bryman and Bell (2013) argue that this statement is insufficient since there can be instances where other researchers are in similar instances and where a grade of generalizability has taken place. By gathering empirical data from a given context can lead to a greater understanding of a similar event by comparing the results and hence increase the generalizability.

2.12.2 Generalization in case studies

Since we have chosen to use case study in our research it is important for us to raise the discussion of how case studies can provide with enough data to increase the generalizability. It is important to discuss different kind of misunderstandings and misconceptions regarding what a case study actually provides.

Flyvbjerg (2006) presents five misconceptions:

- [1] Researchers tend to value theoretical implications more than practical ones.
- [2] There is not enough data generated from a single case that can be generalized and hence contribute to further research.
• [3] Qualitative studies can only create hypothesis which can be proven by other theories and methods.
• [4] Qualitative studies tend to implicate partiality from the researchers which have a tendency to affect empirical collected data.
• [5] It is difficult to develop new theories and general conceptions from one case.

Flyvbjerg (2006) argues that these statements are false and non-valid, which will be discussed here. We will adopt those aspects that can impact the study in a positive way and where we have the ability to raise the generalizability of our study.

[1] Flyvbjerg (2006) argues against the first misconception saying that practical instances can be of importance as much as theoretical. He argues that through case studies there are tendencies that can increase the competence level for individuals based on their experiences. Practical examples help them understand the given context and awareness of the situation. [2] Flyvbjerg (2006) discusses that there is a possibility to generalize from a single case depending on what kind of case it is and how the case has been selected. Given the historical context, there have been instances where a single case and observation has been sufficient to change how the universe is perceived. This example relates to the discovery of gravity and where a single case generalized a whole interpretation. [3] Flyvbjerg (2006) raises the awareness of finding suitable strategic methodological approaches which allows higher level of generalized empirical data. There are some selection processes which Bryman (2011) raises having a tendency to lower or raise the generalizability. This however, has been discussed in our selection in chapter 2.11 where we argue the reasons for our selection. [4] The argue of partiality or bias occurs not only in case studies but other approaches as well and is hence not predominant in cases. This is something that according to Flyvbjerg (2006) is present in all kinds of studies and that a researcher’s characteristics determines the outcome of biasy. [5] Flyvbjerg (2006) argues that case studies provide a greater understanding of the complexity that is present from a particular phenomenon. He argues that providing an open case study and that creates space for the participants to phrase freely will increase the chance of finding other areas that have not been discovered previously, which in turn can provide with a different insight of a phenomena.

During our study we tried to achieve transparency regarding the methodological choices we made and presented how these decisions could affect the generalizability of our study.

2.13 Transcribing the empirical data

Transcribing is an effective way to review the gathered data and to analyze the data further. Before each interview started, we asked for the interviewees consent to record the interviews. The purpose for each recording was to have the ability to recount each question, answer and discuss the interviews with each other in order to be able to analyze the sentences and terminology used to create a deeper understanding of the underlying context. According to Bryman (2011), having a transcribed material utilizes trustworthiness to the study. However,
we believe it enhanced our ability to correctly analyze the empirical data since we could go back and forth with the data.

2.14 Empirical data analysis

During the analyzing process of the empirical data we chose to use a thematic analytical approach. The reason for this is that by characterizing and categorizing different kinds of themes, the similarities and differences will be portrayed in a more simplistic and proper way so that the distinctions become clearer. Bryman (2011) describes it as the process of identifying and defining common themes from the collected empirical data. However, there is no true technique or background of how a thematic analysis should be conducted (Bryman and Bell, 2013). Bernard and Ryan (2003) argue that themes can be identified by linking them to the authors theoretical knowledge and the empirical data and hence forge the themes. Since our conceptualization of knowledge in chapter 3.2 and the different theoretical approaches that we have chosen are of great importance to the study we believe that themes are healthy for both us and the readers to orientate what has been done and said.

During our identification process of themes, we tried to find suitable themes that could help us and provide a guideline during our analysis progress. These themes were essential after the transcription of the empirical data which allowed us to sort and codify the empirical gathered data and then put it into these themes. This allowed us to work with a reduced amount of data since the codification and sortation focused on the essential parts of relevance to the purpose of this study and our research questions. The themes we identified was: Knowledge, Knowledge Management, Knowledge Transfer and Knowledge management strategy.

2.14.1 Operationalization

Our analysis was divided and conducted into three parts in a two folded analysis, knowledge transfer in ITIL organizations, factors that influences knowledge transfer and knowledge articles as knowledge transfer methodology. The first two parts knowledge transfer in ITIL organizations and factors that influences knowledge transfer were considered to represent the beginning of the two folded analysis where the purpose was to clarify how knowledge transfer was being utilized in the studied ITIL organizations and what factors influenced this transfer process. By connecting the literature, we had regarding knowledge transfer we could derive some differences and similarities which the respondents had and put it in an academic context. Furthermore, this did not only allow us to put empirical data and literature into relationship to identify the differences and similarities, but also finding variables that previously were not taken into consideration in the literature. This created a basis for the second end of the two folded analysis which involved having a combination of two theories, Boundary object theory by Star and Griesemer (1989) and theory of knowledge creation by Nonaka and Takeuchi (1995). The reason why we saw a potential of having these two theories combined came as a conclusion when the empirical data was gathered. By having previously encountered boundary
object theory during our academic years we saw the potential of using this theory as a ground pillar of communication methods through objects between groups of individuals. Since the object has a key role for the communication procedure (more thoroughly explained in chapters 3.8 and 3.9), we saw how objects could play a central part in the knowledge transfer procedure between these groups. However, in order to have the ability to discuss this matter we had to understand how different perspectives and relationships affected knowledge. This was done by conceptualizing knowledge and applying Nonaka’s and Takeuchi’s (1995) theory of knowledge creation together with boundary object theory. This resulted in the creation of our figure (figure 8 p.54) in chapter 3.10 which allowed us to have a full discussion on both sides of the two-phased analysis.

2.15 Ethics

When contacting and interviewing potential interviewees there is a need and a responsibility to take ethical aspects into consideration. According to Ryen (2007) there are no international agreements regarding what type of aspects that should be involved. However, there are some informal ethical issues that frequently occurs. Ryen (2007) presents these issues as ‘codes and consent’, ‘confidentiality’ and ‘trust’. We also added an additional element provided by Vetenskapsrådet (2002) which was roughly translated as ‘code of use’ because we found that this element added a further complementary factor to ethics.

Codes and consent refer to informing the participant about the purpose of the study and continuously informing the participant of the status of the study (Ryen, 2007; Vetenskapsrådet, 2002). Kvale and Brinkmann (2009) argue that in addition there is a need to inform the participant of the nature of the study and how their information will be processed. There is also a need to understand how much information one must give to potential participants. Sharing too much information about the study and other participants may harm the study itself, but also others who are involved (Kvale and Brinkmann, 2009). Furthermore, Vetenskapsrådet (2002) argues that if the participants do not feel like continuing with the study, they have the right to do so and quit. Having this in mind, we understood the importance of personal integrity, which imbued our selection process.

Confidentiality refers to the obligation of protecting participants integrity by limiting the information shared in the study that may identify the participant (Ryen, 2007). Furthermore, Bryman (2011) argues that the participant has the right to be anonymous. Kvale and Brinkmann (2009, pp. 88) asks the question “What kind of information should be available, and to whom.”. By answering this question, the researchers can understand what degree of anonymity that is required. However, according to Kvale and Brinkmann (2009) being anonymous has its consequences. While securing the participants integrity, there is a risk that the researchers can add words and sentences that they allegedly claim could be the participants. Henceforth, Vetenskapsrådet (2002) suggest that all kinds of material which contains sensitive information
regarding participants integrity should be gathered, stored and presented in such way where no individual person can or could be identified.

Trust refers to the relationship between the participant and the researchers, and that there is a consensus between them with the regards of not manipulating or destroying certain aspects of the generated empirical data (Ryen, 2007).

Code of use has according to Vetenskapsrådet (2002) two main rules. One rule is that all data gathered should only be for the purpose of the study and should not be used in commercial agenda. The second rule is that the data gathered cannot have an influence on the individuals’ social status without her/his consent. We believe that even if these rules are obvious in some sense, it is still important to highlight these issues.

2.16 Source Criticism

We are aware that we have some theoretical references that are of a certain age and will not disregard that. However, we believe that even if an age is present that does not mean that the material has insufficient characteristics. For each source have we checked if the material is still cited and if it is regarded as up-to-date by searching for newer researchers within the same area using those older references. We also checked each reference where the academic literature was published and what kind of reputation each journal had. The reason for this is to ensure that the paper had been recognized and accepted.

Our empirical data of ITIL can to some extent be seen as limited, since our major source is Agutter (2013). However, our literature research on the subject have shown us that since ITIL is a product, and a standardized framework, the body of literature regarding it is identical and repetitive. Our literature research on the subject gave us multiple sources such as:

- ITIL® Lifecycle Essentials: Your Essential Guide for the ITIL® Foundation Exam and Beyond by Claire Agutter, 2013
- ITIL® For Dummies by Peter Farenden, 2012
- ITIL Version 3 at a glance by Long, John O., 2008
- Introduction to ITIL by Norwich: TSO, 2005

After reviewing the above-mentioned literature, we came to the conclusion that they explain exactly the same things, in some cases word-by-word. Our choice was ITIL® Lifecycle Essentials: Your Essential Guide for the ITIL® Foundation Exam and Beyond by Claire Agutter, 2013 because of the availability and that it felt more serious than some of the others. The book touches upon exactly the same topics as the others, with the same content. Based on
our review and our choice we feel confident in using Agutter (2013) as our main source for explaining ITIL, primarily in chapter 4.1.

2.17 Summary

To summarize this chapter, we will briefly present what has been said in the methodological section. The methodological approach we have chosen to work towards was the abductive approach. An abductive approach allowed us to work iteratively with the literature and the empirical data which resulted in having the ability to complement those sessions if necessarily. The philosophical view which we adopted was the social constructionism which we believe gave a great insight of how social interpretations created the reality which we are living in. This view played a main part of the conceptualizing of knowledge since knowledge is a term which has a complex nature and hence results in having multiple interpretation based on social phenomena. Furthermore, in this study we chose to have a multiple case study which was conducted through semi-structured interviews. Finding suitable respondents were done through a targeted selection. The interviews, which were a total of six, were conducted at three different organizations, Organization A, Organization B and Organization C. All of the interviews were recorded and transcribed accordingly. When the data was transcribed, we used the data to do a thematic analysis. This allowed us to divide the data into different themes which simplified the analysis work.

We have also presented how case studies can increase the generalizability of a study. We previously discussed that there are misconceptions that qualitative methods have a tendency to lower the generalizability of studies which we have argued against. Furthermore, we have also chapters that takes ethical aspects into consideration. The purpose of this chapter was to show that the respondents’ integrity and personal information have been highly prioritized to ensure high convenience for them. Lastly, we have presented a methodological reflection where we describe how and in which way our study could have been conducted differently to improve its quality.
Chapter 3. *Theoretical frame of reference*

In this chapter we will provide a conceptualization of knowledge by introducing different perspectives of knowledge and how it can be interpreted. After that we will highlight different types of knowledge, as well as introducing the concept of organizational knowledge. The chapter will continue with a presentation and discussion regarding valuable knowledge. We will also provide information of knowledge management and how it is applied in ITIL. Lastly, two theories are described in this section, Nonaka’s and Takeuchi’s (1995) theory of knowledge creation and Boundary object theory by Star and Griesemer (1989). These theories are then combined to assist with the knowledge transfer procedure in the analysis, which ends the chapter.
3.1 Brief introduction to knowledge from a perspective of social constructionism

We find the perspective of knowledge from a social constructionistic perspective rather interesting and therefore we choose to discuss it from Berger’s and Luckmann’s (1966) discussion of the matter. The reason why we chose to add the authors discussion is to give a more concrete example of how the view of social constructionism reflects the reality we see and choose to interpret. In order to understand why knowledge and its fundamental characteristics differentiates one must state the obvious. We start off by quoting a few sentences from their book saying:

“I live in the commonsense world of everyday life equipped with specific bodies of knowledge. What is more, I know that others share at least part of this knowledge, and they know that I know this. My interaction with others in everyday life is, therefore, constantly affected by our common participation in the available social stock of Knowledge.”

- Berger and Luckmann (1966, p. 41)

They claim that if one has a certain knowledge about a certain thing, someone else might have a small part of this knowledge within them as well. Even if this is the case, it does not mean that others will see it that way if they do not share similar knowledge of the matter. For instance, if one recognizes themselves as poor, and acknowledges the fact that they are, the expectation of living a more fortunate lifestyle decline. This mental model is shared with others that are in a similar stance. However, this might not be the case if a foreigner comes and sees the state of these persons since the poverty state is recognized as lower in his or her society (Berger and Luckmann, 1966).

Knowledge is also affected by the concept of familiarity which is also part of our reality. The knowledge is structured by what one recognizes of the everyday routine (Berger and Luckmann, 1966). Meaning if instances occur which are familiar to the person, he or she will hence know how to act on these instances. This further implies that everyone has their own logic of familiarity and sees it differently as well. One person's logic might be less logical to someone else.

Validity influences knowledge as we know it. According to Berger and Luckmann (1966) the knowledge that one has is valid until proven otherwise. Meaning that until a problem arises that cannot be solved with the current knowledge it will still be valid until proven otherwise, which will make it invalid. This implies that I as an individual will suspend all doubts accordingly until the matter changes.

Knowledge is also structured to relevance of everyday life. The authors mean that these interests are a result of interests to the particular individual in a general matter. Thus, this implies that occasions where for instance, a company fails without one having stock ownership will not be
of relevance to me and hence not be of interest. However, these interests can be intersected with others if one shares the same interests which results in conversations with each other. This can also reflect how we perceive the society (Berger and Luckmann, 1966).

Lastly, Berger and Luckmann (1966) discusses how knowledge is socially distributed. This can be somewhat linked to their first discussions of knowledge embodiment where one has a certain knowledge that others may also have. The difference here is that there is a socially constructed society where expertise is searched by individuals that possesses a certain knowledge that might be complex for others.

All these insights of knowledge provide a basic understanding of how knowledge can be interpreted and understood from different points of view, and in different contexts. Showing that what is knowledge for one individual might be unclear for another and will therefore not be understood as knowledge for that particular individual. This is a view that we share, and the purpose of this chapter is to enlighten our readers of this conception, showing that knowledge is not a fixed defined term and that it has a depth in multiple levels which will be discussed in chapter 3.2.

3.2 Conceptualization of data, information, knowledge and wisdom

In order to fully understand the knowledge management phenomenon, we argue that a thorough and complete description of ‘knowledge’ is required. In this section we will collect and analyze different definitions and understandings about ‘knowledge’.

Our approach to create a definition of knowledge will start out by eliminating what knowledge is not. Rowley (2007) means that a common and often quoted model used to conceptualize knowledge is the DIKW-model (Data, Information, Knowledge and Wisdom) which can be seen in figure 2. This model separates knowledge from data, information and wisdom. The model emphasizes that these different types are isolated from each other, hence the classification and separation. However, Rowley (2007) argues that the types in the model to some extent are interconnected. The reason for that is because the model is formed as a hierarchy, where aspects such as ‘meaning’, and ‘value’ determine where something is placed in the hierarchy. However, Rowley (2007) argues that “wisdom” is seldom used in the conceptualization of knowledge since it is not clear if it stems from information and knowledge, that is why we have chosen not to include it in our conceptualization of knowledge. Due to the high level of abstraction, we choose to use the model as a way to visualize the four categories, which we believe will make this conceptualization clearer.
Based on the DIKW-model presented by Rowley (2007) we can start off by distinguishing that knowledge is not the same as information, data or wisdom. However, Dastyar et al., (2017) describe that knowledge is often seen as a term that is closely linked to data and information, but the concept of knowledge is broader than that. The authors argue that a “complete” description of knowledge includes more than information and data (which we will explain in this conceptualization). That is why we will adopt a similar mindset as Dastyar et al., (2017) and manage knowledge as something beyond data and information. Our approach is to present, analyze and discuss these different concepts separately, in order to penetrate the true meaning of them. The following sections will follow the same structure as the DIKW model, besides wisdom (figure 2).

When discussing these concepts, we will not relate them to a concept that is not discussed yet. For example, in the discussion about data we cannot incorporate information. In order to correlate the concepts to one another we must first establish them on an individual basis, once the concepts have been established, we can relate to it. For example, when data is established, we can incorporate it in the discussion about information.

3.2.1 Data
According to Becerra-Fernandez and Sabherwal (2010) data is seen as a raw representation of numbers that are concluded from a certain context of facts, observations or perceptions of the context. Davenport and Prusak (1998) add that these facts are discrete and objective, at least until they are interpreted or processed. They also mean that data by itself does not contribute any relevance or value before it is interpreted. Rowley (2007) adds to the discussion by citing a statement that data is “know nothing” until it is processed. In Rowley’s own conceptualization of data, she chooses to use Russel Ackoff’s description of data, which she defines as follows:

“Data are defined as symbols that represent properties of objects, events and their environment. They are the products of observation. But are of no use until they are in a useable (i.e. relevant) form. The difference between data and information is functional, not structural.”
Even though the definition provided by Rowley (2007) is built on Russel Ackoff’s explanation of data, we believe that the definition is a bit misguided in this state of our conceptualization since it refers to information. Liew (2007) does however bring some clarity to the discussion. The author has done a thorough compilation of different definitions of data. His conclusion is that data is something that are recorded and stored. He also mentions ‘symbols’, but gives a further explanation that symbols very well can include words, both text and verbal. It can also be numbers, diagrams, images and videos, more or less everything that can be seen as a building block of communication. Liew (2007) also adds that data are a set of discrete, objective facts that are elements of analysis.

Based on the above discussion, our building blocks for conceptualizing ‘data’ are the following:

- A set of symbols and facts
- Discrete and objective
- Requires interpretation, analysis or processing in order to become meaningful
- Is seen as a part of a whole
- It is stored

3.2.2 Information

Rowley (2007) defines information as something that can be described, or is descriptive, and most fundamentally can answer questions starting with “who”, “what”, “when”, “where” and “how” many. The author argues that in the information stage data is now structured and becomes meaningful and significant, which in turn allows the human brain to create cognitive structures about data. Becerra-Fernandez and Sabherwal (2010) also imply that information has a relevant purpose, which has a contextual meaning. Rowley (2007) chooses to explain the relation between data and information by stating that data becomes information when it becomes “in formation”, i.e. structured. Liew (2007) adds to the discussion that information is data that is processed, formalized, packaged and contextualized. One important aspect of information is the discussion regarding that it is “structured” or “in formation”. Dixon (2000) argues that those words imply that the data is sorted, which we believe is another important facet of the phenomenon, and needs to be added into our conceptualization. Liew (2007) and Dixon (2000) help us understand that information comes from stored data that are refined, sorted, structured and placed into a context, that creates meaning for the receiver.

One fundamental difference between data and information is that information creates meaning. Meaning is subjective, and could very well be a topic of discussion on its own. However, the discussion regarding that information creates meaning highlights an important factor, which is that there is a receiver of information. Dalkir (2005) means that information is the message of data, which can be a document, a video, or a recording, that is ready to be interpreted by a receiver, by applying individual understanding on the message. This perspective is in line with Davenport and Prusak (1998), they conceptualize information as a message, with a sender and
a receiver. They argue that, for something to be labeled as ‘information’ it must inform, i.e. give shape to the receiver, or create further value. This basically means that information is defined by the content of a message in relation to if a receiver perceives as informative. We believe that this discussion is providing an additional dimension of information.

Davenport and Prusak (1998) talk about the importance of information ‘informing’, and Rowley (2007), labels it as ‘meaningful’ or ‘significant’, whatever label one chooses to use, it clearly emphasizes that there is a sender and receiver.

Based on the above discussion, our building blocks for conceptualizing ‘information’ are the following:

- Data that has been structured, processed or formalized in a way that one can draw new conclusions from it
- It is contextualized in that sense that it exists with a contextual purpose
- It is a message that has a sender and a receiver
- It is significant, valuable or meaningful
- Can answer questions starting with who, what, when, where and how many

3.2.3 Knowledge

Based on our problem, purpose and our overall focus on knowledge transfer we see the conceptualization of knowledge as extra important. The structure for this section will therefore be different. We will start off by providing a discussion about the concept and highlight key words. When that is done, we will extend the concept of ‘knowledge’ further by explaining different types of knowledge, how they differ, and why it is important to differentiate them from each other.

To start off the conceptualization of knowledge we will go back to its roots. Nonaka (1994) conceptualizes the traditional views on knowledge, but with a modern language. The author refers to knowledge in terms of traditional epistemology (based on Plato), which puts knowledge in relation to beliefs and the truth, especially that knowledge is seen as the “justified true belief”. The author argues that in the modern knowledge society, a more dynamic viewpoint of knowledge and belief may need to be taken, which we will come back to in the next paragraph. Traditionally, the truth about something is made up by personal beliefs, and acts as a justification. Nonaka’s (1994) standpoint argues that “the truth” and personal beliefs constitutes knowledge, and is a mix from an objective and subjective standpoint, which is illustrated in figure 3.
Nonaka (1994) believes that the traditional epistemology view on knowledge may need to be more dynamic today. For example, Turri (2012) argues that most philosophers today will say that the traditional view, that knowledge is a justified true belief, is not sufficient enough to explain knowledge. We will not go into depth why, but the author argues that incorporating intellectual abilities is needed to support the traditional aspects of justification, truth and belief. The author refers to intellectual abilities as a mean to justify “the” true belief. This means that the intellectual abilities influence what a person justifies as the true belief, hence what the subjective truth is. From this perspective intellectual abilities are seen as a part of knowledge. What Turri (2012) describes about knowledge is something that Nonaka (1994) touches upon as well. Nonaka (1994) explains that the traditional ontoepistemology view is not sufficient enough to explain knowledge, or knowledge creation. The author argues that the traditional view is more absolute, static, and does not incorporate the human. This leads to the fact that knowledge should include the human, in that knowledge is seen as a justification of personal beliefs, rather than the more traditional focus on truthfulness. This dynamic process is seen as a way to guide towards the “truth”. Both Nonaka (1994) and Turri (2012) argue that there is a need to include aspects of the individual perception in order to understand knowledge. Our takeaway from this is that the authors emphasize the importance of “real knowledge”, that is knowledge, which is actually confirming reality, i.e. the truth. The human part is a tool or a mean to refine the justification and reflect the reality to the greatest extent. The truth cannot be identified from mere observations and perceptions, but must be processed by an additional intellectual dimension, which could be skills, experiences, insights, etc.

We understand that the traditional epistemological view is an important dimension of knowledge. However, in order to form an understanding which is suitable in our study we need to explore those “human” aspects connected to intellectual abilities, and thereby shift our focus from an abstract viewpoint to a more concrete and practical one. Our approach is to incorporate organizational and management literature that deal with knowledge in our conceptualization.

We know from our conceptualization of information that information is a structured and contextualized message which needs to be informative, or meaningful to the receiver (Becerra-
Fernandez and Sabherwal, 2010; Dalkir, 2005; Davenport and Prusak, 1998; Rowley, 2007). That information needs to be interpreted by the receiver, which is where knowledge comes in. Davenport and Prusak (1998, p. 5) define knowledge as:

“Knowledge is a flux mix of framed experiences, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms.”

An important aspect that the authors highlight is that this definition of knowledge is a tool to understand knowledge in organizations, hence not the broad concept of ‘knowledge’. We do not see that as a problem, since the aim of this study is to understand it in an organizational setting.

Rowley (2007) conceptualizes knowledge as “know-how”, which implies that knowledge makes the transformation from information into human actions possible. Liew (2007) highlights multiple sources that perceive knowledge as closely connected to the human. From Rowley (2007) and Liew (2007) we can see that the human aspect that Nonaka (1994) and Turri (2012) talked about also influences knowledge in an organizational setting. However, it does not concern or include how justification, truth or personal beliefs are incorporated. From Liew’s (2007) expressions like applying experiences and insights to information, or that knowledge is “actionable information”, which is information that an individual can apply experiences on imply that it is a way to “develop” the justification of the true belief. However, Dixon (2000) chooses to explain knowledge as the connection individuals make between information and its application, in the form of actions. From Liew’s (2007) perspective it seems like the information itself is something that is regarded as knowledge, since the author calls knowledge “actionable information”. We believe that from this perspective the information is in the center, and not the human. What Liew (2000) tells us is that there is a prerequisite that the information must meet certain criteria, i.e. be rich enough to be actionable.

One common denominator that we have identified (Liew, 2007; Dixon, 2000; Rowley, 2007) so far in this conceptualization is that regardless of definition or explanation, knowledge is strongly related to actions, or rather the ability to perform an action based on information. We can also see aspects such as human action, applying experiences, skills, insights, etc., which in our opinion are highly bound to the individual. There is no hesitation that skills and experiences are something that an individual possesses, but the question is what attributes of those aspects are connected to knowledge. From Nonaka (1994) and Turri (2012) we argue that the main attribute of a skill or an experience is that it gives the individual justification or a belief that a certain action or understanding of something is the “truth”, or the best for the situation. What this practically could mean is something that we will cover in the next paragraph.
Becerra-Fernandez and Sabherwal (2010) add even more valuable insight to the concept of knowledge. They argue that knowledge by itself can help converting data to valuable information, or make less valuable information more valuable. The authors emphasis that knowledge enables action, which in an organizational setting often refers to decision-making. However, they argue that it is not knowledge by itself that drives action but rather the application of knowledge on data and information, which can be seen in figure 4.

![Figure 4. Knowledge, value and decision. Inspired from Becerra-Fernandez and Sabherwal (2010).](image)

An important aspect to keep in mind with Becerra-Fernandez’s and Sabherwal’s (2010) explanation of knowledge is that they are putting knowledge in a practical situation. They explain knowledge in terms of how it functions in an organization, rather than explaining the philosophical attributes of it. However, we believe that this perspective is important in order to understand and conceptualize knowledge. What we can see from figure 4 is that the application of knowledge on information and data creates a “valuable” decision. Data and information can have different potential to create valuable decisions, and the application of knowledge can enhance the value.

In order to wrap this conceptualization up, we will in this paragraph do a short summary of what we have established. Knowledge as a concept can be described as an insight, experience or skill, that can be applied on information and data in order to enrich it and enable actions. When an individual applies these aspects on information and data the individual creates a justification and builds a personal belief that the action is the right one, which is represented by truthfulness. From an organizational standpoint these actions are often times observed in the shape of decisions, i.e. what to do in a specific situation. The value of knowledge is many times referred to as how good of a decision that can be taken from certain information and data. How good of a decision that can be made depends on the setting, but also what the information or data stems from. However, Nonaka (1994) argues that the epistemological perspective of knowledge justifies the true belief, where the true belief is the best possible decision according to the justification of the decision-maker.

We believe that an overall picture of knowledge is important to highlight. We are aware that some of the building blocks listed below may be understood as contradictory in nature. However, we choose to include them anyway since the purpose of this conceptualization are partly to convey how knowledge can be understood, but also to act as a scientific framework.
for analyzing how our case organizations views and understands knowledge. Based on the above discussion, our building blocks for conceptualizing ‘knowledge’ are the following:

- Individual characteristics such as experiences, insights, skills and contextual information
- It drives action or helps in decision-making
- Its value is based on the possible decision to be made
- Justified true belief
- Has both a subjective and objective dimension
- There must be information involved, that is rich enough for the receiver, at least in the usage of knowledge

3.3 Different types of knowledge

Knowledge cannot be seen as an isolated concept that means the same thing at all time. That is why knowledge often times is categorized into different types of knowledge such as explicit and tacit knowledge (Nonaka, 1994). In this section we will go through those types and how they are seen in relation to each other.

3.3.1 Explicit knowledge

Explicit knowledge is explained by Lahti and Beyerlein (2000) as knowledge that can be seen as codified and formal. According to the authors explicit knowledge is a type of information, but just as we talked about in our conceptualization of knowledge, the information is in a richer state because its core meaning is understood. The formality of explicit knowledge can also be explained as methodical, since it can be explained in books, archives, repositories, databases, etc. Becerra-Fernandez and Sabherwal (2010) give a good example of how one could understand explicit knowledge. They mean that explicit knowledge is knowledge that has been expressed, which can be referred to as both words and numbers. One significant aspect of explicit knowledge in comparison to other types is that its state does not have to be particularly refined. Explicit knowledge can therefore be in the shape of information or sorted data (Becerra-Fernandez and Sabherwal, 2010). We know that this is not in line with what we described in our conceptualization of knowledge. However, even though explicit knowledge can be sorted data or information, it creates meaning for the person who uses it. One could argue that the skills, experiences, insights, etc. that may be needed to make knowledge out of information is “embedded” in the information or data, or is not needed in order to understand it. Becerra-Fernandez and Sabherwal (2010) give a great example of this. Let us say that you are about to make some investments in the stock market and search a book or software on how to perform a market analysis, and give you a go or no go on a stock. The book/software presenting this to you is in the shape of information or sorted data, but you can make a good decision out of it, and you do not really have to have any experiences, skills or insights, you can merely trust the information. One could ask how this could be classified as knowledge. The authors explain that the principles of a stock market analysis are justified beliefs. We believe this is a great example
of explicit knowledge. However, if some elements of how this conclusion could be made were part of the information, it should be seen as tacit elements.

Lahti and Beyerlein (2000) talked about the codification possibilities of explicit knowledge, which is something Nonaka (1994) adds to. The author talks about the possibilities of digitizing explicit knowledge. We believe that this is an important insight since knowledge transfer often is referred to as different digital repositories and databases, but seldom is there a distinguish of what type of knowledge that could be. Explicit knowledge can be summarized as a formal, codifiable and descriptive, that can be verbalized, that is rich and does not need any complex interpretation to understand. Examples of explicit knowledge could be; books, guides, instructions, wikis, procedures, video tutorials, etc. The opposite of explicit knowledge is tacit knowledge, which we will go through in the next section (3.3.2).

3.3.2 Tacit knowledge

Tacit knowledge can be described as knowledge that can be categorized as insights, intuitions, and hunches. Just as one could imagine is this type of knowledge hard to share and formalize (Becerra-Fernandez and Sabherwal, 2010). Another characteristic of tacit knowledge is that it is highly bound to the individual, and is often created through individual activities, observations and experiences (Becerra-Fernandez and Sabherwal, 2010; Lahti and Beyerlein, 2000; Nonaka, 1994). Referring back to the example with the stock market analysis, tacit knowledge would have been embedded with the person writing the book, or creating the software that helped the person make a decision in buying stocks.

Nonaka (1994) adds something interesting to the discussion of tacit knowledge. The author means that tacit knowledge contains both cognitive and technical elements. The cognitive elements are referred to as “mental models”, which means that individuals create models of the world around them in their mind. The models contain understandings, paradigms, beliefs and viewpoints that provides a perspective that guides the individual in understanding the world. Thompson (2017) explains that mental models can be seen as a mental representation of the world that allows people to understand, predict and solve problems in specific situations. The technical element of tacit knowledge is described by Nonaka (1994) as more concrete elements, such as know-how, crafts and skills, and how to apply this in different contexts.

Dalkir (2005) argues that the ‘value’ of knowledge is oftentimes connected to how tacit it is. Since tacit knowledge is much harder to communicate, codify and store compared to explicit knowledge, it is often considered to have a higher value. When talking about tacit and explicit knowledge it is important to keep in mind that tacit knowledge is rather subjective. What one person believes is hard to articulate (more tacit), might be easier for someone else (more explicit) which leads us into the next section, explicit and tacit knowledge in relation.
3.3.3 Explicit and tacit knowledge in relation

An important aspect to highlight when discussing explicit and tacit knowledge is that they are not necessarily individual and isolated types of knowledge. One can argue that they are both two categories of knowledge (isolated from each other), or an interrelated dimension of knowledge (not isolated from each other) (Jonsson, 2012).

The above discussion is clearly dividing tacit and explicit knowledge into different categories of knowledge. Lahti and Beyerlein (2000) argue that tacit and explicit knowledge should be seen as two ends of a knowledge continuum, as can be seen in figure 5. From this perspective, the same piece of knowledge can be both explicit and tacit, but to different degrees. We know that knowledge aims to help make the best decision in different situations. Various explicit knowledge can help with this decision-making. Let us say that a consultant is set out to help an organization decide on how they should re-organize their work. If the consultant hands out a report in form of a document, the explicit knowledge is at one level, and the organization can use it to shape the decision-making. But if the consultant on the other hand have a presentation with a powerpoint, explaining with words how the organization should move forward, or includes individual experiences and insights in the document, the explicit knowledge is arguably “more tacit” and might help the organization further with their decision-making. That is what Lahti and Beyerlein (2000) is arguing with their model in figure 5.

Lahti and Beyerlein (2000) explain that it is important to keep in mind that knowledge can be different degrees of explicit and tacit. However, the authors propose that one should keep it simple and regard them as mostly high and low. The reason is that it gets too complex to define exactly where the different types are located at the scale. We also believe that it is important for our paper to have an insight in the relationship between these two types of knowledge, since reality is seldomly as black and white as it is portrayed by Jonsson (2012) explanation that they could be seen as two separate categories.

To end this section, we would like to point out an important aspect regarding explicit and tacit knowledge. Alavi and Leidner (2001, p.112) mean that:
“Tacit knowledge has received greater interest and attention than has explicit knowledge, and yet the former is not alone in providing both benefits and challenges to organizations. Explicit knowledge may pose a particular challenge related to an assumption of legitimacy by virtue of being recorded (Jordan and Jones 1997). This could lead to decision makers favoring explicit knowledge, at the expense of contradictory tacit knowledge, because it may be viewed as more legitimized and, hence, justifiable. Moreover, given the ephemeral nature of some knowledge, explicating knowledge may result in a rigidity and inflexibility, which would impede, rather than improve, performance.”

This is something we believe is important to highlight since we have noticed that it is hard to distinguish between tacit and explicit knowledge, and that it is not always as clear of distinction as one would wish.

3.3.4 Individual and organizational knowledge

Since we are researching knowledge in an organizational setting, we believe that it is important to include a discussion and present the different perspectives on individual and organizational knowledge. Bhatt (2002) argues that individual and organizational knowledge are two separate things, and should be treated and understood as such. However, the author means that they are interdependent since the two types of knowledge interact with each other in the organization.

Bhatt (2002) describes that organizations by themselves do not have the capability to learn, instead it is the individuals in the organization that learns and hence create a collection of knowledge in the organization. Nonaka and Takeuchi (1995, p.59) add to this by stating:

“In a strict sense, knowledge is created only by individuals. An organization cannot create knowledge without individuals. The organization supports creative individuals or provides contexts for them to create knowledge. Organizational knowledge creation, therefore, should be understood as a process that “organizationally” amplifies the knowledge created by individuals and crystallizes it as a part of the knowledge network of the organization. This process takes place within an expanding “community of interaction,” which crosses intra- and inter-organizational levels and boundaries.”

However, Bhatt (2002) proposes an alternative view where organizations can have knowledge by itself, i.e. organizational knowledge. The type of knowledge that the author talks about is learning capabilities embedded in routines and organizational repertoires. Bhatt (2002, p. 32) is framing organizations as “a problem-facing and problem-solving entity”. How the organization learns is affected by what type of tasks there is and how complex these tasks are, but also the organizational culture in which these tasks are performed. The reason Bhatt (2002) assumes this perspective is because organization’s today many times require the individuals in it to take fast decisions, have a customer-focus and solve problems fast and efficient. The author continues and means that routines in an organization is a type of knowledge. This type of knowledge is created by the individuals in the organization. How to solve routine problems, or
low-complexity tasks is not something that should be bound to the individuals, instead it should be seen as routine problem-solving embedded in organizational routines.

Regarding the type of knowledge that Bhatt (2002) explains should be captured in the organization, and hence become organizational knowledge is not something that will be collected automatically. Nonaka (1994) explains this by saying that the knowledge individuals in an organization possesses but is not shared with others will have minimal effect on the organizational knowledge. A result from that is that management in an organization needs to emphasize and facilitate interactions between individuals in the organization, and by that stimulate that individual knowledge is “internalized” and stored within the organization, in order to contribute to the organizational knowledge. What Nonaka (1994) explains does provide a good sense of understanding regarding the interdependence between organizational and individual knowledge that Bhatt (2002) talked about. We believe that the discussion regarding individual and organizational knowledge provides a good understanding of how knowledge can be seen from these two perspectives. It also provides an understanding on what type of knowledge that could be seen as organizational and/or individual. We believe these insights will help us understand the more strategic and cultural aspects of how our studied organizations manage their knowledge transfer.

3.4 Value and valuable knowledge

One important aspect that we have identified in our literature review regarding knowledge, knowledge management and knowledge transfer is that these aspects often have the word ‘value’ related to them (See for example: Zack, 1999; Trusson et al., 2014; Nonaka, 1994; Conger & Probst, 2014, Alavi and Leidner, 2001, Becerra-Fernandez & Sabherwal, 2010, etc.). In this section we aim to highlight some perspectives regarding the ‘value’ in knowledge, and what previous research and different authors think about it.

Trusson et al., (2014) explain that the discussion regarding how to transfer knowledge is divided. The authors argue that ‘value’ is connected to different perspectives on how knowledge should be transferred. Trusson et al., (2014) describe the perspectives: the optimists and the pessimists. The optimists argue that the value of knowledge is realized when the knowledge is extracted from the individual and transferred into the organization, many times in a database or repository. The pessimists argue that the true value of knowledge only can be realized when there is a social interaction between individuals. These two perspectives are based on the question if knowledge can be transferred by codification and thereby be put in an information system, as the channel for knowledge transfer. Or if knowledge transfer only can happen by socialization.

Trusson et al., (2014) is categorizing valuable knowledge based on its placement, i.e. stored in information system or in the individual. Nonaka (1994) is conceptualizing valuable knowledge in terms of the actual knowledge. The author explains that valuable knowledge needs to be
defined by the organization itself, the work conducted and the strategical goals with the knowledge. Nonaka (1994) highlights some aspects that often is kept in mind when valuing knowledge. Aspects such as truthfulness, beauty, goodness, cost and ROI (Return on Investment). We believe that the aspects Nonaka (1994) contributes with are important in our understanding of valuable knowledge. We argue that aspects such as “beauty” and “goodness” are rather vague, and does not provide a clear understanding of what they really symbolize, more than stating that they are connected to qualitative factors. However, cost and ROI are aspects that Nonaka (1994) explains as economic factors which we believe are easier to understand. Conger and Probst (2014) have a similar approach to what valuable knowledge is. They argue that the ‘value’ in knowledge is what you can do with it. The authors mean that the value stems from the analysis, decision-making, problem-solving and teaching that can be made from the knowledge. This gives valuable knowledge an additional dimension in form of application. This is something that Teece (1998) agrees to as well. The author means that knowledge becomes valuable based on the deployment and use of it. Just as we explained in our conceptualization of knowledge (chapter 3.2.3), Becerra-Fernandez and Sabherwal (2010) does also explain the value of knowledge as the decision that can be made from it. Their take on valuable knowledge relates to knowledge that can be applied on the information and data that an organization has, and what decisions that can be made from it. Their perspective does not value knowledge itself, but instead view knowledge as an enabler for creating value, based on the decisions that can be made from the information, or data that knowledge can be applied to.

Alavi and Leidner (2001) add an important dimension to valuable knowledge by including what is not valuable and how the individuals in an organization should treat knowledge. They mean that the first and foremost aspect an organization must clarify is the difference between data, information and knowledge, in order to understand what knowledge is in the organization and how to manage the different types. Secondly Alavi and Leidner (2001) mean that knowledge exists within the individuals in an organization, therefore the knowledge must be in a form that can be interpreted by the receiver in such manner that it can be used, and preferably in an effective manner. Through reflection, learning and enlightenment the individuals need to continuously learn what knowledge that is valuable for the business, and thereby is useful for the organization. Alavi and Leidner (2001) do also bring the information system aspect of valuable knowledge to the mix. They mean that the culture of sharing knowledge in an organization will determine the value of having knowledge in information systems. The reason is that when an organization has a culture of sharing knowledge, the context where the knowledge is needed is not as important. Let us say that a problem occurs in an organization with great knowledge sharing, the context of the problem is not as important, hence can the person dealing with the problem use the information systems in place to solve the problem. An important note to this is that the authors are mainly talking about explicit knowledge. On the other hand, if an organization does not have a culture of sharing knowledge, then the context becomes extremely important, and thereby information systems will not be as helpful.
Zack (1999) is focusing on valuable knowledge in relation to its outcomes, even further than the decisions that can be made from it. The author is having a customer-oriented perspective on knowledge, which we believe will fit into our study since we are studying IT-service organizations. Zack (1999) means that the ‘value’ in knowledge is directly related to the value it brings the customer, in our case the core business. The knowledge creating and sharing entity does not need to be concerned about what knowledge it is or how it is used, as long as it contributes value to the customer.

This section has highlighted multiple perspectives on when knowledge is valuable, but also what type of knowledge that is valuable. We are aware of the fact that there are more perspectives to what valuable knowledge are. However, we believe that these perspectives to some extent encapsulates the different understandings of “valuable knowledge”.

3.5 Knowledge management

Some authors see organizations as knowledge systems that distribute and stream knowledge, where the individual works as an autonomous entity interpreting and understanding the knowledge in collaboration with other individuals (Becerra-Fernandez and Sabherwal, 2001). Others discuss the term “collective mind” and pinpoints that the organization works as an institution where individuals coordinate actions with themselves. Furthermore, collective mind emphasizes knowledge repositories in favor of interrelationships.

By combining these views, the organization can then be seen as what Becerra-Fernandez and Sabherwal (2001) refer to as a knowledge-integrating institution working as an integrator of knowledge of various groups of individuals in the process of converting goods and services. These integrations can occur through organizational routines, processes or directions which involves the sharing of explicit or tacit knowledge. Becerra-Fernandez and Sabherwal (2010, p. 56) define knowledge management as:

“...performing the activities involved in discovering, capturing, sharing and applying knowledge so as to enhance, in a cost-effective fashion, the impact of knowledge on the unit’s goal achievement.”

This can hence be categorized into four processes which Becerra-Fernandez and Sabherwal (2010) present as Discovery, Capture, Sharing and Application.

Discovery is seen as the fundamental area of knowledge creation. Knowledge creation defines itself as “a constant process through which the knowledge created by individuals becomes available and augmented within an organization’s knowledge systems” (Mehralian, Nazari and Ghasemzadeh, 2018, p. 804). According to Mehralian et al., (2018) knowledge creation consists of a combination of both explicit and tacit knowledge. On the contrary, Becerra-Fernandez and Sabherwal (2010) describe the discovery of new explicit knowledge likely to consist of a
combination whereas the discovery of new tacit knowledge is part of the socialization concept. The important aspect to keep in mind is that knowledge creation is the process of making knowledge available, and when someone is accessing this knowledge it shifts to knowledge transfer. This will be further explained in Nonaka’s and Takeuchi’s (1995) theory of knowledge creation in chapter 3.8.

Knowledge capture is defined by Becerra-Fernandez and Sabherwal (2010, p.59) as:

“...the process of retrieving either explicit or tacit knowledge that resides within people, artifacts, or organizational entities.”

This involves both tacit and explicit properties which can be found within an individual’s mind without having the potential to share the knowledge to others, but also in manuals explicitly where few individuals are unaware of the explicit information. In order to capture both tacit and explicit knowledge Becerra-Fernandez and Sabherwal (2010) describe that this is mostly done by Externilization and Internalization which are part of Nonaka’s and Takeuchi’s (1995) theory.

Knowledge sharing/transfer is according to Becerra-Fernandez and Sabherwal (2010) the process where the exchange process of tacit or explicit knowledge is communicated between other individuals. However, there have been arguments regarding the definition of knowledge transfer and its complexity. Some authors like Szulanski (1996) suggests that a simple understanding of a sender and receiver is enough to qualify a decent definition, while others believe this definition is insufficient and requires a more detailed description. Ko et al., (2005) argues that the key aspects which are defined within knowledge transfer is movement and the application of knowledge. They include these variables and embed them within their definition of knowledge transfer which is defined by Ko et al., (2005, p. 62) as:

“...communication of knowledge from a source so that it is learned and applied by the recipient.”

According to Becerra-Fernandez and Sabherwal (2010) the fundamental of knowledge transfer is its effectiveness and how the receiver of the knowledge can interpret it and act on it. The authors further discuss that depending on if the knowledge is tacit or explicit either socialization or exchange process is used. The exchange process mainly focuses on transferring explicit knowledge by communicating knowledge among individuals, groups and organizations.

Lastly, knowledge application is a dependent variable and a consequence of the previous processes. If the previous processes have been gradually positive, then the use of the knowledge will be enhanced (Becerra-Fernandez and Sabherwal, 2010). The “use” dimension does not advocate to understand the basis of the knowledge but more of a guide to use the knowledge that has been already established. The authors divide this utilization in two parts direction and routines. Direction means that an individual can use a certain knowledge and guide another
individual without transferring the actual knowledge to the targeted individual. Routine on the other hand involves knowledge embedded within the organizational structure such as rules and processes. Communication is part of the routines that are established in the organization which enforces knowledge through embedded procedures and technologies. Zhang (2017) describes application/use as a two-stated phase where it can either be seen as lean or rich. Lean use is the understanding of technology use, its frequency and duration, whereas rich use focuses on the cognitive absorption between a user and the technology, which is in a similar context as the previous authors understanding of the matter.

3.6 Information Technology and Infrastructure Library (ITIL)

In this section we will present a brief history of ITIL and an overall description of what ITIL is. We will end this section by going into more depth regarding ITIL and knowledge management/transfer. This section is placed in the empirical data chapter since our perspective on ITIL is that it is a product and not previous research.

3.6.1 History of ITIL

Agutter (2013) explains that ITIL is the most common Information Technology Service Management (ITSM) framework, which is the reason we are directing our focus towards ITIL as the ITSM framework. The author means that ITSM has become an important aspect in today’s organizations, since the great use of information systems. ITSM is a way to structure the IT department in order to be as effective and efficient as possible through processes and a customer-focus. ITIL has throughout the years released three versions and is on their way of releasing ITIL version 4, in Q1 of 2019 (Axelos, 2019).

Among many different ITSM frameworks ITIL is the most adopted one (Marrone et al., 2014). The authors explain that ITIL constitutes of different ‘best practice’ models, processes, roles, and concepts which are used in order to structure, maintain and steer an IT-service organization, and hence deliver business value.

3.6.2 The ITIL framework

Agutter (2013) explains that ITIL constitutes of four main areas; Service Strategy, Service Design, Service Transition and Service Operation. These four areas plus continual service improvements form the Service Lifecycle Diagram (figure 6). Within these areas there are multiple processes which Agutter (2013) describes as structured activities that are designed to achieve a defined objective by taking inputs and transform them into outputs. These processes, roles, systems and documents explain how the service is to be defined, managed and delivered.
Agutter (2013) explains that the service strategy is the hub of all other areas, its purpose is to define what the service organization needs to deliver to its customers. It can be seen as a bridge between the service organization and the core business where different agreements, plans and steering documents act as guidelines. The author describes that service strategy is acting at a higher level, with objectives such as defining the customer, understand what to deliver and what value to bring the business, identifying opportunities, and implementing processes.

Service strategy is surrounded by three other elements, service design, service transition and service operations. Agutter (2013) explains that service design is focusing on designing the services which are to be implemented. The design is created after the strategy is defined and communicated because it needs to be aligned with it. Focus in this area is to create processes, practices and policies for how the service is going to be conducted practically. Agutter (2013) explains that service transition is the phase where the design is going live in the organization and where supporting structures are making sure that the services meet the business goals and agreements that were defined in service strategy and service design. Processes and activities such as configuration management, service testing, knowledge management and change management are a big part of the service transition. Whether it is communicating and managing change, or knowledge that needs to be stored and transferred.

Service operations is described by Agutter (2013) as the final state of the service. When a service is live in the organization and the day-to-day work takes on, the organization is conducting service operations. This includes activities and processes which form the basis for delivering the agreed upon services. Some common processes in services operations can be problem management, incident management and event management. This part of the service lifecycle is directly focused on making sure that the core business is functioning as smoothly as possible. Agutter (2013) describes that the problem and incident management processes in the service operations are handled by a support unit which is divided into three different levels,
first-, second- and third line support. First line support deals with the immediate incidents and problems, often rather easy to handle, and is mostly dealing with problems, incidents, questions and requests in direct contact with the customer. The second line support handles what the first line cannot deal with, or do not have time with, which often is larger and more complex incidents and problems, called failed IT-services. The third line support is focusing on problems and incidents concerning hardware and software malfunctions, hence having a more technical perspective on problems and incidents.

3.6.3 ITIL - Knowledge management

The Knowledge Management process was introduced in ITIL version 3. Even though none of the studied organizations had this process implemented, we believe this section will provide a good understanding in what knowledge management and ITIL could be in relation. Agutter (2013) explains that the knowledge management process is placed in the Service Transition phase of ITIL. Agutter (2013) further argues that the knowledge management process is a supporting framework for effective service delivery. The process supports the service organization with information that is correct, available and directed to the right people. In order to deliver a high-quality service, there is a great need for the people involved to understand the situation, options, consequences and the benefits, such as possible effectivization, standardized ways of working, lower costs and better services (Best Management Practice, 2011b). Best Management Practice (2011b, p.181-182) argues that:

“The purpose of the knowledge management process is to share perspectives, ideas, experience and information; to ensure that these are available in the right place at the right time to enable informed decisions; and to improve efficiency by reducing the need to rediscover knowledge.”.

The author also explains that there are a wide range of benefits and values connected to a well-functioning knowledge management process, and the above-mentioned objectives. The benefits that Agutter (2013) states are better decision making, better control, less reliance on individuals, faster processes and overall efficiency in the IT department.

Agutter (2013) explains knowledge management as capturing data that the service organization needs, but also make sure that the collected data is accurate and creates value. The author explains that there are some basic activities that ITIL presents as important regarding knowledge management. Just as we described regarding the service strategy in ITIL (chapter: 3.6.2) an overall strategy is vital. The same goes for the knowledge management process. Agutter (2013) argues that everything regarding knowledge management needs to start off with a Knowledge Management Strategy, and defining the role of the Knowledge Manager. The knowledge manager defines the strategy, making sure that relevant knowledge is collected, analyzed, stored and transferred, and ensure that goals are realized. The author describes that the strategy should include a definition of what knowledge is, how it is going to be collected and how the service organization is going to maintain it. Best Management Practice (2011b)
describes that the knowledge management strategy should include goals and performance measurements with the knowledge management. Another important aspect is that the strategy should include how the knowledge management and knowledge transfer is to be conducted, i.e. how the process should be developed in order to be efficient and support the core business as good as possible. Another vital part of the strategy is defining roles and responsibilities. The last important aspect is to define the scope. Best Management Practice (2011b) explains that whatever degree an organization chooses to implement knowledge management, there should be a strategy in place. When the strategy is made the knowledge management process turns its attention to knowledge transfer with a specific focus on documenting and storing in different systems, databases and repositories. Both Agutter (2013) and Best Management Practice (2011b) explain that it is important to develop and maintain a Service Knowledge Management System (SKMS). This is a collection of databases, repositories and information systems containing knowledge for the whole ITIL organization, but most importantly the problem and incident management processes. The SKMS is according to both authors the main place for knowledge sharing among individuals within the ITIL organization, hence is it important to maintain it and update it.

Best Management Practice (2011b) describe knowledge transfer as an important activity throughout the whole service lifecycle. They mean that organizations always need to focus on retrieving, sharing and utilizing knowledge through problem-solving, learning, planning and decision-making. They argue that knowledge transfer needs to be seen as an activity where people or organizational units is able to learn from each other’s experiences, ideas and insights. Best Management Practice (2011b) explain that in order to transfer knowledge the organization and its individuals needs to know what knowledge to transfer. Best Management Practice (2011b) mean that knowledge transfer in ITIL traditionally was conducted through training and documentation. They mean that the technique used to conduct training and documentation can vary a lot. One common way is to make sure that a representative group of people gain the knowledge, and then let it cascade to others. Something Best Management Practice (2011b) is emphasizing a lot is how to make sure that the receiving end in a knowledge transfer understands the true meaning of it.

3.7 Previous research on knowledge transfer in ITIL

Some studies have been conducted on knowledge management and knowledge transfer within the ITIL framework previously. In this section we aim to present and discuss the topics and findings from them.

Conger and Probst (2014) argue that knowledge transfer in ITIL is complex and hard, even though a lot of knowledge transfer in ITIL can be conducted in a standardized way, such as documentation and templates, there are certain areas in ITIL that needs to have a more comprehensive knowledge transfer. The authors explain that one of these areas is the service/help desk, which is fitting since we have chosen to put extra focus on service/help desk in our study. Conger and Probst (2014) mean that the service/help desk is in charge of providing
services for incidents, problems, failures and requests, which requires both general and specific knowledge, hence is the knowledge transfer an important part in the service/help desk. Gilbert et al., (2007) does also emphasize knowledge management in the IT support in their white paper on the same subject. They mean that a key aspect in delivering a good and effective service is that the personnel should capture and share knowledge and skills. From their experience there must be a formalized and stated knowledge management process that enhance the capturing and harness of an IT-service organization’s knowledge. Just as Conger and Probst (2014), Gilbert et al., (2007) mean that it is important that there is a database or repository where people can create and retrieve knowledge. The authors highlight multiple aspects that need to be in place in order for knowledge management to work. They argue that a good start is to focus on the people: defining roles, responsibilities and expectations. But also to educate and communicate the overall goal and reason for the need of transferring knowledge. Besides the people aspects, the authors point out that the process is important as well. They mean that defining a knowledge lifecycle management process that covers the entire process from creation to deletion is crucial. Another aspect is to identify and create reusable content, that focuses on useful knowledge content, which will come from incidents and problems.

Trusson et al., (2014) are also acknowledging that ITIL is heavily focused on knowledge storing and sharing through information systems, but it might have some drawbacks. What Trusson et al., (2014) mean is that when a system is an intermediary between a sender and receiver of knowledge, there might be some implications. An effect the authors highlight is that it might create a mentality of “hoarding knowledge”, which is a result from the fact that individuals do not value the knowledge, or does not understand the knowledge. If management is emphasizing a lot of knowledge storing, it might get overwhelming. Another effect the authors point out is that the only knowledge that is being recognized is the knowledge that can be codified and stored. As a result, a lot of “other” knowledge is neglected, and not considered to be important, since it cannot be stored. Another aspect that Trusson et al., (2014) highlight with having a system between the sender and the receiver is that the knowledge transfer process turns two folded. One process is to provide knowledge, and the other is to receive, or retrieve knowledge. This is a reason why we have chosen to view this phenomenon through the lens of the boundary object theory.

Mohamed, Ribiére, O’Sullivan and Mohamed (2008) argue that the knowledge to transfer in ITIL should be directly connected to contributing value to the core business. The knowledge to transfer should improve the quality of the serviced and the business operations. Using expertise, knowledge and information to contribute to processes such as incident management. But also, knowledge that can be used proactively to solve problems or eliminate problems. Conger and Probst (2014) add that organizations need to gather data about problems in order to create solutions. When the problem is understood and a solution is at hand, the authors describe it as information. The challenge after that is to learn how to convert this to knowledge. They mean that it is important to institutionalize, internalize and automate the learned experience in order to apply it in future situations. The reason according to Conger and Probst (2014, p.3) is that “A KM strategy is an ITSM mechanism to efficiently and effectively address the repeatable
nature of the service environment.”. However, the authors explain the importance in not only understand the solution, but the problem as well. They mean that the process is often considered complete when a solution is recognized. However, a crucial aspect is neglected with that perspective, that is the recognition of the problem. Conger and Probst (2014) argue that the process Problem to Solution, is often heavily focused on the solution. This results in the process of Solution to Problem (In a new context) is often hard, since the knowledge is more focused on the solution, rather than the problem.

3.8 Nonaka’s and Takeuchi’s theory of organizational knowledge creation

Nonaka and Takeuchi (1995) present four kind of knowledge conversion types between tacit and explicit knowledge, which are: socialization, combination, internalization and externalization. We will explain these modes and hence further increase the understanding of how knowledge is created and ultimately transferred between different entities.

3.8.1 Socialization: Tacit to Tacit

Socialization is the process in which individuals share experiences to create knowledge and technical improvements. The knowledge creation does not only elaborate communication through language, but can also be created through observations, rehearsability and imitations. This can be exemplified as when a student cook is learning from her/his master chef the secret craftsmanship (Nonaka and Takeuchi, 1995). However, socialization is difficult if both individuals do not share a common understanding and experience, and where a involvement of similar kind of thinking is absent since the information that is being transferred from one individual to another will make little sense and will as a consequence be ineffective (Nonaka and Takeuchi, 1995). Since tacit to tacit is nothing that we focus on in this study we will not explain it any further.

3.8.2 Externalization: Tacit to Explicit

Externalization is the process where tacit knowledge is converted into explicit concepts which taking shapes of metaphors, concepts, models, analogies or other tangible solutions (Nonaka and Takeuchi, 1995). These concepts are usually triggered from conversations between individuals which henceforth requires methodological approaches to make these concepts tangible. One method according to Nonaka and Takeuchi (1995), which Mazda used was a combination of both inductive and deductive approaches. When they were making their car RX-7 it was aimed to become a great sports car that provides both speed and comfort. The deduction was derived from Mazda’s slogan which aimed of having joyful driving pleasures for the customers in the U.S. The inductive approach was dedicated to the new concept by conceptualizing trips which were simulated by the development team in the U.S. and by research institutes which gathered data on customer and expert opinions. However, this was not
seen as enough and nonanalytical methods were complemented. Adding an analogy is according to Nonaka and Takeuchi (1995) seen as an effective way to display commitment to the customers and the creative process.

Out of the other modes, externalization is the most enhanced version of knowledge creation since it converts tacit knowledge into explicit concepts. The question however is how we can make this conversion efficiently and effectively? According to Nonaka and Takeuchi (1995) the use of metaphors, analogies and models are of importance. Metaphors are mostly done by using abductive reasoning and are of importance by understanding and interpreting experiences by asking the listener about a certain thing while chasing another aspect.

Ultimately, when a concept is externalized, they can lastly be modelled. When a model is forged there is a need to inherit logical reasoning where no contradictions are present and must consist of systematic language. However, Nonaka and Takeuchi (1995) argue that this is not the case in business areas where a model is mostly a descriptive intention and where specifics are not fully generated.

3.8.3 Combination: Explicit to Explicit

Combination focuses on leveraging already established concepts into a system where knowledge is being handled. This is mostly done where individuals exchange knowledge through various channels where knowledge is already explicit such as documents, networks or other communication media (Nonaka and Takeuchi, 1995). Combination may happen by reorganizing already existing information through sorting, combining and categorizing which can be seen in our school system and its current form of education, where books and documents are very involved in our teachings (Nonaka and Takeuchi, 1995). The authors further exemplify this by putting combination in a business context where a middle manager conceptualizes the organization’s established visions and business-oriented concepts, where the manager is having a key role to do this by understanding various combinations of codified information and knowledge (Nonaka and Takeuchi, 1995). Going one hierarchy further and understanding the top management position of an organization, Nonaka and Takeuchi (1995) argue that top management must understand concepts that are below one level in order to realize corporate vision for instance. One example that Nonaka and Takeuchi (1995) present is Canon, which is a Japanese electronics company, they embedded their mid-range concept into their grand vision. He argues that the development and creation of the Mini-copier which had the mid-range product concept “easy maintenance” was responsible for grand concept of “Creation of an excellent company by transcending the camera business”.

3.8.4 Internalization: Explicit to Tacit

Internalization is seen as the process of converting explicit knowledge into tacit and is according to Nonaka and Takeuchi (1995) closely linked to on the job working or what is commonly referred to as “learning by doing”. In order to convert explicit knowledge into tacit it is helpful that the knowledge that is being transferred is verbalized or diagrammed into documents,
templates or oral stories. The documentation process helps the individual to internalize and connect what they have experienced in order to enrich the tacit knowledge that they already have. Documents and templates will then perform a transfer of explicit knowledge to other people, and hence help them experience what others have already experienced indirectly (Nonaka and Takeuchi, 1995). Nonaka and Takeuchi (1995) exemplify this by bringing up General Electrics (GE) and their way of working with customer complaints. They documented all of the complaints and inquiries in a repository which later could be re-used for new product development in order to re-experience what the customer support were experiencing (Nonaka and Takeuchi, 1995). Even though the importance of re-experience is raised by Nonaka and Takeuchi (1995), internalization can be achieved without re-experience. For instance, reading and listening to a story can make some members feel a realism and understand the importance and essence of the story and the experience that took place may change into the tacit mental model. When a model of this kind is shared between the individuals, the tacit knowledge becomes part of the culture in the organization.

3.9 Boundary object theory

Boundary object theory has its roots in 1989 where authors Star and Griesemer (1989) problematize the view on objects and how these objects are perceived by social worlds. Each actor perceives her/his surroundings differently depending on their background. Star and Griesemer (1989) argue that when actors are trying to solve a scientific problem, their view on the problem will be different because of their background and how their view on the social world is perceived. A great example which they exemplify shows this current dilemma:

“A university administrator in charge of grants and contracts, for example, answer to a different set of audiences and pursue a different set of tasks, then does an amateur field naturalist collecting specimens for a natural history museum”.

- Star and Griesemer (1989, p. 388)

This is obvious and understandable. However, when these actors with different backgrounds collides and must work on a project which involves a certain object, the understanding and view of this object will likely be different. Star and Griesemer (1989) continue by saying that the creation of knowledge is dependent on communication between the involved parties in order to identify potential findings. In order to understand what kind of potential findings can be gained, there is a need to clarify what an object is.

Most people see objects to be of a material decent, where it can be touched and seen. However, when it comes to objects in boundary object theory it is seen beyond that point of view. In Star’s (2010) more recent discussion regarding boundary object there have been some misinterpretations on what an object really is. In order to understand what a boundary object is we need to divide this expression into two terms, ‘boundary’ and ‘object’. The term boundary should not be considered as what it is commonly referred to such as edge or periphery. It should
be understood as a shared space where there is a sense of a merged flexibility between what lies here and there (Star, 2010). Furthermore, objects that share a sense of connection form a boundary between social groups through a shared structure and flexibility. Henceforth boundaries are based on certain actions in a context. Object on the other hand like previously described is a materialized entity which is structured in one way or another (Star, 2010). However, when it comes to the term boundary object the materialization goes beyond this interpretation. An object can still be materialized but it can also be digitized in the sense of computer objects or programs. The most important factor is that the object can be interacted with, and that an action is created by the interaction (Star, 2010). A distinction to keep in mind is that the materialization of the object does not justify it as an object itself in the sense of the theory of boundary object. The action is the determining factor (Star, 2010).

“So, a theory may be a powerful object. Although it is embodied, voiced, printed, danced, and named, it is not exactly like a car that sits on four wheels. A car may be a boundary object but only when it is used between groups.”

- Star (2010, p. 603)

The term group is not mistakenly introduced, which means it has its own importance. Nicolini, Mengis and Swan (2012) argue that a boundary object can be seen as an object that metaphorically creates a bridge which allows different social groups to interact with each other and hence create collaborative interactions between these groups. This leads us to the arguments which Star and Griesemer (1989) discussed regarding how a boundary object works as a translator between these social groups in order to minimize misinterpretations and hence increase the probability of clarifications during communication processes between these groups. Ultimately, an object must keep its identity intact to provide these clarifications no matter who interacts with it. This will allow a flexibility that different social groups can see and interpret the object in their own way, but still has the fundamental understanding of its existence (Star, 2010). However, Nicolini et al., (2012, p.617) argue that:

“...boundary objects delimit the need to learn across the boundary of practice. This is because they carry details that can be understood by both parties, but neither party is required to understand the full context of use by the other because the object itself takes care of performing such mediation.”

There is however a need to clarify the basics of what an object can or cannot be. As we have defined how objects are seen and understood, there can be arguments that an object can be everything as long as it is interacted with by different social groups. Therefore, we will be taking Star’s (2010) recent arguments of what a boundary object cannot be and why. Scale is such attribute which cannot be implemented to a boundary object. Many questions have been introduced to Star (2010) where people have questioned the existence of a boundary object and its potential. One particular question that we have identified was “what about a word?” (Star, 2010, p.612). And yes, this is accurate and can be seen as a boundary object. Star (2010) argues
that in each type of scale the boundary object can be seen as useful in some way or another, however, it is mostly dependent on the scale of the context it is used in. For instance, Star (2010) describes that all concepts are useful in some sense at a certain level of scale. But it is in an organizational context it is mostly useful. If we go back to boundary object being a word, it can be proven to be useful by having different groups that interpret a word.

**Scope** is another aspect of boundary object that Star (2010) argues can be misconceptualized. Many questions have been raised regarding how diffuse an object such as a word can be, in order for it to be attached in a more cooperative context. Furthermore, there could be other famous objects that could have similar effect such as a national flag or a mainstream religious book. Star (2010) answers by acknowledging that these views can be boundary objects and that they offer an interpretive flexibility, however, this shallow type of scope needs to be specified to gain more of an analytical depth rather than an analysis whether how and why someone has a certain view of the object.

### 3.10 Boundary object theory and Nonaka’s and Takeuchi’s theory of knowledge creation in combination

Combining boundary object theory and knowledge management, knowledge creation or knowledge transfer is something that has not really been explored previously. Oswick (2005) does however provide a good outline for how boundary objects and knowledge can be seen in relation. In his paper he argues that boundary objects can in fact have a role in knowledge formation and sharing. Oswick (2005, p.1) explains:

> “Beyond this, we might also think of them as being ‘texts’ insofar as they are inscribed artefacts that in some shape or form capture, codify and/or represent some other, often tangible, object(s) to facilitate interaction across different social worlds.”

This conforms with Star (2010) who describes that a boundary object can be something printed. Oswick (2005) explains that other textual or document-based objects such as medical records, Gantt charts and engineering drawings are also carrier of some type of information or knowledge that people with different perspectives can understand. However, Oswick (2005) argues that boundary objects as texts promotes the need for considering the context in which the text is produced and consumed. Oswick (2005) continues with explaining that knowledge as a boundary object is often referred to as recontextualization. The author means that a few studies that have been conducted in this area, where one type of written knowledge can be understood by different communities, in which the context is different. Oswick (2005) means that knowledge in the form of a boundary object should be seen as a communicative practice and the translatability across different social worlds.

Based on Oswick (2005) we believe that there is a possibility to combine the boundary object theory and Nonaka’s and Takeuchi’s (1995) theory of knowledge creation. If we take a look
back at our conceptualization of knowledge (see chapter 3.2.3) we can see that knowledge includes individual characteristics such as experiences, insights, skills and contextual information. Nonaka (1994) explains these attributes as a part of knowledge, which can be seen as tools for justifying the true belief. Davenport and Prusak (1998) mean that these elements is used for interpreting information or explicit knowledge. This is something Liew (2007) backs up by explaining that knowledge is “actionable information”, which Becerra-Fernandez and Sabherwal (2010) also mean by saying that knowledge is applied to information or data in order to make decisions. Our take from this is that aspects such as experiences, insights, skills and contextual information gives individuals different perspectives on both information and explicit knowledge. We can see some similarities with boundary object theory since Star and Griesemer (1989) describe that individuals perceive her/his surrounding differently depending on their background. We will view aspects such as experiences, insights, skills, interests, purposes and contextual information as the ‘boundary’ in boundary object, but also what define the individual.

The ‘object’ in boundary object in our study we believe can be understood by determining which type of knowledge transfer method that is commonly used. We can see from the previous research on knowledge transfer in ITIL organizations (see chapter 3.7) that information systems are heavily used (Conger and Probst, 2014; Gilbert et al., 2007; Trusson et al., 2014). They mean that knowledge, let us call it a “knowledge object” is some form of a text placed in different information systems or repositories in order for other people to retrieve it, learn from it and use it to solve problems and incidents that is brought to the IT-support. In other words, one person with a particular set of skills, insights and experiences is entering knowledge in a repository based on a problem that arose in a certain context. Another person likely with another set of skills, insights and experiences is retrieving knowledge from a repository based on a problem that occurred in a certain context. Based on this we will consider the explicit knowledge that is transferred to the repository as the ‘object’.

For the final part we will argue for the inclusion of Nonaka’s and Takeuchi’s (1995) theory of knowledge creation. We argue that knowledge transfer constitutes of three parts: 1. An individual creates knowledge. 2. The individual is transferring knowledge to an information system. 3. Another person retrieves it from the information system, interpreting the knowledge and creates own knowledge. This is particularly important since our initial understanding of the empirical data suggests that knowledge primarily is created by an individual transferring knowledge to a repository in which other individuals can take part of it and create their own knowledge based from what has been transferred to the repository. To back this up we would like to turn to our chapter of knowledge management (see chapter 3.5). Knowledge creation is defined by Mehralian et al., 2018, p. 804) as: “a constant process through which the knowledge created by individuals becomes available and augmented within an organization’s knowledge systems”. In this case knowledge creation is rather straightforward. If we instead look at knowledge transfer, Ko et al., (2005, p. 62) define it as: “communication of knowledge from a source so that it is learned and applied by the recipient”. In this case we pay extra attention to the word ‘learned’ which we argue can be seen as knowledge creation as well. Taking this into
account we turn toward Nonaka and Takeuchi (1995). Nonaka’s and Takeuchi’s (1995) theory of knowledge creation can according to the authors occur in four different ways, which we described in chapter 3.8. Just as the definitions provided by Mehralian et al., (2018) and Ko et al., (2005) previous in this section, and what Trusson et al., (2014) describe as having a system between the sender and the receiver is that the knowledge transfer process turns two folded. One process is to provide knowledge, and the other is to receive, or retrieve knowledge. Our understanding from that can be seen in figure 7.

According to Nonaka and Takeuchi (1995) step one and two in figure 7 can be seen as one of the four ways knowledge is created (Tacit to Tacit, Tacit to Explicit, Explicit to Explicit or Explicit to Tacit). An individual is, based on its experiences, insights and skills creating a knowledge object which is then placed or transferred into a repository. The object is then transferred to another individual that retrieves the knowledge, understands it and creates an individual knowledge (step three and four), which also can be any of Nonaka’s and Takeuchi (1995) different ways of knowledge creation. We argue that based on how the individual is creating the object, i.e. the knowledge stored in the repository, is influenced by the individual’s perspective, skills, experiences, insights, etc., hence viewing the knowledge creation and transfer of the object with the lens of boundary object theory will give us a two-folded perspective on knowledge transfer through information systems. The perspective that we will have in our analysis is presented in figure 8, and includes both Nonaka’s and Takeuchi’s (1995) theory of knowledge creation and boundary object theory.

Figure 7. Two-folded knowledge creation and transfer. Krigsman and Zahirovic (2019).

Figure 8. Our perspective on the combination of knowledge creation and boundary object theory. Krigsman and Zahirovic (2019).
3.10.1 Contextualization of the theoretical model

In order to connect our rather theoretically heavy model with our cases, the organizations and the ITIL context in which we have chosen to study this phenomenon we need to make some clarification regarding how this model translates to that particular context. Our approach to this is through a contextualization and operationalization of the theoretical model. To start off we want to clarify that figure 8 is a representation on how we will analyze our empirical data in terms of boundary object theory and Nonaka’s and Takeuchi’s (1995) theory of knowledge creation in combination.

Number 1 in figure 8 is called “Individual with knowledge” which we on a theoretical level view as an individual that possesses knowledge about something and intend to share this knowledge with other individuals through an information system. This individual has certain aspects such as skills, insights, experiences, purposes, interests and contextual information which makes the knowledge rather unique for this particular individual. If we view this through the lens of ITIL we contextualize it to a person working in the IT-service organization, in any of the three line supports as we described in section 3.6.2. This individual has obtained knowledge regarding an ongoing problem or incident, and especially a way to solve the problem or incident. Just as the theoretical approach to this model, the individual in an ITIL context does as well possess certain aspects making the knowledge unique. From an ITIL perspective this could mean a lot of things, however, the most predominant factor as we see it is the different competencies that constitute the different line supports, where first line support is experts on some problems and incidents, while second and third line support has other expertise. Other influencing factors are overall skills, competencies and experiences. Since the ITIL framework is rather vague regarding what information or knowledge to document during problems and incidents the overall interest and purpose and insight with the individual, regarding what knowledge the individual think he/she possess will also matter. Another important aspect from the ITIL framework to keep in mind is that the support, whether it is the first, second or third line is that they many times have had contact with the core business regarding the problem or incident which adds contextual information to the individuals knowledge.

The next part of figure 8 is number 2 “Knowledge transfer” which we on a theoretical level view as the process in which the individual transfer explicit or tacit knowledge to an explicit format in a repository or a database. This process from an ITIL perspective would be considered the documentation phase in the incident and problem management process, as explained in section 3.6.2. Knowledge, information, insights, contextual information, etc. regarding an incident or a problem is written down into an explicit format, hence transferred into a knowledge repository. From our initial empirical review, the knowledge in the repository are what the organizations call knowledge articles, which can be understood as documents that aims to transfer knowledge from one individual to another. One important aspect to keep in mind is that the concept “knowledge article” is not stemming from the ITIL framework, but is instead a more informally used word, at least among the studied organizations. The “repository” from figure 8 is a collective name that we have chosen to use in order to maintain some clarity.
Best Management Practice (2011b) and Agutter (2013) explain that in ITIL the repository is named “Service Knowledge Management System” or “SKMS” which in practice is a collection of different repositories, databases and information systems containing knowledge. However, for simplicity we have chosen the to call it “repository” in this paper.

As we previous mentioned does the repository contain multiple knowledge objects, or “knowledge articles” which are documentation of knowledge regarding how to solve or understand different problems and incidents. Knowledge article is a more abstract representation of this documentation and knowledge, as we mentioned the studied organizations refers to it as knowledge articles, in order to achieve the practical connection to the organizations and ITIL we will moving forward refer to it as knowledge articles. The repository is a place where individuals can collect and retrieve knowledge that others have put in, and when another individual reads a knowledge article there are now a new transfer of knowledge (number 3 in figure 8), but also a creation of knowledge at the receiving individual (number 4 in figure 8). This part of the figure represents the process in which an individual receives a problem or incident and ought to solve it. The support staff that is about to do this will search for information and knowledge, i.e. knowledge articles in the repository (or SKMS) in order to solve the situation at hand. The literature about knowledge management (see Ko et al., (2005)) but also ITIL (see Agutter (2013) and Best Management Practice (2011b)) explain that the purpose of knowledge management and knowledge transfer is that the knowledge is learned by the recipient. This is what we call “knowledge creation” in figure 8. Best Management Practice (2011b) highlight that this is especially important to keep in mind since different individuals learn differently based on previous experiences, skills, perceptions and insights. That is also why we have chosen to include that these individuals in figure 8 have different perspectives on the knowledge object, i.e. knowledge article. The importance, substance, content and learning possibilities from a knowledge article is based on the individual with its own perspectives, skills, insights, experiences, purposes, interests and contextual information. Once again is the different ITIL line supports visible in this discussion, different line supports will create, understand and use the knowledge articles differently, while the same line support personnel will have somewhat similar perspectives. This was a brief contextualization of our theoretical model with the aim to create a distinct connection to our studied context, which is ITIL organizations. Therefore, will table 2 below provide a short summary of the keywords and how they relate to the ITIL context.

<table>
<thead>
<tr>
<th>Theoretical</th>
<th>ITIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>Problem and incident solutions</td>
</tr>
<tr>
<td>Actor</td>
<td>IT-Service organization member</td>
</tr>
<tr>
<td>Individual</td>
<td>Individual aspects of an IT-Service organization member</td>
</tr>
<tr>
<td>Skill, Insight, Perspectives and Experience</td>
<td>IT-Service acquirements</td>
</tr>
<tr>
<td>Boundaries between individuals</td>
<td>Differences and similarities between competencies in the 1\textsuperscript{st}, 2\textsuperscript{nd} and 3\textsuperscript{rd} Line-support</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Knowledge Object</td>
<td>Knowledge article regarding incidents and problems</td>
</tr>
<tr>
<td>Repository</td>
<td>Service Knowledge Management System</td>
</tr>
<tr>
<td>Knowledge creation</td>
<td>Further learning about problem and incident</td>
</tr>
<tr>
<td>Knowledge transfer</td>
<td>Creating a necessary knowledge article about a problem or incident and place it in the SKMS, and retrieving and learning from a knowledge article and develop the individual proficiency.</td>
</tr>
</tbody>
</table>

*Table 2. Keywords and translation between theoretical model and ITIL.*
Chapter 4. *Empirical data*

During this session we will provide the empirical data that has been gathered to assist with the analysis. The section with our interview gathered empirical data will start off with a description of each organization and the respondents. The respondent's answers have been presented and divided into organizations. Where the respondents from Organization 1, 2 and 3 are separated accordingly. This is mainly to simplify what has been said, from whom and where. This simplification can from a social constructionistic perspective be important to understand the respondent's perception of reality in order to comprehend how the different categories are perceived. For our empirical data we have identified four categories, which are: Knowledge, Knowledge Management, Knowledge Transfer and Knowledge management strategy.
4.1 Organizations and respondents

4.1.1 Organization 1

Organization 1 is an IT-organization in a, and a part of a Swedish municipality. The organization has approximately 100 employees and provides a vast number of IT services to every municipality-organization, and business that comes in contact with IT in the municipality. The organization has taken some steps to ensure an effective, stable and sustainable delivery of their IT-services. One step in that work is that they are ISO/IEC 20000:2011 certified, and to achieve this they are working with the best practice framework ITIL as their IT service management framework. Organization 1 does not have ITIL’s knowledge management process implemented.

The Coordinator

The Coordinator has been working in the organization four years and have had the current role for two years. The respondent is working in the customer support and have a role they call “coordinator”. Being a coordinator means that the person is working on steering the daily activities concerning the customer support. The respondent explains the daily work as maintaining order and structure on issues that concerns customer services all the way to second- and third-line support.

The person does also take part in managing the incident process, The Coordinator’s group manager is Incident manager. However, the person means that much of the manager’s job and responsibilities has been delegated to the respondent. The Coordinator explains that both the current and the past role has included knowledge management. However, different roles and responsibilities have influenced what part of knowledge management the person has been working with. As of right now much of the knowledge management responsibilities concern making sure that enough and accurate knowledge is available for the support. The person has an informal role as knowledge manager.

The Group manager

The Group manager is in charge for the first-line support and receives calls, mail and chat questions from the business. The person has the role “group manager”. The group that the respondent is in charge of is the starting point for questions and requests in the incident process. The respondent has had the current role as a group manager for one and a half year, and have worked in Organization 1 for three years.

The Group manager is also involved in educating what people in the first line support should do, as well as introducing new personnel to the department. The respondent does also have an informal role as knowledge manager and directs a lot of energy and time on how the organization should move forward with their knowledge management.
4.1.2 Organization 2

Organization 2 is a Swedish government agency with a long history. Its current structure has only existed since 2006, and is a more centralized structure. The agency has approximately 10,000 employees. Our main focus in this organization is mainly their management work, their IT department, and the work that is conducted at the head office.

The IT department in organization 2 constitutes of approximately 200 employees, which for the main part is located at the centralized head office. The IT department is responsible for the agency’s digital development as well as management and maintenance of the organization’s IT, and IT service. This includes both IT in the IT department as well as IT to the core business. Since the IT department supports both these needs the services that they deliver are diverse and includes many different types of issues and problems. Organization 2 has ITIL implemented for their IT services, but does not have ITIL’s knowledge management process implemented.

The Problem manager
The Problem manager has been working at Organization 2 for three years, in the IT department. The respondent’s role is incident and problem manager within the ITIL framework. Throughout the years have the respondent been working with implementing the problem management process and the incident management process. Besides that, the respondent is involved in ways of working, routines and effectivization. The respondent has also insight in the support a good understanding on how they work with knowledge.

The Information owner
The Information owner is also working at Organization 2’s IT department, and belongs to the IT-support. The respondent’s responsibility is to make sure that there are clear and available information for the users. Making sure it is easy, understandable and legible. Besides that, the respondent is responsible for the documentation within the internal support, hence making sure that the employees in the support can solve tasks effectively. This particular role has not existed previously in Organization 2, and the respondent have had the role for approximately one year. The respondent is also considered the informal knowledge manager.

4.1.3 Organization 3

Organization 3 is also a Swedish government agency and have approximately 1200 employees. Our main focus in this government agency is mainly their management work, their IT department, and the work that is conducted at the head office.

The IT department in organization 3 constitutes of approximately 56 employees, which for the main part is located at the centralized head office. The IT department is responsible for the agency’s digital development as well as management and maintenance of the organization’s IT, and IT service. This includes both IT in the IT department as well as IT to the core business. Since the IT department supports both these needs the services that they deliver are diverse and
includes many different types of issues and problems. Organization 3 has ITIL implemented for their IT services, but does not have ITIL’s knowledge management process implemented.

**The Incident manager**
The Incident manager have been working at Organization 3 for twenty years, in the IT department. The respondent’s role is incident and problem manager. The respondent is also manager for the entire service desk. Throughout the years the respondent has been working on building the entire service and support organization. Besides that, the respondent is involved in ways of working, routines, personnel and budget. The Incident manager has a good understanding on how they work with knowledge.

**The Support person**
The Support person is also working at Organization 3’s IT department, and belongs to the IT-support, and the group within second line support. The respondent’s responsibility is mainly to handle incidents, take care of orders, accounts, meeting room equipment, equipment overall and has some insights in the knowledge management. The respondent has worked at Organization 3 for four years.

### 4.2 The concept of knowledge in ITIL service organizations

In this section we will go through the empirical data regarding what the studied ITIL organizations believe is knowledge and what role knowledge plays in their service organizations.

#### 4.2.1 Organization 1

The Coordinator relates to knowledge as a consequence of successful delivered services from the support. If there is insufficient knowledge in their repository, then there will not be any deliveries. However, The Group manager started off by saying that knowledge could be of any relevance, but contextualized it to an organizational perspective by naming user demand that are forging the knowledge that is needed in the organization. Furthermore, when distinguishing between information and knowledge the respondents have a certain common approach to the matter. The Coordinator argues that information is something one might need, but not necessarily has to act on. Whereas knowledge is and has to be act upon. The Group manager sees information as temporary or limited of a sense whereas knowledge is sustainable. Both respondents argue later on that the distinctive difference is that information is a product of something, and knowledge is the product you can act on.

#### 4.2.2 Organization 2

When we asked Organization 2 about how they distinguished between knowledge and information, The Problem manager explained that for them an important difference is how one views statistics. The Problem manager describes that if you have a lot of statistics on something,
you need to add additional information to it in order to understand it better. Besides that, you have to put it in a context in order to understand what effects something has. Once you know if you can act on it, then you know that the foundation is enough. It can also generate an understanding about the core of a problem. For example, The Problem manager explains that from previous experiences there has been a lot of emphasize on data and statistics, that has no real meaning nor gives any valuable insights about something. The Information owner adds that from the support’s perspective information and knowledge is something that can be mediated to those asking for help. The Information owner also describes that the knowledge that they provide, or transfer should make it possible for the receiver to solve the problem at hand.

4.2.3 Organization 3

Knowledge in an organizational context is according to The Incident manager embedded within organizational routines and processes. Meaning that knowledge is part of the organization and the individuals within the organization. Furthermore, The Incident manager argues that the importance lies on achieving organizational requirements and what is expected by the IT department from the organization. It is hence important according to The Incident manager to always keep the wheel spinning and provide with enough results to meet the organizational goals. The Support person, however, adds that routines are kept in order to meet and help the user’s expectations as good as possible. Knowledge in a broader context is according to The Incident manager seen as a process where learning and value creates a more mature state for the organization. Information on the other hand is given and should be learned according to The Support person. The learning process is then done according to The Incident manager by going to training sessions and to visit other parts of the organization as well as other people from different departments.

4.3 Knowledge Management within the Problem and Incident process

In this section we will present the empirical data regarding how the studied organizations work with knowledge, and knowledge management connected to their problem and incident processes, and how these intervene in their day-to-day work.

4.3.1 Organization 1

The Coordinator argues that knowledge management is developed in different ways depending on the matter. For instance, The Coordinator said that if there is a request for change (RFC), then there are certain regulatory factors that has to be followed based on their organizational principles. From that the respondent explains that they are gathering as much information as possible about the RFC. This results in the creation of knowledge articles in their knowledge repositories. However, according to The Coordinator there are no requirements for the person responsible for the release to identify potential flaws which can impact the knowledge articles. This matter is known, and the organization is working on changing this process.
The organization uses a wiki which according to The Coordinator is a knowledge repository that is divided into two separate parts where one end is mostly made with more general solutions whereas the other part is dedicated to more technical aspects. The wiki has old functionality regarding how to document the very specific details of technical aspects such as how a system is oriented and how servers are connected. All kinds of information that a technician needs in order to solve a certain problem. However, there is also a bit of general information within the wiki that is more suitable for a person from the support with less technical qualifications. However, this information is according to The Group manager mixed together with the other technical aspects, which is the reason they have moved this kind of information to another knowledge repository called “Come-around”.

According to The Group manager there are currently three different locations for finding information. The wiki, the Come-around system and an intranet where users have the opportunity to find information. They are currently working on aligning the systems better by implementing knowledge management during their incident process to be able to generate new information and hence merge this information and transform it to existing knowledge or create completely new knowledge. This according to The Group manager would increase their awareness of distinguishing what is actually needed and why it is needed. The Coordinator argues that for instance the wiki is too large. There is a lot of information and many times there are situations where a person cannot understand how to solve a certain problem with the information that was meant to be a solution to that specific problem.

“Even though there is a lot of information in the wiki, there can be instances where one wants to have very specific information. But this sortation is probably difficult. How can one sort, and in which way? The more information there is, the harder it is to keep it updated.”

- The Group manager

No real introduction to knowledge management has been made besides learn by doing. The Group manager argues that they got introduced to knowledge management while working in first-line support and hence became familiar with it by working with knowledge articles during the time. Both respondents argue that the view of knowledge management within the organization looks different and that there is some confusion as a consequence. There are no documentations regarding knowledge management. Further, The Group manager points out that a certain purpose of knowledge management has not been given in the organization. The indication is that there are potential improvements and they would want to increase the effort regarding this aspect.

4.3.2 Organization 2

In Organization 2 both respondents explain that they do not have the actual knowledge management process provided by ITIL implemented. However, Organization 2 does work with knowledge management in their day-to-day activities. Both respondents mean that their knowledge management aims to support their implemented ITIL framework. The Problem
manager does however not believe that the ITIL framework is a steering factor in how they conduct their knowledge management. However, when asked about how the ITIL framework and their knowledge management activities functioned together, The Problem manager answered that the ITIL framework is structured in a certain way, which influences the knowledge management. The Problem manager argues that in ITIL, the service desk owns, and is responsible for all information and is also the owner of all the cases coming in. The Problem manager continues and describes that this is the reason why the responsibility for the knowledge management is placed in the support. The Problem manager explains that the combination comes rather naturally. The Problem manager means that for them the ITIL framework is a lot of common sense, and does bring more structure to them. However, the knowledge management and ITIL are needs that they got. The respondent adds that they have developed their case management, and the development of a more proactive mentality, and proactive areas of work. The Problem manager puts it as:

“Many organizations that has ITIL starts with incident management and problem management, hence using it as an extinguisher for taking out fires. From that, it is a question of maturity, and that is where we are now. We have started to think around the corner, work more proactively, gathering knowledge articles that is missing or needed.”

Besides the more proactive approach The Information owner explains that with their latest reorganization more emphasis was put on knowledge management. The respondent describes that they have focused on their knowledge management based on what they need and sees fitting. However, both respondents mean that they do not classify different types on knowledge in order to know how to make it available. The Problem manager hopes that this is something they will do in the future.

In organization 2 The Problem manager describes that for them it is very important that everything is registered and stored so that there always is a possibility to go back and look at it, work proactive and document the knowledge that is gained from it. The Information owner describes that Organization 2 is working with knowledge articles as a main source for their knowledge sharing. The Information owner describes that their knowledge management systems are divided into two parts. First there is the wiki that is supposed to support helpdesk and the internal support (1st, 2nd & 3rd Line support) with knowledge articles. The other part is a tab in their intranet, which aims to provide knowledge to the core business. That part is mostly built as a communication channel between the IT-service organization and the rest of the organization.

The Problem manager means that their focus is always to reach the bottom of every problem, incident or dilemma that they have. The reason is because they want to deliver their services as good as possible to their customers. The Problem manager gives an example on how they see knowledge and knowledge management in their organizational unit.
“We want to gain knowledge if we notice that we have had a lot of incidents, made our problem cases on them, we want to learn what to do, but also find the core of the problem. What should we do to make sure we do not have to deal with this again? And in order to solve incidents effectively we need to have knowledge and instructions.”

The Information owner has a similar view as The Problem manager, The Information owner argues that the ultimate use of knowledge in the line support is that it needs to be easy to find in order to use it as efficient as possible. The stored knowledge does also have to be described in a way that makes it easy to mediate to the receiver. Hence, the knowledge or information needs to be delivered fast and easy to the person that contacts the support. Both respondents explain that with their customer focus it is also important that the support is helping the customer as effective as possible since the person contacting them needs to place their time and energy on their own business.

The Problem manager continues to include the ITIL framework as an example in the description of their knowledge management. The Problem manager describes that the incident management process is a process that incorporates a lot of knowledge management thinking. Based on the type of incident that has occurred The Problem manager describes that it is extremely important to gain knowledge from it. The Problem manager describes this knowledge as incident reports, which is an ITIL steered documentation. The respondent explains that the incident reports will include knowledge that refers to both learning about the incident, but also gaining proactive knowledge if it occurs again. The Problem manager argues that it is crucial to actually use what has been learned from an incident.

The Problem manager explains that in the role of an expert in architecture and business development they can easily document how things work. For an example modelling processes in great detail, such as process-maps. The Problem manager means that this knowledge is easy to transfer to others, but aspects such as experience is much harder to transfer, and are nothing The Problem manager is documenting. The Information owner is tying in on the aspects regarding experience. The Information owner means that reliability on others experience is visible. The Information owner states:

“My experience is that if we get a task that the others believe is difficult, then it is easy to lean on somebody else, like “You solved that last week, you can do it this week too”. It may be that people do not really dare to get into it.”

The Problem manager means that working with the ITIL framework really has helped with structuring how the knowledge should be spread in the organization. To have responsibility placed within the different line supports is a way to enhance co-operation. The Problem manager describes it as “the right person in the right place”. The Problem manager argues that another good thing with ITIL is that it is a way for people in the IT organization to know who is responsible for what, and where different units can help to support each other.
4.3.3 Organization 3

The knowledge management process does not follow the regular ITIL procedure according to The Incident manager. Knowledge articles are created from both user and internally created needs, but The Incident manager points out that some routines and procedures should be implemented to make this more structured. The Support person argues that the organization has a knowledge database or repository in their case management system where relevant material is created such as knowledge articles for each department. There are two separate parts. One for users and one for employees which is growing with a rapid speed according to The Support person.

The knowledge management procedure could according to The Incident manager be more simplified since the content of today’s articles could sometimes be hard to understand and misinterpreted since the content is only a body text. The Support person sees this differently and find that the articles with its body of text from previously made cases are good and serves its purpose. However, there is according to The Incident manager a need to have a pre-understanding of what has happened previously in some cases, in order to solve the issues with the different incidents since there are no methods or structures implemented to sustain a linear article construction. Both respondents explain that everyone can write an article; however, they cannot be put into the system without a certain editor reviewing its content. The editor does not have a technical expertise but more of an administrative one, which is why they have been chosen for that position. The editors check if there are any spelling faults and if the solutions that the technicians have provided are correct. The Support person argues that since there are body of texts in these articles a more step by step approach could solve the challenges that the organization is facing with these articles. When writing a knowledge articles The Support person is focusing on having a more user centered approach which allows a more user-friendly approach when they are received. However, The Support person portraits this user as the editor because it is, she or he who reviews them. The Incident manager argues that the articles are mostly formed so that the individuals in the service-desk can use them and find value in them. However, according to The Incident manager people tend to solve the incidents and problems without making an article of it. There are also no immediate reviews when a certain incident is solved, to check if there is an article produced for a similar incident.

4.4 Knowledge transfer to solve problems and incidents

In this section we will present the empirical data regarding how the studied ITIL organizations utilize their knowledge management in transferring knowledge between individuals and organizational units in order to spread knowledge about problems and incidents.

4.4.1 Organization 1

The communicative approach for knowledge transfer is mostly according to both respondents conducted through various types of chat interactions between individuals. However, their main
A form of knowledge transfer is conducted through various information systems. For instance, according to The Group manager there is a come-around system that is designed specifically for the first line support to find quick, easily and readable information during a call or ongoing incident to solve the issue as fast as possible. If there is an advancement in the incident, then the second- and third-line support would use a more sophisticated approach with the wiki, which involves more detailed and technical information. Within this wiki there are articles that provide information for a certain department and what kind of knowledge is needed in order to understand the article. The reason for the creation of several systems is according both respondents because of the size that the organization has grown, which is why they want to document as much as possible. The Coordinator means that the chat system that is being used is for the individuals mostly working in the second and third line, when they have a question regarding a matter. This is because they want to avoid face to face interaction and have most of the information documented.

“It is quite an obvious knowledge transfer to us, there is a quick response, directly on a question, and then there are expectations that a similar question will not occur because I have already answered my colleague on the second line, and this is how it works. It is not certain that this will be a knowledge article, but we have had a dialogue of a certain matter that can be solved in a certain way.”

- The Coordinator

There is also a chat system for customer service where similar questions occur, but this is mostly internally when the team is helping each other. There are also few instances of meetings according to The Coordinator. The reason for this is that the department is not appreciating face-to-face interactions. If they see that there is knowledge that they do not want to make an article for, then they use the chat system or mail and send it to the target user or group that is of need of that information and knowledge.

When asked if they have certain goals regarding knowledge transfer both respondents answered that there are no measurements on knowledge or information, however, there are something that they call closed first call, where the first line support have the ability to work towards goals. If they have good knowledge, then they can have more closed first calls.

4.4.2 Organization 2

The Information owner describes that Organization 2 is also using knowledge articles as the main source for their knowledge transfer. The Information owner means that they have not come that far in implementing a sustainable software environment for it yet though. The Information owner explains that most of their knowledge articles have previously been documents in different folders for people to access. However, the respondent describes that they have implemented a wiki as a platform for sharing knowledge. Right now, a lot of their work is to convert and add old documents into the new wiki-system. The Problem manager continues by explaining that it is important to find a solution that works good with the users of the wiki.
The Problem manager points out that The Information owner and their unit is working a lot on incorporating the receivers of the knowledge articles.

Before converting the old documents The Information owner explains that they have a process in place to make sure that everything is correct. The Information owner explains that much of the work related to converting the old documents is to refine them as well. The Information owner gave an example in which an old document were eight pages long, and after the conversion it was eight steps on one single page. The Information owner does however add that they are using the wiki in the way that it is supposed to be used at the same time, i.e. using it as a knowledge source, but also writing knowledge articles when there is something missing. We asked how they ensured that the slimmed down knowledge article could be rich and clear enough for all the different receivers of it. The Information owner answered:

“We do not have any dedicated test-persons, but we will notice it rather fast if there is a lot of calls about one specific thing. Then we might have to look over the instructions, because it is obvious that it is not clear enough in order to be understood.”

The Problem manager argues that the persons in charge for the knowledge articles have a lot of experience, which is a great asset. The Problem manager means that people that have been in the support for a long time gains a lot of experience in both what the core-business users needs and wants, but also experience in what type of knowledge that should be documented. The Information owner has a similar perspective on this matter. The Information owner who is involved in the creation of the knowledge articles argues that using oneself as a starting point in writing the knowledge articles is a method they use. The Information owner gives an example:

“Many instructions you make are instructions on something that you do not really master. It is easier for me to make an instruction about something that I am not as sure of, rather than if I am to do something that I am sure of, then the instruction becomes more complicated.”

The Information owner is an editor for the knowledge articles, the respondent explains that the editors can go into the articles and edit them. The Information owner explains that the articles often times is written in spoken language, which results in rather long texts, which is harder to understand. The Information owner as an editor explains that they have got a routine to read and make sure it is understandable, when new articles are written. Once again The Information owner emphasizes the benefit of not exactly knowing what is written in the article, in order to make sure that the knowledge is communicated clearly.

Besides the knowledge articles The Problem manager explains that they do not really have any workshops or meetings connected to their knowledge transfer. But on rare occasions they do use workshops according to The Problem manager. The respondent means that workshops are used when there is a need for brainstorming, or the need for communicating big changes, such as the implementation of the ITIL framework. If there is something that multiple people need
to know about, they will send out a newsletter explaining what people need to know, or where they can find the information about it, or where questions can be answered. Even though Organization 2 emphasize a lot of information system-based knowledge transfer, both the Problem manager and The Information owner mean that more hands-on learning experience are preferable. They both like to learn by doing, test things out, having workshops.

The Information owner explains that when there are new employees joining the IT-service organization there is an effort to educate them as fast as possible. The Information owner explains that within the support they try to educate whenever there is time available for it, however time is of essence and is often lacking. The Information owner explains that they try to spread information as much as possible. The Problem manager does add that the organization have some processes in place for new employees. Including information regarding the organization, how the organization is operating, different frameworks and functions. The Problem manager means that this is a prerequisite for creating a common platform for everybody to start from. The Problem manager argues that an important part of their knowledge transfer is how to document. The Problem manager believes that this is something that is hard to communicate but is instead something one learns from experiences. The Information owner who is a person involved in the knowledge management in Organization 2 explains that documentation about how to document is an important aspect. However, The Information owner means that it is easy to explain the structure and the format on an article, it is all the more difficult to explain the thinking involved.

4.4.3 Organization 3

There are no current goals made for the knowledge transfer procedures in the department according to The Incident manager. However, the unit is currently on their way of mapping the competences that are available in the unit to see what kind of competence the unit has and what is needed for the future.

When an incident occurs, there is a lot of face-to-face interactions within the unit and there are weekly occurring morning meetings where there are individuals with different backgrounds represented to check the current situation and what the expectations are regarding releases that week. The Support person argues that this is a great way to share knowledge and to solve different kinds of incidents together.

There are no certain procedures or routines when a certain incident occurs to identify possible knowledge transfer material since the work is mostly done on an operative level according to The Incident manager. However, there are sometimes meetings when an exchange is needed between the different units. There have been some issues regarding what should be prioritized in the different line supports such as third line and second line support, where the third line support does not have the focus on solving incidents as much as second line. The idea according to The Incident manager is to move some of the third line support’s responsibility into the second line and also move some of its competence into the second line. Not only by moving a
certain individual, but to provide learning sessions to the individuals in the second line from the third line support.

Previously, the people working in first line support were solving problems through simple word documents with highlighted words which indicated potential solutions for problems. Nowadays, these cases can take hours to solve since the organization has become more advanced and the users have been more intermediate according to The Incident manager. The goal is to increase the number of employees in the first line support. The Support person argues that a critical aspect is time. The time that the first lines have to solve a certain problem or incident varies. And sometimes it is more useful to just hand the problem over to second line.

Some of the transfer channels that are being used are e-mails, maintenance messages in the intranet or change requests in calendars according to The Support person. The mail conversations are mostly never the same. When certain specific knowledge is identified as potential knowledge transfer, then d-lists are created which usually goes through e-mails to different kind of groups. However, if more urgent situations occur, then there are more direct interactions between the groups.

4.5 Knowledge Management strategy

In this section we will present the empirical data connected to what strategies, goals and initiatives the studied ITIL organizations have regarding their knowledge management. This empirical category stems from ITIL’s knowledge management strategy and the importance of it.

4.5.1 Organization 1

The knowledge management in the organization follows rules and procedures when for example a request for change or another instance happens. These rules and procedures can according to The Coordinator be of a guide when having meetings with people who are responsible for the release and how they can affect the current situation, and ultimately the users. These rules help the unit understand what to communicate to the customer service. There are also deadlines of when to create a knowledge article, however there are no requirements to control known errors according to The Coordinator. When asked if any new modifications have been done to the knowledge management process The Group manager answered that they want to link the systems more coherent and that every incident should generate new information in order to link the information to already established knowledge. In order to keep the knowledge in the articles up-to-date The Coordinator argues that they have a date of maintaining the already existing knowledge.

They have a strategy on how to make their information and knowledge available, but neither of the respondents knows how and where they got it from. However, they do not have a strategy for their knowledge management in place. Currently they do not have a knowledge management
role but according to The Coordinator they are having a discussion whether they should implement such role. The Group manager says that this is the result of growing in a fast-phased manner.

4.5.2 Organization 2

The Problem manager argues that they do not have any stated or official strategy statement for their knowledge management, but states that it is something they will create soon. The Information owner adds that the only strategy used is that The Information owner (who is the informal knowledge manager) is trying to be seen and heard as much as possible. The Information owner states that the focus is to advocate the knowledge articles, and continuously make people to look at them. However, The Problem manager argues that from a strategic perspective there has to be a strategy for knowledge management. The respondent continues:

“If you think about the whole picture, and having a user-focus, a strategy is definitively needed, otherwise how could “Kurt” (Swedish name) ever take some time off? ”.

The Information owner argues that there are some strategic improvements that can be made. The Information owner is missing a more defined role, that is in charge for the wholeness in their cases. The Information owner means that this could possibly ensure even better cooperation between the different supports. But also check for trends in cases and incidents, and either look-up and communicate which article that is solving the problem, or make sure a new article is written. The Information owner means that this is more informal today. It is informal chats that brings these aspects to the surface. The Information owner exemplifies this by: “I heard you got a call about that; I got the same”. This type of informal chat.

When we asked if Organization 2 had any stated goals with their knowledge transfer The Problem manager answered that they do not have anything written down. Instead the respondent means that much of it is up to everyone, to think and act with the knowledge in order to serve the receiver as good as possible. The knowledge transfer strategy for support and third line support is explained by The Problem manager as:

“We have also focused on the support and the third line, that there should be good documentation. We have been working with this, we started up with the wiki and have been on study visits and developed some needs and requirements. Because we have noticed problems. But the goal is that there should be support so that you do not become frustrated as staff or employees. That one can find the right information, and have the right conditions to be able to do their job as well as possible. That is the goal.”

The Information owner that works in the support argues that the goal for them is to reach out with knowledge in the organization, and start focusing more on it. The Information owner means that:
“I believe our goal within the support group is that instead of as today, it is a lot of phone calls, but we want to reach the situation where telephone calls are really the smallest amount. That you can actually use your time to work more with the knowledge out to the user and work more proactively, maybe to find other solutions. Today a large part of the staff is just sitting and answering calls. And one would like to distribute it a little more so that there are several who work with the knowledge articles instead.”

4.5.3 Organization 3

When asked if the organization had a knowledge management strategy both respondents answered no. However, both respondents explained that they got an onboarding procedure. The process starts by having quite a general description of the organization, however when it comes to the service-desk there is no checklist of some sort which involves spontaneous showcase of the system and what is being displayed and done in the system. This involves showing the intranet where all the information is given but also more technical aspects of how the systems work, such as the different cases and the knowledge articles. Later the individuals are shown different parts of the organization so that they get a good idea of how the organization really works in real life.
Chapter 5. Analysis

In this chapter we will present a discussion where we compare and analyze the empirical data from chapter 4 in relation to our theoretical frame of reference which we presented in chapter 3. The analysis is divided into three main areas, which is a result from our thematic analysis of the empirical data and our theoretical frame of reference. The main headlines are “Knowledge transfer in ITIL organization”, where we will analyze how knowledge transfer is conducted. “Factors influencing knowledge transfer”, which is broken down to the subheadings: The perspective on knowledge, Value, The ITIL framework and Knowledge management strategy in which we will analyze how they affect knowledge transfer. The last headline is “Knowledge articles as knowledge transfer methodology” which is broken down to the subheadings: Actors, Boundaries, Knowledge creation and transfer, Knowledge creation and transfer to repository and Knowledge transfer and creation from repository. This part of the analysis aims to incorporate individual perspectives on knowledge and the transfer of it through information systems. The themes from “Knowledge articles as knowledge transfer methodology” can be linked to our discussion in chapter 3.10 where we combined the boundary object theory and Nonaka’s and Takeuchi’s (1995) theory of knowledge creation.
5.1 Knowledge transfer in ITIL organizations

How Organizations 1, 2, and 3 explicitly work with knowledge transfer differs in the various organizations depending on how far they have come with their knowledge management. This is quite obvious since larger organizations tend to have more resources to work with. However, this does not mean that resources are allocated into the right direction, or in this particular case, knowledge management. What we can see from our empirical data is that the knowledge transfer channels that are being used depends on the scale of the group or unit, and as previously mentioned, how far they have implemented knowledge management. This statement is particularly true when asking the respondents in organization 1. Both The Coordinator and The Group manager from Organization 1 argue that the reason for the knowledge management systems and why they want to document as much as possible is because of the size of their organization. This can be directly connected to Hume’s and Hume’s (2016) finding saying that the size of the organization is a dependent factor to the implementation of knowledge management. They also argue that larger organizations tend to benefit from knowledge management more than smaller ones. Even if this is the case, we can see that the size of the organization impacts the value of knowledge management. For instance, Organization 1 has a wiki system and a ‘come-around’ system which are systems that enforce the problem and incident solving for the individuals in the different lines of support. These systems contain explicit documentation and information for the individuals to use during instances of problem and incident handling. According to Agutter (2013) and Best Management Practice (2011b) a knowledge management system of this sort is to a great extent a big part of the knowledge transfer in organizations with ITIL implemented. However, we have seen that two out of three organizations do not have this kind of sophisticated system of handling information. Organization 2 have not yet implemented such system and are hence relying on wikis, knowledge articles and file systems where the documentation is contained. Whereas Organization 3 according to The Incident manager have a repository where knowledge articles are stored and explicitly made.

We can see that these organizations are in different positions regarding where they are stationed in the knowledge management process, however what unites these organizations is that they all have a focus on storing information in the form of knowledge articles in repositories. Meaning they want to make the information available to the support by creating documents and make the information explicit. In order to do so, there has to be a knowledge transfer process which goes from the individual (sender) that creates these documents to the system, and from the system to another individual (receiver). This is a clear indication that a conversion from tacit knowledge into explicit knowledge is desirable, and hence favorable. Becerra-Fernandez and Sabherwal (2010) argue that this type of conversion is easier to transfer in organizations and is a way of creating expertise in an organization. Furthermore, Lathi and Beyerlein (2000) argue that codifying knowledge such as books, guides, instructions and wikis can be digitized explicit knowledge, as such in repositories or databases. This conversion from tacit knowledge into explicit is called the externalization process which Nonaka and Takeuchi (1995) argue are taking the shape of metaphors, concepts, models analogies or other tangible categorizations,
which require to be triggered by individuals and use methodological approaches to make these concepts tangible.

In order to externalize one must convert tacit knowledge into explicit by trying to put forward internally stored information from the individual into explicitly made documents. A sub-question is how can one know if the information that the sender outputs can be understood by the receiver? This is a question we will not fully answer, and is not in our agenda to do so. However, it has a vital essence on how our discussion leads forward. For instance, we have seen in our empirical data that the more an organization is developing their knowledge management within ITIL the greater their desire is to externalize their knowledge. Organization 1, which has the most developed knowledge management do not want to use other methods than methods with explicit characteristics. The Coordinator said that they are using chat systems when communicating across, but also within the various support lines, this is because they want to avoid face-to-face interactions thus is the reason they have most of the information documented.

“It is quite an obvious knowledge transfer to us, there is a quick response, directly on a question, and then there are expectations that a similar question will not occur because I have already answered my colleague on the second line, and this is how it works. It is not certain that this will be a knowledge article, but we have had a dialogue of a certain matter that can be solved in a certain way.”

- The Coordinator

In addition, The Coordinator argues that if there is an instance where they discuss a certain matter and do not want to make a knowledge article from it, they will likely use the chat systems or e-mails in order to communicate instead. Organization 2 however, do not have this kind of externalized interactive measures that allow real time conversations. They are mostly focusing on having a well-established wiki and having a knowledge repository storing knowledge articles. In order to ensure quality in the articles The Problem manager argues that they are trying to simplify the instruction by having short texts that guides the users. Organization 3 however, does not have such demands or requirements. They have a repository that stores their knowledge articles, where support staff can find and use the articles. There are also no guidelines of how such an article should be done. A reason for this can be as previously mentioned the stage in which the organizations are currently in regarding knowledge management.

However, one reason for the externalization of the knowledge can be related to Conger and Probst (2014) argument regarding knowledge transfer in ITIL which tends to be complex and hard, especially when knowledge transfer is conducted in a standardized and comprehensive way in certain areas. Such areas are especially the service/help desk. They require both general and specific knowledge since the environment emphasis a lot on technology and new technology which makes the knowledge transfer important. This is especially true when
regarding Becerra-Fernandez’s and Sabherwal’s (2010) argument that the fundamental of knowledge management is its effectiveness and how the receiver interprets and acts on the knowledge. The effectiveness in the studied organizations is about solving the incidents and problems as quickly as possible. Gilbert et al., (2007) argue that the key aspects in delivering a good and effective service is the capturing of knowledge skills. But what the literature fails to determine is the aspect of time, and how it affects the knowledge transfer procedure.

If we look at previous research regarding knowledge management outside of an ITIL context we can see that authors such as Becerra-Fernandez and Sabherwal (2001), Nonaka (1994), Conger and Probst (2014), Zack (1999) and Trusson et al., (2014) talking about knowledge management and knowledge transfer in relation to efficiency. However, their perspective on efficiency, or time is that knowledge should contribute to it. Hence, not efficiency and time as a factor influencing the actual knowledge transfer process. The Information owner explains that the support should through knowledge help the customers as effective as possible. The Incident manager argues that knowledge is an important factor when the support has time pressure to solve problems. The Group manager means that quick and easily readable information during a call or ongoing incident is important in order to solve an issue as fast as possible. From this perspective it is clear that “time” is a factor that is not really recognized in the knowledge management literature. However, the empirical data gives us an interesting insight in what of a valuable factor this is for the organizations. We believe that in this fast-developing world time is a factor that becomes more and more important, which we have identified in this analysis.

We can also see that when an organization that adopts ITIL becomes more involved with knowledge management they tend to move away from more social methods that involves personal interactions with other individuals. For instance, Organization 3 which are in an early stage of knowledge management consider meetings as a relative valuable methodological approach since the different lines of support have decent contact, whereas Organization 2 have less meetings and Organization 1 have more or less none. This can hence lead to an overconfidence on the systems and to an overrepresentation of information embedded in these systems. This is the case in Organization 1, where there is a lot of information and many times they cannot understand how to solve a problem with the given information that is meant to be a solution to a problem.

“Even though there is a lot of information in the wiki, there can be instances where one wants to have very specific information. But this sortation is probably difficult. How can one sort, and in which way? The more information there is, the harder it is to keep it updated.”

- The Group manager

This problem is something that can be linked to what Trusson et al., (2014) describe as “hoarding knowledge”. If the organization is mainly focusing on storing knowledge, it might get overwhelming, which can lead to that “other knowledge” is neglected and will hence be considered as unimportant, since it cannot be stored (Trusson et al., 2014). This might imply
what Becerra-Fernandez and Sabherwal (2010) discuss regarding routines. Where routines involve knowledge that is embedded in organizational structures such as rules and processes. This can be linked to Organization 1 and The Coordinator where they have a template which suggests more general information and rules about certain matters.

From this part of the analysis we have identified a couple of important aspects moving forward in the analysis. By identifying how the organizations transfer knowledge we can clearly see that there is a high emphasis on knowledge transfer through information systems, regardless of what kind of knowledge it is (tacit and explicit). This will be of importance in our analysis in chapter 5.3 since we then aim to analyze how knowledge transfer could be understood through the lens of boundary object theory and Nonaka’s and Takeuchi theory of knowledge creation. From this analysis we know that we need to include both tacit and explicit knowledge transfer, which will influence how that analysis is conducted. Further we can identify that knowledge transfer is not as straight-forward as one might think, this analysis contributes with an understanding that there are influencing factors affecting the knowledge transfer, which we will analyze in depth in the upcoming section (section 5.2).

5.2 Factors influencing knowledge transfer

In the upcoming four sections we will present and discuss four influencing factors on knowledge transfer that we have identified. These factors are both based on the previous discussion regarding knowledge transfer in ITIL (section 5.1) as well as our empirical data and previous research. These factors will be of importance for understanding our final part, chapter 5.3, of this analysis, where we will analyze knowledge articles as a knowledge transfer methodology. The factors we will discuss are: The perspective of knowledge, value, the ITIL framework and knowledge management strategy.

5.2.1 The perspective of knowledge

Based on the empirical data we can quickly ascertain that the perspective on knowledge differs between both the respondents and the organizations. However, there are some aspects that are recurring. One recurring aspect of what knowledge is refers to how it is used in the organization. Organization 1, 2, 3 and all respondents agree that knowledge is something that supports the core business. The Coordinator from Organization 1 describes knowledge as a direct consequence of delivering successful services, the respondent means that without knowledge the support organization cannot deliver what is promised. The Incident manager conceptualizes knowledge as the result of its effect in the core business. The Support person frames knowledge as a tool in meeting and keeping the core business’s expectations. The Information owner explains knowledge as using the knowledge in helping the core business and their problems. Based on these perspectives we can see that the recurring perspective on what knowledge is, is not recognized in the comprehensive conceptualization of knowledge that we conducted in chapter 3.2. Which were more connected to justification of true beliefs, decision making, individual characteristics such as experience, insight and skill. Agutter (2013) points out that
knowledge in an ITIL organization is a way to support the service organization with information that is correct, available and directed to the right people. Best Management Practice (2011) mean that knowledge in an ITIL organization focuses on delivering high-quality services. Even though neither organization have the knowledge management process from ITIL implemented, we can clearly see that the initial thought on what knowledge can be is more aligned between the organizations and the descriptions of knowledge by Agutter (2013) and Best Management Practice (2011b). Conger and Probst (2014) also mean that knowledge in an IT-support in an ITIL organization is heavily influenced by what the knowledge is supposed to deliver to its core business. We believe that this might not be an answer of what knowledge is in general, however, it does provide some clarity in what knowledge is considered to be in an IT-support working with ITIL, hence how it might affect knowledge transfer.

Bhatt (2002), Nonaka (1994) and Nonaka and Takeuchi (1995) explain that knowledge can be seen as both individual and organizational, hence refer to it as two different types of knowledge. Bhatt (2002) and Nonaka and Takeuchi (1995) argue that organizations by themselves cannot create knowledge, but it is instead the individuals within it that creates knowledge for the organization and its personnel. We believe that this is especially interesting since both The Incident manager and The Group manager mean that knowledge is something that is embedded in the organization. The Incident manager argues that knowledge is a process where learning and value is created for the organization. But also, that knowledge is seen as a part of the organization. This is directly in line with Bhatt (2002) who argues that knowledge in an organization is knowledge that is transferred from the individuals to the organization itself. However, The Incident manager is a respondent with a strategic perspective in the organization, hence might this perspective be influenced by the respondent’s position in the organization. However, The Group manager argues that knowledge should be seen as a demand from the core business, directly influencing what type of knowledge the IT-support should have. We believe this can be related to Bhatt’s (2002) description regarding organizations being a “problem-facing” and “problem-solving” entity. Just as the reasoning in the previous section, we argue that this mentality is forged from the distinct customer-focus that an IT-support has in an ITIL organization.

Even though the previous section clearly highlights a perspective on knowledge, we would like to discuss the perspective on a more abstract level in order to further understand what the organizations believe is knowledge. Regarding this the empirical data is more diverse. Organization 1 and 2 that have been working with their knowledge management longer than Organization 3, and does in our perspective have a deeper understanding of what knowledge is, and especially how knowledge differs from information and data. Both Organization 1 and 2 mean that knowledge is something that you can act upon. Liew (2007), Dixon, (2000), Rowley (2007) and Becerra-Fernandez and Sabherwal (2010) all emphasize the actionability with knowledge in an organizational setting, which is in line with both organization 1 and 2. The Coordinator explains that information is something that you can act upon, whereas knowledge is something that has to be acted upon, which is a perspective that The Group manager has as well. In our conceptualization of knowledge (chapter 3.2) we noticed that the actionable
dimension of knowledge is something of high importance explaining knowledge in an organizational context (Liew, 2007; Dixon, 2000; Rowley, 2007; Becerra-Fernandez and Sabherwal, 2010). Organization 2 does not to the same extent refer to knowledge in terms of actionability, but instead understanding. The Problem manager explains knowledge as its hierarchical superiority against data and information. The Problem manager sees knowledge as a higher hierarchy than statistics and information, a development of understanding, which could be an understanding of the core of a problem. Both the Problem manager and the Information owner argue that knowledge in comparison to information and data is something that creates a meaning. They mean that when you understand something, it is meaningful, or provides a ‘valuable’ insight. We believe that this is interesting since Rowley (2007) explains that the differences between the steps in the DIKW hierarchy is influenced by meaning and value. An interesting aspect is that from our conceptualization of information and knowledge (chapter 3.2.2 and 3.2.3) Liew (2000), Davenport and Prusak (1998), Rowley (2007) and Dixon (2000) all argue that meaningfulness is regarded as an attribute for information rather than knowledge. However, information is an important part of knowledge, since knowledge is a further developed form of information (Davenport and Prusak, 1998).

From all our respondents the main aspect that is not touched upon is the individual characteristics such as experiences, insights and skills which we believe is heavily influencing what knowledge is (See: Nonaka, 1994; Turri, 2012; Davenport and Prusak, 1998 and Rowley, 2007).

The final part of this section is to analyze how the view on knowledge might affect knowledge transfer. As we know from authors like Becerra-Fernandez and Sabherwal (2010), Ko et al., (2005), Gilbert et al., (2007), Conger and Probst (2014) and Trusson et al., (2014) knowledge transfer is the process of communicating knowledge from a sender to a receiver, which can be both tacit and explicit. What the authors describe is built upon an understanding on what knowledge is, hence influencing what knowledge being transferred, but also how individuals in an organization relates to knowledge.

The insights we gained from this section is that it is obvious that knowledge in this context does not have a set definition. The versatile perspectives we have noticed in the empirical data suggests that the studied organizations do not have a clear picture of what knowledge is, or at least what knowledge explicitly is in their organization. Instead the perspective on knowledge is the effects it is meant to contribute with. However, it is important to mention that the empirical data in this section are direct responses to the question “What is knowledge?”, which might influence the responses. However, one aspect regarding how the organizations describes knowledge is the context in which this study is conducted, that is an ITIL context. The organization much aligned regarding knowledge being a tool in their problem and incident management process, which according to the literature about ITIL is correct, and it should be that way. However, in this analysis we brought a more wider perspective on knowledge and placed it in this context, hence identified some aspects traditional knowledge literature highlights, but not the ITIL literature.
5.2.2 Value

The most predominant perspectives on what valuable knowledge is, according to the empirical data is how knowledge is connected to the overall business approach and its goals, and that the knowledge is stored in some type of repository. Which we will discuss in the upcoming sections.

The core business perspective

The Incident manager explains that the value of knowledge in Organization 3 is how the result from it will help the organizational goals. The Problem manager provides a similar perspective, arguing that the value of knowledge comes from how good of a service delivery they can provide to their customer, which the respondent describes as the core business. The Problem manager explains that how good of a service they can deliver is based on how effectively they can help their customers, hence is the value of knowledge related to effectively helping their customers. This is not something we believe is strange, especially if we take a look at the ITIL framework. Agutter (2013) explains that knowledge in the ITIL framework is a supporting tool for delivering high-quality services to the core business, hence is everything that the service organization does connected to the what it should contribute to the core business. Even though neither organization have the knowledge management process provided by ITIL implemented, we believe that the “ITIL mentality” clearly is visible in how the studied organizations are valuing knowledge. This is in line with Mohamed et al., (2008), they mean that the perspective on knowledge in ITIL organization is seen in the light of the core business. Their study showed that knowledge becomes valuable when it is valuable for the core business. This perspective is something that we have identified in our empirical data as well. The Coordinator, Group manager, Problem manager and Incident manager mean that valuable knowledge is easy and readable information that will help solving an ongoing incident or issue that the customer has, as fast as possible. The Information owner adds that it is important for the service organization to understand that the person who needs support have more important things to do, that is why they need to solve incidents and problems as fast as possible.

It is clear that the value aspect of knowledge concerns what its effect is, that is contributing to the core business. We believe that the effect of knowledge as a value determiner is interesting, although nothing new. Whatever perspective on valuable knowledge there is, Zack, (1999), Trusson et al., (2014), Nonaka, (1994), Conger and Probst, (2014), Alavi and Leidner, (2001), and Becerra-Fernandez and Sabherwal, (2010) it is predominantly concerned with effect and outcome. Therefore, we need to take one step further in the analysis in order to fully understand the effects that Organization 1,2 and 3 are talking about. For an example Nonaka (1994) talks about valuable knowledge in terms of economic outcome, such as effectivization, cost and ROI (Return on Investment). Aspects like these are nothing we have really encountered in our empirical data though. Becerra-Fernandez and Sabherwal, (2010) talk about the effect in terms of decisions and taking good informed decisions. This is something that clearly is visible since The Coordinator, Group manager, Problem manager and Incident manager talk about valuable
knowledge as solving problems. However, in the discussion Becerra-Fernandez and Sabherwal, (2010) has, the decision is the effect, hence not completely in line with what our empirical data is saying. Conger and Probst (2014) describe that one way of understanding valuable knowledge is to look at the deployment and use of it. They mean that the value of knowledge is what one can do with it, which is more in line with what our empirical data suggest. Zack (1999) studied knowledge in an IT-service organization, and the author found similar perspectives on valuable knowledge. Zack’s (1999) study heavily emphasize the customer-focus as a fundamental aspect influencing the valuing of knowledge. The author means that the value in knowledge is directly related to the value it brings the customer. In our empirical data the customer would be the core business and the effect of it is to have a core business with the smallest number of obstacles as possible.

From this we can clearly see that both previous research and our empirical data is somewhat aligned regarding the perspective on valuable knowledge. It is clear that one perspective on the value aspect of knowledge concerns its effect, that is to contribute to the core business, which in this case is much aligned with the ITIL context that we have. We also believe that this perspective to great extent is affecting what type of knowledge that is being transferred in the organizations, since the end goal seems to be to solve organizational problems rather than for people to learn and develop.

**Stored knowledge**

The other predominant perspective on valuable knowledge is according to Organization 1, 2 and 3 the form in which it is collected and shared, which we also identified in section 5.1. In Organization 1 and 2 it is clear that their main form of knowledge transfer is conducted through various information systems. Organization 3 is also using information systems for knowledge transfer, however it is not as developed as in Organization 1 and 3. The Problem manager means that for them it is important that everything is registered and stored so that there always is a possibility to go back and look at it, and in the future be able to work more proactively. We believe that this indicates a focus on having knowledge stored for easy access and retrieval. The Group manager explains that an important factor for them and their first line support is to have quick and easily readable information at hand during an ongoing incident, in order to solve it as fast as possible. The Support person continues and means it is important for their organization to have a knowledge database or repository, and to have relevant knowledge created and made available for each department so that they can solve problems and incidents effectively.

We know from our theoretical frame of reference that knowledge in repositories are a highly discussed subject (see chapter 3.6 and 3.7), where in an ITIL context these repositories are referred to as SKMS (Service Knowledge Management Systems). If we take the perspectives from Organization 1, 2 and 3 and connect it to what Trusson et al., (2014) discuss regarding optimists and pessimists it is clear that the studied IT-service organizations are more directed towards the optimistic perspective where knowledge can be stored in a repository and it becomes valuable when it is stored. Instead of the pessimistic perspective which values knowledge as when it is transferred through social interactions. We do not believe that an
organization must be of either kind, however it is important to be aware that the perspective is influencing how knowledge is transferred according to Trusson et al., (2014). The authors mean that if an organization is emphasizing information systems as a major channel for knowledge transfer, then there will be greater focus on transferring explicit knowledge. Lahti and Beyerlein (2000) mean that explicit knowledge is often seen as codified and more formal and can to some extent be understood as “rich information”, because of its more meaningful nature. The authors argue that explicit knowledge often relates to databases and repositories, which is something that is agreed upon by Nonaka (1994) and Becerra-Fernandez and Sabherwal (2010). This discussion highlights an important factor in the analysis of valuable knowledge in the studied organizations. We argue that if an organization is valuing knowledge that can be codified and stored, then tacit knowledge which according to Becerra-Fernandez and Sabherwal (2010), Lahti and Beyerlein (2000) and Nonaka (1994) is knowledge bound to the individual such as insights and experiences easily can be neglected. From a ‘value’ point of view this is not in line with what Dalkir (2005) explains. The author means that the value of knowledge oftentimes is connected to how tacit it is. This is quite the opposite from what we have identified in our empirical data, where emphasis is more directed toward the storing possibilities with knowledge.

By valuing knowledge based on the codification possibilities does according to Trusson et al., (2014) affect how knowledge is transferred in an organization. The authors mean that if management is emphasizing a lot of knowledge storing in information systems, then only knowledge that can be stored, i.e. explicit knowledge will be recognized. They mean that this will influence that other knowledge, such as tacit knowledge, and non-codifiable knowledge will be neglected, and not considered as important, since it cannot be stored. This is visible in the studied organizations. The Problem manager explains that their knowledge repository is their main channel for knowledge transfer, The Coordinator argues that their focus on knowledge repository is because they want to eliminate face-to-face interactions as much as possible, and not having meetings as a channel of knowledge transfer. The Problem manager does also mean that meetings are not their main channel for knowledge transfer, but their knowledge repository is. The Incident manager and the Support person in Organization 3 are however considering face-to-face and meetings as an important part of their knowledge transfer. However, The Incident manager means that they are in an early stage of knowledge management, and their IT-service organization is much smaller. Just by looking at the approximately number of employees, Organization 1: 100, Organization 2: 200 and Organization 3: 56, we can see the differences. However, this is something we recognized in section 5.1, as a possible value determiner. We do believe that this perspective can generate some insights to why Organization 1 and Organization 2 is valuing stored knowledge, hence not meetings and face-to-face interactions more than Organization 3. This is from an ITIL perspective nothing weird since knowledge management and the problem and incident management processes are highly emphasizing documentation, storing information and knowledge in order to solve problems and incidents faster the next time. The discussion of stored knowledge as an important value determiner will guide us in to our third and last aspect, which is organizational knowledge.
Organizational knowledge

The last aspect that we have identified as valuable knowledge is related to the discussion about individual and organizational knowledge. This aspect is individually determining what the studied organizations believe is valuable knowledge. But as the analysis continues it is also clear that this could be an effect from the two previous mentioned aspects which we have identified as determining what the organizations see as valuable knowledge, that is knowledge for helping the core business and stored knowledge.

We believe that The Incident manager explains it well by saying that knowledge in a broader context can be seen as a process where learning and value from it creates a more mature state for the organization. If we put that in relation to Bhatt (2002) who argues that organizational knowledge is learning capabilities that are embedded in routines and organizational repertoires. The Incident manager framed knowledge as a process which lays the foundation for organizational development. Besides that, The Incident manager argues that knowledge is embedded within organizational routines and processes, which the respondent means is part of the organization. This is also in line with what Bhatt (2002) explains as organizational knowledge. When Bhatt (2002, p.32) talks about organizational knowledge the author is framing an organization as a “problem-facing and problem-solving entity”. The background for this perspective is according to Bhatt (2002) that organizations today require individuals to take fast decisions, have a customer-focus and solve problems fast and efficient. This is something we recognize from our discussion regarding valuable knowledge as stored knowledge where The Coordinator, Group manager, Problem manager and Incident manager talk about valuable knowledge which contributes to solving problems. Also, The Group manager and The Problem manager explain that an important factor for them and their first line support is to have quick and easily readable information at hand during an ongoing incident, in order to solve it as fast as possible. The Support person highlights the importance of having relevant knowledge created and made available for each department so that they can solve problems and incidents effectively. According to Bhatt (2002) organizational knowledge is created by the individuals within it, but it is stored in the organization in order to solve routine problems, or low-complexity tasks. This perspective emphasizes that this type of knowledge should not be bound to individuals, but instead be embedded in the organizations problem-solving routines. The Problem manager highlights this rather good, describing that:

“If you think about the whole picture, and having a user-focus, a strategy is definitively needed, otherwise how could “Kurt” (Swedish name) ever take some time off?”

This statement originates from a discussion regarding if Organization 2 have a knowledge management strategy or not. The Problem manager states that without a strategy, knowledge is bound to the individual and therefore, in this case “Kurt” cannot take time off. Our interpretation is that Organization 1, 2 and 3 value knowledge that could be seen as organizational knowledge, rather than individual knowledge, at least regarding the explicit knowledge transfer mentality that the organizations have. If we add the two other perspective
on valuable knowledge into the discussion it becomes rather clear that it is organizational knowledge they aim to transfer. From all three organizations we have seen an emphasize on storing knowledge, making it available in various situations in order to help the core business. There are not really any expressed wishes for individuals to “learn”, but instead solve problems.

5.2.3 The ITIL framework

One aspect that we have identified as a factor affecting the organizations knowledge transfer is that they have the ITIL framework implemented, which we will present in this section. We are aware that the context for this study is a self-selected ITIL context, since we are studying organizations that have the ITIL framework implemented. However, we do believe that we need to present how this context, i.e. the ITIL framework is affecting knowledge transfer, in order to raise the replicability of this study, but also for us to be able to make the most accurate analysis as possible later in this chapter.

From the empirical data we can see that the knowledge transfer occurring in Organization 1, 2 and 3 is predominantly related to the incident and problem management process. Just as we discussed in the value chapter in the analysis (chapter 5.2.2) the knowledge the organizations value is knowledge to help their core business. However, from this perspective we can see why that is the case. Conger and Probst (2014) explain that the service/help desk is in charge of handling incidents, problems, failures, requests and question. The authors argue that these types of activities require a certain type of knowledge, that is knowledge that will support the service organization in handling these problems and incidents. Mohamed et al., (2008) also highlight this, but chooses to frame it as: the knowledge an IT-service organization should transfer must be a means to improve the quality of the services, hence contribute to processes such as the incident management process. An interesting aspect connected to this is that The Problem manager argues that the ITIL framework is not a steering factor in how they conduct their knowledge management. At the same time The Problem manager means that the knowledge management they conduct is well functioning in relation with the ITIL framework. The Problem manager and The Information owner also emphasize that their knowledge management aims to support their ITIL framework. Just as we previously mentioned The Problem manager highlights the knowledge management perspective in relation to the incident and problem management process and argues that it is from the problems and the incidents knowledge should be captured and further transferred. Which The Coordinator, Group manager, Incident manager and Support person mean as well. With this in mind it is clear that the studied organizations’ knowledge management is influenced by ITIL, since it is the problem and incident management processes that highly regulates what type of knowledge that attract focus, which is something both Conger and Probst (2014) and Mohamed et al., (2008) describe as a natural occurring effect from the ITIL framework.

If we assume the “ITIL perspective” provided by Agutter (2013) we can clearly notice that the knowledge management process provided by ITIL is meant to be a supporting process for the
service transition phase. In this phase knowledge aims to support an effective service delivery, thus supporting the incident and problem management process in service operations. We believe that this further strengthens our perspective that even though the respondents believe that the ITIL framework does not affect how they work with knowledge management, it is actually influencing it. Another aspect that Agutter (2013) and Marrone et al., (2014) highlight as an advantage with ITIL is that the framework, besides the processes also defines various groups and roles. An example of that is that the support is divided into three groups, called first-, second- and third line support, which takes care of different incidents and problems, and having different competencies. This is something Organization 1, 2 and 3 are talking a lot about, when they divide their service organization into these three groups. The Problem manager means that ITIL is good because responsibility is placed within the different line supports and the organization get a “right person on the right place” kind of situation. This is desired according to The Problem manager who means that tasks and incidents should not be placed on a certain individual, but rather on function or group.

In relation to the above-mentioned discussion regarding solving incidents and problems we would like to highlight another important aspect from the ITIL framework. Just as we mentioned in our discussion regarding valuable knowledge (chapter 5.2.2) all three of the organizations are valuing knowledge that is connected to the core business. In this section we aim to analyze and further clarify how the ITIL framework is affecting this. As we know from Agutter (2013) the incident and problem management process are established to help the core business with their tasks. As we also know from Agutter (2013) is that a customer focus towards the core business is “built-in” the ITIL framework. Mohamed et al., (2008) argue that the perspective on knowledge in ITIL organizations is seen in the light of the core business. Zack (1999) even argues that the knowledge creating and sharing entity in a customer-oriented organization does not need to be concerned about what knowledge is or how it is used, as long as it contributes with value to the customer. The Information owner argues that the support’s perspective on knowledge and information is directly related for those asking for help, which are the customers. The Information owner continues that the knowledge and information used should be seen as a tool in helping the customer as effective as possible, which is something The Incident manager believes as well. As we can see from this discussion, but also the discussion regarding valuable knowledge (chapter 5.2.2) is that the ITIL framework does influence how the studied organizations view knowledge, which we from previous analysis know influence the knowledge transfer.

5.2.4 Knowledge management strategy

The discussion we previously had regarding the perspective of knowledge, value and the ITIL framework are aspects that to great extent influence the overall knowledge management strategy which is the topic for this section. However, in this section we aim to analyze what this practically means. In this section we will analyze the empirical data in relation to previous research to create a more nuanced perspective on what these previous findings mean but also to frame the context in which knowledge transfer occurs in the studied organizations.
Overall strategy

The first aspect we have identified is the overall strategy and stated goals with knowledge management and knowledge transfer. The first finding from the empirical data is that neither organization has an overall knowledge management strategy, nor the ITIL provided knowledge management process. All respondents from all organizations all describe that they did not have any stated or written strategy for how they would work with knowledge management, but that they nevertheless worked with knowledge management. Both respondents from Organization 1 mean that the lack of a knowledge management strategy is in fact influencing how different people within the organization views knowledge and that there is some confusion as a consequence. Instead The Group manager states that knowledge management have become a learning by doing type of process. Even though none of the organizations are working with the ITIL provided knowledge management process, Agutter (2013) and Best Management Practice (2011b) describe that a knowledge management strategy is the most vital part of knowledge management since it sets the tone for how the knowledge transfer is conducted. According to Agutter (2013) and Best Management Practice (2011b) the strategy should include an explanation of what knowledge is, how it is going to be collected, maintained and transferred. But also to define goals and roles. Gilbert et al., (2007) are also emphasizing the importance of having a formalized and stated knowledge management strategy in order for knowledge management to actually work. They also mean that the strategy should include a knowledge lifecycle management process that covers the entire process from creation to deletion. We believe that The Group manager from Organization 1 who stated that there was some confusion among people in the organization regarding knowledge and knowledge management could be sorted out if there were some type of stated strategy that people could find support in. We can see that the lack of a stated strategy is visible in Organization 2 as well, since The Information owner stated that:

“My experience is that if we get a task that the others believe is difficult, then it is easy to lean on somebody else, like “You solved that last week, you can do it this week too”. It may be that people do not really dare to get into it.

This quote states that a problem has been solved previously, but the knowledge gained from it has not been transferred to another person, nor the knowledge repository. This dilemma could according to Gilbert et al., (2007) be dealt with if there was a stated and formalized process for how the organization should work with knowledge management and knowledge transfer.

Regarding the knowledge management strategy Gilbert et al., (2007) is emphasizing the importance of having defined roles and stated goals with the knowledge management. The latter is an interesting aspect, The Group manager says that they do not have any stated “purpose”, which we will interpret as goal, The Incident manager explicitly say that their organization does not have any formulated goal for their knowledge transfer process. In Organization 2, The Problem manager said that they do not have any goals written down, but it is instead up to everyone to think and act with the knowledge in order to serve its co-workers as good as
possible. However, The Problem manager explains that their unofficial goal with their knowledge management and knowledge transfer is:

“We have also focused on the support and the third line, that there should be good documentation. We have been working with this, we started up with the wiki and have been on study visits and developed some needs and requirements. Because we have noticed problems. But the goal is that there should be support so that you do not become frustrated as staff or employees. That one can find the right information, and have the right conditions to be able to do their job as well as possible. That is the goal.”

The other aspect that Gilbert et al., (2007) pointed out as important in the discussion regarding knowledge management strategy was roles. The authors mean that it is important to have defined roles in order to understand where responsibilities lies. Agutter (2013) explains that in the ITIL knowledge management process there is a role called “Knowledge manager” which is in charge of defining the strategy, making sure that knowledge is collected, analyzed, stored and transferred, and ensure that goals are realized. Organization 1 and 2 in our study both have informal knowledge managers, people that are “in charge of” or “drives” the knowledge management. However, The Information owner who is the informal knowledge manager in Organization 2 argues that a more defined role would be a strategic improvement to their knowledge management. We believe that the identified problems with not having a stated strategy stems from the fact that knowledge management in the studied organizations is on a more formal level. However, we argue that the situation could be different if the organizations would have had the ITIL knowledge management process implemented. It seems like that process have some important components contributing to a sustainable knowledge management initiative.

**Knowledge transfer through systems**

It is obvious at this point that information systems are the main channel to transfer knowledge in the studied organizations. We have previously in this analysis, see chapter 5.1 “Knowledge transfer in ITIL organizations”, 5.2.2 “Value” and 5.2.3 “The ITIL framework” discussed that the main part of the organizations’ knowledge transfer occurs in different types of information systems. First and foremost, we can see that all three organizations have two different type of systems. One for internal use, i.e. how to solve problems and incidents, and the other one is a repository for the users, where they can find solutions to more common problems. The Group manager mean that they have three systems, a wiki, the Come-around system and an intranet where users can find information. The Information owner states that they have two systems, the wiki for supporting the help-desk and first-, second- and third line support and an intranet where users can find relevant information, which The Incident manager explains their organization has as well. We believe that the knowledge transfer through systems perspective is something to consider in the discussion regarding knowledge management system. However, since it has been analyzed in the previous mentioned chapters we will not discuss it any further here.

**Proactive mentality**
What we can see from the empirical data is that the organizations are heavily emphasizing a proactive mentality. The Problem manager argues that a proactive mentality is very important and states that their knowledge management focus is something that will make them work more proactively. What The Information owner means is that reacting to problems and incidents is not enough, instead the organization needs to have a proactive mentality in order to handle problems and incidents more effectively in the future. The Problem manager continues by describing that an important part of their problem and incident management process is to gain knowledge about it, hence be able to work more proactive in the future. The Problem manager puts it as:

“We want to gain knowledge if we notice that we have had a lot of incidents, made our problem cases on them, we want to learn what to do, but also find the core of the problem. What should we do to make sure we do not have to deal with this again? And in order to solve incidents effectively we need to have knowledge and instructions.”

Organization 1 and 3 also emphasize the importance of working proactively by storing knowledge in order to have it at hand when similar incidents and problems occur in the future. We argue that this is not a proactive mentality since they in fact are reacting to problems and incidents that have already occurred. For example, The Incident manager explains that there are no certain procedures or routines when a certain incident occurs to identify possible knowledge transfer material since the work is mostly done on an operative level. As we have mentioned previously in this section none of the organization have a knowledge management strategy, hence do not have a stated process for when knowledge should be collected and transferred, it is instead up to the individual handling the problem or incident. In previous research regarding knowledge transfer within ITIL Conger and Probst (2014) and Gilbert et al., (2007) mean that it is important that there is a database or repository where people can create and retrieve knowledge, which indicates a reactive mentality. The authors also highlight the importance of identifying and creating reusable content, to focus on useful knowledge content, which will come from incidents and problems. This further supports our statement that knowledge is created and transferred in a reactive manner. What the empirical data and previous research indicates is that problems occur, solutions are (sometimes) created, then reused in order to solve similar problems in the future.

Conger and Probst (2014) argue that this is a rather problematic approach. They mean that the process of collecting knowledge often focuses on solution. However, a crucial aspect is neglected with that perspective, that is the recognition of the problem. Conger and Probst (2014) argue in that the process Problem to Solution is often heavily focused on the solution. This results in the process of Solution to Problem (In a new context) is often hard, since the knowledge is more focused on solution, rather than problem. We have highlighted the time aspect in chapter 5.1, as well as the focus on solving problems effectively. This makes us believe that the organizations are mainly gathering knowledge regarding solutions, rather than the problems. Which according to Conger and Probst (2014) mean that the knowledge collected will be of highly contextual dependence. Let us say that a problem is reported, that has multiple
solutions. The person handling this problem identify a solution for this problem in that particular context, creates a knowledge article about it. Next time a similar problem is reported, the person handling the problem will search the knowledge repository and find a solution, which may not work in that particular context. The person later finds a new solution, writes a knowledge article about it. The result from that is that the repository will contain multiple solutions to similar problems but will only work in different context. If instead the problem is recognized, and multiple solutions for it is identified and stored in the knowledge repository, the problem itself is in focus, and not the solutions. This is how we interpret what Conger and Probst (2014) describe the dilemma in only recognizing the solution. We would also argue that a focus on the problem is more proactive than focusing on the solution.

5.2.5 Summary

As we can see from section 5.2.1 through 5.2.4 there are four important factors to keep in mind when discussing knowledge transfer in ITIL organizations. We have identified that the perspective on what knowledge is in an organization is determining what knowledge that gets transferred. The same argument goes for how an organization is valuing knowledge. We have also identified that the ITIL framework itself and the overall knowledge management strategy an organization have, or do not have, has attributes that directly and indirectly influencing knowledge transfer. Our understanding from this can be seen in figure 9.

![Figure 9. Four influencing factors on knowledge transfer in an ITIL organization. Krigsman and Zahirovic (2019).](image)

The box called “knowledge transfer” in figure 9 is a simplified representation on figure 8 on page 54, where we illustrated how Nonaka’s and Takeuchi’s (1995) theory of knowledge creation and boundary object theory could be seen in relation to each other. This is important because these identified factors will be influencing variables in the last part of the analysis.
5.3 Knowledge articles as knowledge transfer methodology

To start off this part of the analysis we would like to highlight a couple of important aspects. First, this analysis of boundary object theory and Nonaka’s and Takeuchi’s (1995) theory of knowledge creation is not something that has been done before, however some studies on knowledge transfer and boundary object theory have previously been conducted (Oswick, 2005). We know that our empirical data is rather limited in order to draw any big conclusions. Therefore, we want to be clear that this analysis in some parts will be at a more abstract and conceptual level, with a varied level of detail, and in some cases having a speculative approach. Since this is the first time we or anyone else deploy this way of thinking regarding knowledge transfer and creation, we rather want to find out if it is a good way to further understand knowledge transfer, and thereby construct some foundation for future research. Second, the analysis in section 5.1 and 5.2 do have a rather big influence on this analysis, hence will we be referring to those sections at times. We laid the foundation for this analysis in chapter 3.10, which is why we will refer back to figure 8 (page 54) which we created in that section and present it here.

Figure 8. (page 54). Our perspective on the combination of knowledge creation and boundary object theory. Krigsman and Zahirovic (2019).

5.3.1 The object

The first part of the figure to explain is the object, since we throughout this analysis will talk about it. As we know from our analysis of both knowledge transfer (5.1) and strategy (5.2.4) the main form of knowledge transfer in the three studied organizations are in form of information systems and with knowledge articles. These knowledge articles are a product from a solved problem or incident, containing text that aims to guide the reader in solving similar problems in the future. Star (2010) explains that an object is something that connects the boundaries between different social worlds, which in our context is different actors and line supports. The author continues that an object can be digitized, hence why we choose to conceptualize the object as the different knowledge articles. In figure 8 (page 54) we choose to call these articles knowledge objects in order to gain a more generalized description of the figure. However, since our analysis in 5.1 and 5.2.4 we now understand that the knowledge objects contextually are called knowledge articles, which is a terminology we will stick to moving forward in this analysis. What we know from previous in this analysis, the description
of ITIL in chapter 3.6 and our empirical data is that these knowledge articles is documents in a repository explaining how a problem or incident should be solved. This is a demarcation stemming from us studying knowledge management connected to the problem and incident management process. From a practical perspective of the studied ITIL organization, these articles are often step-by-step instructions or other types of instructions guiding and learning the reader of them in solving the problem or incident at hand, in order to help the core business as fast as possible.

5.3.2 Actors

One fundamental part of boundary object theory is social groups and the actors within them. Star and Griesemer (1989) argue that when actors are trying to solve a certain problem, their view on the problem will be different because of their background and how their view on the social world is perceived. We will therefore start this analysis by presenting and discussing “actors” in the studied organizations. The actors are personnel in the IT-service organization working in the support/helpdesk, first-, second- or third-line support. These actors possess different skills, insights and experiences. According to Agutter (2013) personnel in first line support takes care of the easiest problems and incidents, in direct contact with the customer. The second line support takes care of larger and more complex incidents and problems, which are called IT-service failure. The third line support is handling incidents on a software and hardware level, hence having a more technical competence. Different individuals have different skills and experiences in organizations, just as The Problem manager is an expert in architecture and business development, or that The Information owner’s extensive work in the support has accumulated a lot of experiences. As we can see from our conceptualization of knowledge (chapter 3.2), Davenport and Prusak, (1998) explain that knowledge to a great extent is built on skills, insights and experiences. Putting this in the context of this analysis we can see that the knowledge an individual possess is going to influence how the individual is solving a problem, just as Star and Griesemer (1989) argue.

As we described in chapter 3.10 where we combined boundary object theory and Nonaka’s and Takeuchi’s (1995) theory of knowledge creation we can see that aspects such as experiences, insights, skills and contextual information give individuals different perspectives on both information and explicit knowledge. Looking at our empirical data The Group manager argues that it is up to the person solving a problem or incident to determine what knowledge the article should contain, which from an ITIL perspective is rather vague (Best Management Practice, 2011a). In some instances The Group manager means that some people want very specific and detailed knowledge, while some wants to have it more condensed. Looking at this from the perspective of boundary object theory it shows us that these are aspects that characterized the individuals. Another perspective on this is the disagreement between The Incident manager and The Support person. The Incident manager argues that some knowledge articles are hard to understand since they are only a rather big body of text, while The Support person means that the text serves its purpose since it explains previously made case information. Although, in some instances The Support person also believes that a more step by step approach would be
preferable. Our analysis in chapter 5.2.4 highlighted the flaws in not having a stated knowledge management strategy or any stated goals. In this context that is visible since it seems to be up to the individual in how to create these knowledge articles, but also what actually becomes an article. It is also visible that there are individual differences in how one wants an article to be structured, i.e. step-by-step or body of text, specific and detailed or short and easy. Relating this back to chapter 3.10 we can see that Nonaka and Takeuchi (1995), Davenport and Prusak (1998), Liew (2007) and Becerra-Fernandez and Sabherwal (2010) argue that individual characteristics such as experiences, insights and skills creates a foundation for how individuals interprets information and explicit knowledge, which Star and Griesemer (1989) describe as individual perception on the surrounding based on their background. We believe that the discussion regarding what type of knowledge or information that should be included in an article stems from the different views on what knowledge is, but there is also a practical aspect to keep in mind. One IT-service person in, let us say second line support have one unique set of skills, experiences, insights and interests which influence how this service person comprehend a written step-by-step guide. Another IT-service person with another unique skillset, with less experience might need more surrounding knowledge and information in order to grasp the step-by-step article the same way. This is clearly highlighting the different individual aspects that an IT-service organization needs to keep in mind when writing knowledge articles, thus creating the tools to solve problems and incidents. This also guides us into the next section of this analysis, that is, “boundaries”.

5.3.3 Boundaries

Closely linked to the actor or individual in the previous paragraph is the “boundary” between them. Star (2010) states that a boundary object has both a shared space where different individuals or social worlds understands each other, however the same boundary object does also mean different things for these individuals or social worlds. Nicolini et al., (2012) argue that boundary objects remove the need to learn across different social groups. Boundary objects have some details that can be understood by everyone, but not everyone understand the full context of it, since the object itself mediate that.

Putting this in our context we can see that through the lens of boundary object theory the knowledge articles created by different individuals should act as a translator between one individual’s knowledge about something, so another individual can understand it. However, just as Star (2010) and Nicolini et al., (2012) argue there needs to be some common ground for these individuals. The Problem manager, Information owner and Incident manager talk a lot about their onboarding processes, which is how they introduce new employees and how this process helps in forming the new employees. The respondents talk about some initial learning, showing the new employee around, displaying the different systems, etc. However, one aspect that we reacted to was the high emphasis on communicating what the core business is, and how the service organization always needs to have the core business in mind. The Information owner argues that it is a prerequisite that a new employee knows this. At first glance these aspects might seem a bit out of context. However, if we look back to our identified factors influencing
knowledge transfer (chapter 5.2) including the analysis of valuable knowledge and the perspective of knowledge, we can clearly see that the most predominant perspective is that the knowledge transferred in the organization should aim to help the core business. We believe that the high emphasis on communicating the service organization’s goals and function creates a common understanding between all individuals and groups within the service organization. We believe that this could be seen as what Thompson (2017) calls “mental models”, which are a shared understanding amongst individuals regarding the world around them. The author means that this could come in form of beliefs and viewpoints. From the analysis of the perspective of knowledge and valuable knowledge (chapter 5.2.1. and 5.2.2) we argue that this creates a shared space between the individuals and groups in the service organization which to great extent influences how one person is creating a knowledge article. We do also believe that the different ITIL line supports in the organization, which we discussed in 5.3.2, also create groups within the organization where viewpoints and competencies are similar, hence making the boundaries less influential within the groups. Let us say that an individual working in the third line support, which according to Best Management Practice (2011a) is specialized in hardware and software writes or reads an article regarding software and hardware than the knowledge transfer through the knowledge article is easier than if the same hardware focused knowledge article was written to or by a first line support person. As we can these different line supports both create social worlds making knowledge transfer easier within them, but also a greater division between the different line supports (social worlds), making knowledge transfer between them harder.

5.3.4 Individual perspective on knowledge creation and transfer

When an individual has solved a problem or an incident, the individual has applied aspects such as skills, experiences, contextual information and insights in order to solve it. The Problem manager argues that the contextual dimension is especially important to remember, the respondent means that it is the context that creates sense. The process of solving problems and incidents can take one minute or two days, but nevertheless, there has been a process in solving the problem or incident. The individual who solved it now possesses knowledge about how to solve these types of problems again. This could be actual knowledge about the problem, the necessary tools needed to solve it, the repositories to search for information, the correct people to talk to, contextual information from the core business that was affected by the problem. All three organizations argue that the reason behind the knowledge articles is because they do not want to rediscover knowledge about problems and incidents. In order to communicate this knowledge, we know from our analysis of knowledge transfer in chapter 5.1 and knowledge management strategy in chapter 5.2.4 that the organizations are using knowledge articles, which we choose to see as boundary objects. The Problem manager means that people that have been in the support for a long time gain a lot of experience in both what the core-business users needs and wants, but also experience in what type of knowledge that should be documented. The individual creating this article is subjectively creating an article based on her/his experience with the problem, as described previously. The Problem manager means that an important part of their knowledge transfer is how to document. The Problem manager believes that this is something that is hard to communicate but is instead something one learns from experiences.
We know from our analysis of knowledge management strategy (chapter 5.2.4) that the studied organizations do not have any stated process for how this should be done. As we know from previous in this analysis there are differences in how people choose to document this, differences such as short texts, long texts, step-by-step etc.

Moving forward it is obvious that the individual who creates the knowledge article has previous experiences, skills and insights, but also has gained new experiences and insights by solving the problem. Becerra-Fernandez and Sabherwal (2010), Lahti and Beyerlein, (2000) and Nonaka (1994) mean that tacit knowledge is highly bound to the individual, and is often created through individual activities, observations and experiences, which we can see from the empirical data. The authors continue by explaining that tacit knowledge can be seen as insights and skills. From this we believe that the individual creating the knowledge article has tacit knowledge about it. However, Lahti and Beyerlein (2000) mean that explicit knowledge can be seen as codified and more formal. According to the authors explicit knowledge is a type of information, but just as we talked about in our conceptualization of knowledge (chapter 3.2), the information is in a richer state because its core meaning is understood. The formality of explicit knowledge can also be explained as methodical, since it can be explained in books, archives, repositories, databases, etc. However, even though explicit knowledge can be seen as information it creates a meaning for the person who uses it. One could argue that the skills, experiences, insights, etc. that may be needed to make knowledge out of information is “embedded” in the information or data, or is not needed in order to understand it (Becerra-Fernandez and Sabherwal, 2010). Becerra-Fernandez and Sabherwal (2010) give a great example of this. Let us say that you are about to make some investments in the stock market and search a book or software on how to perform a market analysis, and give you a go or no go on a stock. The book/software presenting this to you is in the shape of information or sorted data, but you can make a good decision out of it, and you do not really have to have any experiences, skills or insights, you can merely trust the information. With this we want to highlight that the actual knowledge in the knowledge article in fact is explicit, since all organizations are storing their knowledge articles digitized and propose a lot of step-by-step articles. From an ITIL perspective the explicit knowledge could be seen as step-by-step description on how to update a software for the core business. Tacit knowledge could be to know that this update only is needed for two out of five departments, since the other three prefer an informal and local software solution. This discussion leads us into the next part of the analysis regarding knowledge creation.

5.3.5 Knowledge creation and transfer to repository
Let us now turn the focus towards Nonaka’s and Takeuchi’s (1995) theory of knowledge creation. We described in our combination of boundary object theory and the theory of knowledge creation that knowledge transfer to a repository could be seen as a knowledge creation process. Nonaka and Takeuchi (1995) argue that knowledge can be created through the different combinations of tacit and explicit knowledge. What we know from the paragraph (5.3.4) above is that the knowledge is always explicit as a knowledge article. This gives us two knowledge creation combinations to work with, that is: Tacit to Explicit and Explicit to Explicit.
Tacit to Explicit do Nonaka and Takeuchi (1995) explain as externalization, which is the process where tacit knowledge is converted into explicit concepts which requires taking shapes of metaphors, concepts, models, analogies, or other tangible solutions. These concepts are usually triggered from conversations between individuals which henceforth requires methodological approaches to make these concepts tangible. Putting this into our context we can clearly see that the tacit knowledge that could be externalized are those connected to skills, insights, experiences, purposes and contextual information that is the foundation for solving the problems and incidents. To some extent The Information owner explains this:

“Many instructions you make are instructions on something that you do not really master. It is easier for me to make an instruction about something that I am not as sure of, rather than if I am to do something that I am sure of, then the instruction becomes more complicated.”

That statement argues that the more you know the more complicated the knowledge articles becomes. We can also see that The Problem manager explains that their knowledge transfer refers to both learning about the incident, but also to gain proactive knowledge if it occurs again. The Problem manager gives another example saying that the knowledge they store, and transfer should give meaning and valuable insights for the reader. This further imply that the knowledge they want to transfer through the knowledge articles is referring to more tacit knowledge. The Incident manager puts it as knowledge on a higher level should be a process of learning. We argue that there clearly is a mentality that the organizations want to have a tacit to explicit knowledge creation when creating the knowledge articles.

The other possible knowledge creation alternative is what Nonaka and Takeuchi (1995) call “combination”, which is explicit to explicit knowledge. The authors explain combination as leveraging already established concepts into a system where knowledge is being handled. This is mostly done where individuals exchange knowledge through various channels where knowledge is already explicit such as documents, networks or other various of communication media (Nonaka and Takeuchi, 1995). To gain new knowledge through this, combination may happen by reorganizing already existing information through sorting, combining and categorizing. This alternative is something we have identified more from our empirical data. Organization 1, 2 and 3 all talk about the knowledge articles as they should be easy, understandable and descriptive. For example, The Coordinator, Problem manager, Information owner and Service person describe the knowledge in the articles as instructions on how to solve a problem or incident. The Problem manager, Information owner and Service person even put it as the knowledge articles many times should be constructed as step-by-step. This is according to Becerra-Fernandez and Sabherwal (2010) explicit knowledge since it is methodological, descriptive and easily can be codified.

We want to highlight how we understand this, both based on the empirical data as well as previous research. Let us give an example on this. Person A writes an instruction on how to chop an onion. The instruction contains three steps: Peel it, cut it in half and chop it. Obviously, this will get the job done, however the instruction does not contain anything connected to skills,
experiences and insights. Person B writes an instruction adding steps like sharpen the knife and let the knife follow your knuckles as you chop it. Person B adding these two steps to the instruction has already passed on some tacit knowledge in form of experience (that a sharp knife will make the chopping easier) and skills (by letting the knife follow the knuckles ensure that you do not cut yourself). This might seem like a foolish example, but it does however prove a good point in how tacit knowledge can be transferred and created in an explicit format. It is also important to keep in mind that tacit and explicit knowledge should be seen as two ends of a knowledge continuum, which emphasize that knowledge can be explicit and tacit to different degrees (Lahti and Beyerlein, 2000). Becerra-Fernandez and Sabherwal (2010) do also mean that this could be possible since they argue that tacit elements such as skills, experiences, insights and contextual information (tacit knowledge) could be embedded in information (explicit).

At this point we know that one individual with a particular set of skills, insights, experiences purposes and contextual information is entering knowledge into a repository, in the form of a knowledge article based on a problem that arose in a certain context. The created knowledge article will contain explicit knowledge, but it can stem from both tacit and explicit knowledge originally, depending on the individual who wrote it. One important aspect that we have noticed from our empirical data is that before the knowledge article is posted in the repository an editor will examine it, and perhaps edit it, [this goes for Organization 1, 2 and 3]. Star and Griesmer (1989) argue that since a boundary object functions as a translator between different social groups it is important that the object keeps its identity intact. The Problem manager, Information owner, Incident manager and Service person argue that these editors will try the solution, spellcheck and if necessary, rewrite the language. If we turn back to the example with the onion above, the editor might realize that what Person B is communicating can be condensed down to the steps Person A is proposing. This will harm the integrity of the object i.e. the knowledge article, since Person B’s perspective on the problem included the additional steps, which also affects the knowledge that is transferred.

5.3.6 Knowledge transfer and creation from repository

This part of the analysis is something that we do not have the same amount of empirical data about, since we did not really have the possibilities to study in-depth how people learn from the knowledge articles. A result is that this analysis is more conceptual and speculative (with the empirical data we have), hence not as much focus as the previous section (5.3.5).

As the knowledge article has become a boundary object in the repository it aims to translate the experience and solution from the creator to the other individuals in the organization. Just as our analysis of the actor (chapter 5.3.2) earlier in this chapter everyone in the organization have different skills, insights, experiences and contextual information when a similar problem occurs. This perspective can be somewhat related to what Oswick (2005) exemplifies as a medical record as a knowledge transfer method and a boundary object. Trusson et al., (2014)
mean that when knowledge is transferred through an information system the transfer process turns two-folded.

We know from previously that the knowledge stored in the repository is explicit. Based on that and Nonaka and Takeuchi (1995), the knowledge can now be transferred and hence be re-created in one or two ways. Either explicit to tacit or explicit to explicit. However, explicit to explicit is something we believe is not really applicable in this context. As the knowledge is already stored in a state of explicit in the repository and aims to be transferred to an individual, and not a new document. However, just as we discussed in section 5.3.5, the level of tacit and explicit knowledge that is embedded in the knowledge article can vary, depending on the individual who wrote it. This will be a determining factor regarding what and how much knowledge the receiver of the knowledge article can accumulate.

Nonaka and Takeuchi (1995) explain that explicit to tacit is called internalization and is closely linked to on the job working or what is commonly referred to as “learning by doing”. In order to convert explicit knowledge into tacit it is helpful that the knowledge being transferred is verbalized or diagrammed into documents, templates or stories. The documentation process helps the individual to internalize and connect what they have experienced in order to enrich the tacit knowledge that they already have. Documents and templates will then perform a transfer of explicit knowledge to other people, and hence help them experience what others have already experienced indirectly (Nonaka and Takeuchi, 1995). As we have mentioned earlier in this analysis, we have identified instances where different individuals want to take part of the knowledge in certain formats. We believe that the internalization process that Nonaka and Takeuchi (1995) describe is not going to work that well when the organizations want the knowledge articles to be easy step-by-step in a solution. Nonaka (1994) argues that it is vital that the experience from the sender is visible in the transfer. We can also see from The Information owner that this is not seen as a preferable aspect since the respondent argues that a knowledge article becomes better when the person writing it does not know as much on the matter. This can be further understood by Conger and Probst (2014) who argue that it is very easy to create solutions that work for a specific problem. However, to internalize the knowledge is hard, since understanding a solution is not the same as understanding the problem, which is needed in order to apply knowledge in a new context.

However, here we can see the main reason to apply boundary object theory and Nonaka´s and Takeuchi’s (1995) theory of knowledge creation. The knowledge article is translating one person’s experience with the problem to another person through these knowledge articles. However, combining this with Nonaka and Takeuchi (1995) the knowledge article should also create knowledge at the receiving end. We believe that The Incident manager and the Support person explain this well. The Incident manager argues that the knowledge articles should be more simplified since the content of today’s articles could sometimes be hard to understand and misinterpreted since the content is only a body of text. The Support person sees this differently and finds that the articles with its body of text are good and serves its purpose. However, The Incident manager and The Support person both argue that the knowledge articles should be a
learning opportunity. In this case we can see that two people with individual differences have different perspective on the knowledge article. The Incident manager could see the body of text unnecessary because the respondent already knows it or does not find those parts in the text necessary for learning, while The Support person sees it differently. This could also be an effect regarding social worlds and the boundaries between the individuals. A knowledge article written by an individual from second line support will probably be well received by another individual in the second line. However, a person from first line support might argue that it is too complicated or descriptive for his/her competencies. We believe these perspectives encapsulates this analysis well, since two individuals with different perspectives on the boundary object values it differently, can obtain different knowledge from it, and would write it differently if they would have written it. It also highlights the perspective on if the knowledge articles should be seen as a learning tool or just a piece of information that instructs the reader.

5.3.7 Summary

The analysis has been somewhat abstract and conceptual, therefore we want to provide a short summary of it. From the analysis we can see that the actors in the organizations play an important role in the creation and retrieving of knowledge articles from the repository. Attributes as experiences, insights, skills, purposes, interests and contextual information is bound to the individual solving the initial issue, and perhaps to some extent the different line supports in ITIL. These individual attributes create boundaries between individuals in the organization, at the same time the ITIL framework creates some common ground in that everyone strive to achieve common goals, helping the core business. Knowledge articles are a way for the organizations to communicate with each other, share knowledge and minimize the need to re-discover it. However, the knowledge creation and transfer that is conducted through the information system is not a straightforward or an easy to understand process. Knowledge in the articles can to some extent contain tacit elements, hence providing more of a learning experience to the retriever, or just be a piece of information instructing how one solution could look like. The process of transferring knowledge to the information system is critical, since it sets the tone for what kind of knowledge it can create for the reader. Since the organizations do not have any strategies regarding this, it is once again up to the individuals.
Chapter 6. Conclusions

In this chapter we will present the answers to our research questions and our conclusions. This chapter is based on the analysis we made in chapter 5 of our empirical data, our theoretical frame of reference and our own interpretations of this. The chapter will start off with a reconnection to our purpose and our research questions. After that each question will form a separate heading. At the end we will present what we believe our contributions are with this thesis.
6.1 Reconnection to our purpose and research question

The purpose with our study was to analyze how knowledge is transferred through information systems in an ITIL organization and how it can be further understood by incorporating individual perspectives on knowledge and the transfer of it. But also analyze what influencing factors that can be identified from the ITIL framework and the studied organizations, which could affect the knowledge transfer. This conclusion will reconnect to our research questions, which were:

1. How do the studied organizations and respondents understand what valuable knowledge is?
2. What factors influence how the studied ITIL organizations is transferring knowledge?
3. How can knowledge, transferred through an information system be further understood as a knowledge transfer method by applying the boundary object theory?

6.2 How do the studied organizations and respondents understand what valuable knowledge is?

Our analysis of valuable knowledge in chapter 5 embraced a holistic approach. Aspects such as context, values, organizational structure and especially the ITIL framework have all been taken into account in our analysis. Based on the empirical data, previous research and our own analysis we have identified a couple of interesting aspects regarding what valuable knowledge is according to the organizations. The three main perspectives are:

- Core business value
- Knowledge that is stored
- Organizational knowledge

6.2.1 Core business value

The most predominant aspect that we have found from our analysis is that value in an ITIL organizational setting is that it should contribute to the core business, which is the IT-service organization’s customer. The value of the knowledge is based on how well of a tool it can be in helping the core business with their problems and incidents, and thereby continually trying to have a continuous operation without obstacles and problems. This is not something we believe is strange just because they have the customer-focused ITIL framework implemented.

We argue that the studied organizations embrace what we call an “ITIL mentality” where the customer, i.e. the core business is always in focus. Aspects such as effectivization for the service organization is something that is not at all touched upon, which is something knowledge management literature is focusing a lot on. Another aspect that is not visible in the analysis is to have knowledgeable employees, which the literature emphasizes. Based on our analysis we would argue that the value of knowledge according to the organizations could be seen as a mean
to further enhance how they can help the core business. What we have identified as the true value of knowledge, is not the knowledge itself, but instead the effects and outcomes from it. Our concluding remarks are that knowledge only becomes valuable when it is valuable for the core business. Since this perspective is highly bound to the best practice ITIL framework we believe that this conclusion to some extent is generalizable for an ITIL-context, since the framework is a best-practice.

6.2.2 Knowledge that is stored

The second perspective on valuable knowledge refers to stored knowledge, this is especially true for Organization 1 and 2. The reason why the organizations are valuing stored knowledge the way they are is because they relate stored knowledge to fast and efficient support to the core business. We can clearly see that the organizations to a great extent are optimists regarding stored knowledge, because they value knowledge that is transferred from an individual to a repository rather than the possible knowledge transfer in social interactions. Incorporated in this perspective is also that the organizations are valuing explicit knowledge.

As we mentioned earlier it was mostly Organization 1 and 2 that emphasized stored knowledge. The conclusion we can draw from our analysis is that the size of the organization is affecting how the organization is valuing knowledge. With more people, that are spread out more and a larger core business to support, stored knowledge becomes more agile and accessible. Both Organization 1 and 2 are more steered toward stored knowledge, whilst Organization 3 is that as well, we can clearly see that they are including that social interactions bears some important knowledge, considerably more than Organization 1 and 2.

6.2.3 Organizational knowledge

The last perspective on valuable knowledge that we have identified is the value of organizational knowledge. Just as we mentioned in our analysis this perspective could be an effect from the two previous perspectives, however we do believe that it is important to highlight this as an own value determiner. Valuable knowledge in the IT-service organizations is that it should mature, or develop the organization. It is clear that the emphasis on stored knowledge is a way for the organization to make sure that all knowledge is available in the process of solving problems and incidents, which is the core in organizational knowledge. Overall, we can see that the common mentality is that knowledge in the studied context should not be individual, but instead a tool for the organization, regardless of the individual. Another basis for this claim is the fact that the respondents heavily emphasize that their peers and personnel should write more knowledge articles, hence storing more of their knowledge. This is something we believe is highly bound to the studied organizations since they do not have any stated strategies, hence nothing we believe could be generalized any further.

Our conclusion is that the studied ITIL organizations are not organizations containing problem-facing and problem-solving individuals. But instead that the overall mentality is that the organization itself is a problem-facing and problem-solving entity. Even though it is the
individuals within the organization that does it, it is implied that a solved problem or incident becomes organizational knowledge. At least regarding the part of knowledge management and knowledge transfer that we have studied.

6.3 What factors influence how the studied ITIL organizations is transferring knowledge?

From our empirical data and our analysis, we noticed early that there were many factors that influenced how knowledge was transferred in the studied organizations. After the analysis, however, we were able to identify four factors that were particularly characteristic with its impact on knowledge transfer. We chose to categorize the four factors as:

- The perspective of knowledge
- Value
- The ITIL framework
- Knowledge management strategy

6.3.1 The perspective of knowledge

The first and foremost aspect is the perspective of knowledge. There is no doubt about the concept of knowledge being an important part of knowledge transfer, therefore it is important to know, or at least have a perspective on what knowledge is. The empirical data and our analysis suggest that the organizations mostly view knowledge as a tool that should support the core business. This follows what we concluded regarding valuable knowledge in section 6.2. It is clear that this obviously is a perspective of knowledge, however as we explained in our analysis, we believe that this is not a sufficient view on knowledge, at least not from a knowledge transfer perspective. From our analysis we can see that the perspective that the organizations has on knowledge heavily influences what knowledge they transfer, but also how they do it. Our main finding is that the organizations are talking about information with the word ‘knowledge’. Meaningfulness, what to do when problems and incidents occur and the knowledge articles being instructive are all aspects that the organizations talk about when they talk about knowledge, which in fact is information. At the same time the organizations talk about learning from the knowledge, or create insights, which is knowledge. We can conclude that the organizations do not have a clear picture regarding what knowledge is and are treating information and knowledge interchangeably. From our analysis we can see that this influences how knowledge is transferred since some individuals are more leaned toward knowledge being information while some are more leaned toward actual knowledge, or explicit knowledge. This do according to us affect the boundaries between the individuals in the organizations in a negative way since they do not have a fundamental, and especially a common understanding of what knowledge is in their organizations. However, we do understand that this finding is connected to the problem and incident management processes that we have chosen to keep our main focus on. We believe from our analysis that whatever knowledge management strategy or
initiative an ITIL organization with problem and incident management in focus will have it will predominantly focus on knowledge as a tool for solving these problems and incidents. However, we argue that our analysis highlights that an ITIL organization might need to expand their focus on knowledge from “problem and incident knowledge” to a more holistic perspective on knowledge, including more aspects, in order to utilize knowledge management and the strengths of it even more.

6.3.2 Value

The second aspect influencing knowledge transfer has been identified as the value aspect, which we talked about in section 6.2, however, but not regarding its influence on knowledge transfer. By having the core business focus it is clear that the organizations are forgetting the internal knowledge within the service organization, at least from a knowledge transfer perspective. By valuing knowledge that only helps the core business, a lot of important knowledge transfer to “enhance” or “develop” the IT-support is neglected. This is also an effect from the fact that the organizations are emphasizing stored knowledge, which is not as rich as tacit knowledge. Our conclusion is that the core business perspective in valuing knowledge is emphasizing knowledge transfer towards the customer rather than developing the individuals in the service organization. Although, we want to reserve ourselves since we do not have any data neither confirming or dismissing that the personnel in the service organization accumulating experiences from solving problems and incidents by taking part of knowledge valued as helping the core business. Another conclusion we can make is the fact that the predominant focus on valuable knowledge being stored knowledge affects other ways of transferring knowledge, since the organizations largely abstain from the social interaction as transfer channel. One effect from this is that more tacit knowledge is not transferred, and skills, insight and experiences do not have as significant a role as valuable knowledge to transfer in the organizations.

6.3.3 The ITIL framework

The third influencing factor that we have identified from the analysis is the ITIL framework itself. This was an aspect that we assumed would influence the knowledge transfer, however the empirical data and our analysis have given us some interesting insights. What we have identified is that the stated processes from ITIL, more concrete the incident and problem management processes clearly determine how the organization works, which also influences how the organizations work with their knowledge management, which in turn affects how the organizations work with knowledge transfer. According to us and our analysis it is rather clear that the framework is heavily influencing knowledge transfer. This is not something we believe is bad, but it does however affect that knowledge outside of these processes might be neglected. However, the framework does also provide some important factors to the studied organizations knowledge transfer as well. Since ITIL has stated processes, groups and roles it gives the organizations a clear division and hence centralized competence. This is especially visible regarding the different line supports. This provides an understanding of what competencies should be within the groups but also an understanding regarding what competencies lies within
these different groups, which will make the knowledge transfer easier, but especially more directed.

6.3.4 Knowledge management strategy

The last aspect influencing knowledge transfer is the overall knowledge management strategy. The first we can conclude is that none of the studied organizations have a stated knowledge management strategy, nor any stated goals with their knowledge management and transfer. It is clear to us that the lack of it is problematic, especially regarding an organization’s knowledge transfer. It is obvious from our analysis that the lack of a strategy leads to knowledge transfer being up to each individual, hence not a structured way of working, no common understanding of what knowledge to transfer, how to document or how the knowledge articles should be structured. Our conclusion from this is that a strategy and stated goals are extremely important if an organization wants to utilize its potential in knowledge transfer.

One important finding that we have identified in our analysis is the time aspect. Time is an aspect that heavily influences the studied organizations knowledge transfer. Their knowledge transfer needs to be efficient, in order to solve problems and incidents fast. This is something previous research regarding knowledge management and knowledge transfer does not include. Since the organizations have the time aspect to consider, they work with their knowledge reactively. Knowledge creation and transfer are according to our analysis always in a reactive manner, even though the organizations explicitly explain that their goal is to work with knowledge proactively. What we have identified is that their approach for knowledge transfer is to create solutions to problems, which is reactive. What we believe is lacking is a focus on the problem itself, which would help in achieving a more proactive way of working. By focusing on the solutions, the knowledge transferred will never include the actual problem. An effect from this is that next time a similar problem occurs the individual handling it must react to the problem before finding the solution.

6.4 How can knowledge, transferred through an information system be further understood as a knowledge transfer method by applying the boundary object theory?

Our analysis regarding knowledge transfer through the lens of boundary object theory and the theory of knowledge creation is something that has led to some interesting insights. What we can conclude from applying our combination of boundary object theory, the theory of knowledge creation, and our empirical data suggests that this perspective provides a further dimension to knowledge transfer. Our previous conclusions have mainly put the ‘knowledge’ in knowledge transfer in the center. With this perspective we can see that the individuals that create knowledge and take part of the knowledge through the information systems are in fact one of the most important factors to take into account, the individuals need to be acknowledged.
What we have identified is that the content itself is not really the important part of knowledge transfer, rather the individual thinking behind the knowledge articles is the important focal point.

Boundary object theory has contributed with an understanding that individual aspects such as skills, experiences, insights, purposes and perspectives influence how knowledge articles are written, what their content are and what knowledge they try to convey. This is especially visible in an ITIL context since there are three different line supports that sort of categorizing competencies making knowledge transfer within them easier, but knowledge transfer between them harder. Besides these aspects it is also a straight up subjective mentality that influence how individuals write their knowledge articles. Our analysis has shown us that the creation of knowledge articles can be conducted both as an explicit to explicit knowledge creation, as well as a tacit to explicit knowledge creation. The creation of the knowledge and the transfer of it is a highly important phase in order to transfer as much knowledge as possible. The focus the studied organizations have is more directed to an explicit to explicit knowledge creation of the articles. While their ideal for it is tacit to explicit, in order for the knowledge articles to contain some tacit elements, because they want the people reading them to learn, i.e. create knowledge. This analysis also provides an important understanding that the knowledge transfer process through knowledge articles is two-folded, which seems to be neglected. It is not sufficient to only focus on the knowledge that is transferred to the system. There is a knowledge receiving part of the process as well, where a new individual will apply its skills, experiences, insights, purposes and perspectives on the knowledge article, and try to make sense of it, or perhaps learn from it. With the theory of knowledge creation, we understand that the knowledge creation possibilities that the receiving individual have is based on the initial knowledge created, in form of the knowledge article. We have identified that the studied organizations are unclear with the purpose, if the knowledge article should act as a way for other people to learn, or just a repository of information. If learning should be possible the knowledge article must be rich enough for Nonaka’s and Takeuchi’s (1995) explicit to tacit knowledge creation to be possible. What we have identified in the analysis is that the ITIL framework with its different line supports is helping the organization mapping competencies, hence make competence centralized in these different line supports. This is something that we have identified by the application of boundary object theory since we can see that the boundaries between the individuals in a line support becomes less influential. As well as the boundaries between the line supports, since there is a more comprehensive understanding within the whole organization what the responsibilities within the different line support are, but also what competencies they have.

Another conclusion we can make is that the combination of boundary object theory and the theory of knowledge creation are two theories that we believe work together when studying knowledge transfer through information systems.
6.5 Our contribution

In this section we will present what we believe that our study and our results has contributed with. We believe that our contribution includes both a knowledge contribution to practitioners but also a contribution to this field of study. Our contributions are an extension from our conclusion, and are the following:

- An understanding in how of a determining factor value is with regards to knowledge transfer, both on an individual and organizational level. This insight do we believe is important for both practitioners and for this field of study, since it can act both as way to understand the organizational knowledge transfer, as well as help framing the context in which knowledge transfer is conducted. But also that there seems to be a pre-defined understanding of valuable knowledge in an ITIL context (see next point).

- The studied ITIL organizations value knowledge rather similar with the predominant factors being the core business perspective, where knowledge becomes valuable when it brings value to the organization. The other factor regarding valuable knowledge is explicit knowledge, or stored knowledge. The studied ITIL organizations value knowledge that can be transferred through information systems, hence being explicit. The last factor is organizational knowledge. We have identified that the studied ITIL organizations value knowledge that can become organizational knowledge, i.e. be a natural part of their organizational processes for problem and incident management, hence not being bound to certain individuals. As we described in the conclusion, this is something we believe is rather general for ITIL organizations, since the framework is a best-practice with a big customer-focus. At least the aspect regarding, valuable knowledge is whatever value it brings the core business. These aspects do we believe will help practitioners in understanding in how their knowledge transfer is affected by how they value knowledge. The academic contribution with these factors is mainly a good indicator that the context in which knowledge transfer is conducted does have some implications. It is also according to us an important prerequisite to be aware of when applying the theoretical framework that we have created.

- In this context we have been able to identify four main factors that is affecting how knowledge is transferred. The factors are: The perspective of knowledge, Value, Knowledge management strategy and The ITIL framework. We believe these factors are rather generalizable since they are rather generic in character. However, our empirical data is not enough for us to say that these are the only influencing factors. Although, when researching knowledge transfer, we believe that these factors should be taken into account, since they are affecting the transfer process, hence should not knowledge transfer be seen in a vacuum. Our practical contribution with this is mainly that we have shed light on some factors that is rather neglected in the studied organizations, and especially the importance of being aware of them. Just as the aspects regarding value we believe that the academic contribution with these factors is mainly
a good indicator that the context in which knowledge transfer is conducted does have some implications. It is also according to us an important prerequisite to be aware of when applying the theoretical framework that we have created.

- Another important contribution with these four influencing factors is that ITIL organizations working with or want to start working with knowledge management can turn to these factors for support. By that knowing that the factors influence the knowledge transfer, but also how, and that they need to work with them.

- From our study we have identified that ‘time’, and often the lack of it is a factor heavily influencing the knowledge transfer in the organizations. This is a factor that has not previously been mentioned in the knowledge management literature that we have taken part of, which we believe is an important academic contribution in this context.

- Boundary object theory and Nonaka’s and Takeuchi’s theory of knowledge creation are two theories that can be combined in order to further understand knowledge transfer through information systems in this context. Our perspective is that this is one of our main academic contribution since we have combined, tried and gained new knowledge about knowledge transfer from these theories, that have not been done before.

- We have identified, analyzed and highlighted individual aspects influencing how and what knowledge is transferred through information systems in this context, hence contributed to the gap of research that we identified and presented in our problem. The findings from this is a product from our combination of the above-mentioned theories. Therefore, we want to be clear that since it was the first time they were used together, our result is highly bound to our interpretations, since we at times had to have a more conceptual and speculative approach, which is influencing the generalizability. However, we do believe that the combination and use of the theories is general enough in order to be a further developed framework for analyzing knowledge transfer in this context. The academic contribution is according to us the same as the previous paragraph. These individual aspects is also something we have noticed is lacking in ITIL knowledge management literature, which makes this a valuable contribution to the ITIL field as well.

- We have provided with another study on how knowledge is transferred in an IT-service organization working with ITIL.

- We believe that an empirical finding in this paper is the fact that none of the organizations does have the Knowledge Management Process from ITIL implemented, which strengthens previous research.

- Another empirical finding is that knowledge management in this context seems to be conducted on an informal basis, with no set guidelines, goals or strategies. This is
something we believe can be a topic for future research, that is, why knowledge management is not taken that seriously (if it should?).

- The last contribution is more practical in nature. By studying knowledge transfer in an ITIL context we have been able to identify some strengths and weaknesses with the ITIL framework in combination with knowledge management that can be used by practitioners and organizations having ITIL implemented.

Our primary purpose with this study was to analyze how knowledge is transferred through information systems in an ITIL organization and how it can be further understood by incorporating individual perspectives on knowledge and the transfer of it. But also analyze what influencing factors that can be identified from the ITIL framework and the studied organizations, which could affect the knowledge transfer. We argue that our knowledge contribution to great extent is in line with our purpose, however we believe that our study has contributed with additional aspects to the research field of knowledge transfer in an ITIL context, which we believe is a bonus.
Chapter 7. *Future research and reflection*

This chapter will start off by us giving some suggestions regarding future and further research topics, which we have identified throughout this study. The chapter will end with our own thoughts through a reflection of our work process and the results that we described in the conclusion.
7.1 Suggestions for future and further research

We believe that there is one main approach for further research, which is an in-depth study of knowledge transfer incorporating boundary object theory and Nonaka’s and Takeuchi’s theory of knowledge creation. Our study has provided an insight in how these two theories could be used together in order to further understand knowledge transfer through information systems. A next logical step would be to conduct a study on one organization going into depth in how individuals actually write these knowledge articles, what knowledge they try to convey, how it is transferred to an explicit format, in form of a knowledge article. But also, to study how this knowledge is understood by a receiver and what knowledge it creates at that individual. We believe that our study is a good foundation for that type of research since we have tried the theories and believe that they actually provide new insights in the phenomenon of knowledge transfer.

Another suggestion for future research could be to study if and how tacit knowledge actually is transferred in an ITIL organization. We could not really find any clear knowledge transfer method used for this, however our focus was mostly placed on knowledge transfer through information systems. However, another theory that we considered as a theoretical lens was the media synchronicity theory (MST), which we believe could be good approach for further research. Hence using the theory to determine if and what relevant knowledge is transferred through knowledge articles, but also be able to recognize what knowledge transfer channel that should be used in order to maximize the knowledge transfer.

7.2 Reflection

If we had the opportunity to redo the study, we would not necessarily increase the number of respondents. However, what we would like to have done is to change the direction of the study slightly. Instead of having a broad perspective on knowledge management by applying case studies in different organizations, we would like to seek a deeper understanding of the phenomena in one organization. This would be done by interviewing members from different lines of support to see their perspective on knowledge management and how the ITIL framework is affecting the process. In order to seek this deeper meaning, we would also change the theoretical lens by applying Media Synchronicity Theory which is a theory that focuses on knowledge transfer in various communication medias. By having this perspective, it would allow us to analyze how these communication media transferred knowledge in an ITIL organization and between the various support groups.

We are however satisfied with how this thesis turned out. As mentioned previously in method criticism we wanted to have a deeper analysis of the knowledge management phenomena within the ITIL context. Unfortunately, this was not possible because of certain circumstances which occurred during the thesis. However, it is important to keep in mind that a study of this sort regarding knowledge management, knowledge transfer, boundary object theory and ITIL has not been previously done in the world of academia. Therefore, a broad perspective can give the
readers a greater understanding of how knowledge management is working in these organizations and their stages which they have implemented knowledge management. Having multiple case organizations allowed us to see from a different perspective by understanding how organizations handle this phenomenon. This could only be possible by having qualitative methods which allowed us to get insight of people working with knowledge management in a daily basis. Having interviewed multiple respondents gave us a clearer picture of how the terms knowledge and information which we use in our daily lives can be misinterpreted and used in contexts where the other alternative might have been better in which the respondents used. We could then see this reflect how it affected the organizations within, and what their aim was knowledge management.

The combining theories of knowledge creation and boundary object has not been done in the scale which we tried to apply in this study. Yet we saw a great relevance to the study. However, this drew some setbacks since the empirical data that we gathered did not suffice to further analyze through these theories, which resulted in having a more abstract analysis, hence influencing the generalizability of our study. We do not rule out that the combination was in fault, on the contrary, we believe that this combination with the right types of empirical data could very much increase the understanding in a knowledge transfer context, and would hence be interested if a try like this could be applied in a scientific article in the future.

We greatly appreciated the time doing this thesis, and are hopeful that the organizations, mentors and the readers found it both helpful and apprehensive.
8. References

8.1 Articles


### 8.2 Books


8.3 Web-based articles


9. Appendix

9.1 Appendix A. “Interview guide Organization 1”

Swedish version

Bakgrund
1. Är det okej om vi spelar in intervjun?
2. Vill du vara anonym i studien?
3. Vilken är din officiella roll?
4. Hur länge har du haft din roll och hur länge har du jobbat med kunskapshantering?
5. Vad innebär din roll i organisationen?
6. Vad har du för arbetsuppgifter?

ITSM + ITIL
7. Hur arbetar ni med kunskapshantering inom ITIL ramverket?
8. Hur blev du introducerade till kunskapshanterings-processen i ITIL?
9. Hur upplever du att den fungerar?
10. Har ni behövt göra egna modifikationer för att uppnå ytterligare kunskapshantering?
11. Har ni någon kunskapshanteringsstrategi och får vi ta del av den?
12. Ger ITIL någon beskrivning på vilka metoder som skall användas vid kunskapshantering, framförallt kunskapsöverföring?
13. Upplever du att ITIL som ramverk möjliggör eller förhindrar kunskapsöverföring?
14. Som vi förstått det så är kunskapshanteringsystem en relativt stor del av kunskapsöverföringen i ITIL ramverket, finns det andra uttalade processer förutom systemen för det?
15. Används olika tillvägagångssätt för att överföra olika typer av kunskap?
16. Har ni identifierat andra typer av relevant kunskap som ej går att överföra via system?
   Hur hanteras detta?
17. Hur inkorporeras roller, grupperingar, experter, osv från ITIL i kunskapshanteringen?

Kunskap och kunskapshantering
18. Vad är kunskap enligt dig?
19. Vad anser du är viktig kunskap för er organisation och verksamhet?
20. Vad klassificerar du som information och kunskap?
21. Vad är era uttalade mål med kunskapsöverföring och hur anser du att ni uppfyller dessa mål?
22. Hur ser processen ut för införandet/skapandet av en kunskapsartikel?
23. Hur används kunskapen och av vem?
24. Hur tror du användarna av kunskapen upplever den?
25. Hur är kunskapen överförd, fler medier än systemet?
26. Hur säkerställer ni att kunskapen är tillräckligt rik för slutanvändaren/mottagaren?
27. Klassificerar ni olika typer av kunskap för att förstå hur den på bästa sätt kan göras tillgänglig?
28. Hur hanterar ni tyst och explicit kunskap?

English version

Background
1. Is it ok if we record the interview?
2. Do you want to be anonymous in this study?
3. What is your official role in the organization?
4. How long have you been employed with this role, and how long have you been working with knowledge management?
5. What does your role imply in the organization?
6. What are your work assignments?

ITSM/ITIL
7. How do you work with knowledge management within the ITIL framework?
8. How did you get introduced to the knowledge management process within ITIL?
9. In your experience, how does it work?
10. Have you had to do any modifications to complement aspects of knowledge management?
11. Do you have a knowledge management strategy, and may we take part of it?
12. Does ITIL provide a description of methods that are needed to be used in the knowledge management and more specific knowledge transfer?
13. In your opinion do you believe that the ITIL framework enables or prevents knowledge transfer?
14. As we have understood it, knowledge management systems is a relatively large part of the knowledge transfer in the ITIL framework. But are there other knowledge transfer processes besides the systems?
15. Are different methods of knowledge transfer used in order to transfer different types of knowledge?
16. Have you identified any other types of knowledge that cannot be transferred through information system? How is that managed?
17. How are roles, groups, experts, etc. from the ITIL framework incorporated in the knowledge management?

Knowledge and knowledge management
18. What is knowledge according to you?
19. What knowledge is of importance to the organization according to you?
20. How do you classify information and knowledge?
21. What are your stated goals with knowledge transfer, and how do you believe the organization fulfills them?
22. How does the implementation/creation process of a knowledge article look like?
23. How is the knowledge used, and by whom?
24. How do you think the users perceive the knowledge?
25. How is knowledge transferred, additional channels than information systems?
26. How do you ensure that the knowledge in the articles contain enough richness to suffice the end-user?
27. Do you classify different types of knowledge to understand how it best can be made available?
28. How do you handle tacit and explicit knowledge?
9.2 Appendix B. “Interview guide Organization 2 & 3”

Swedish version

Bakgrund
1. Är det okej om vi spelar in intervjun?
2. Vill du vara anonym i studien?
3. Vilken är din officiella roll?
4. Hur länge har du haft din roll och hur länge har du jobbat med kunskapshantering?
5. Vad innebär din roll i organisationen?
6. Vad har du för arbetsuppgifter?

Kunskapshantering och kunskapsöverföring
7. Har ni kunskapshanterings-processen från ITIL implementerad?
   a. Om ja
      i. (Om du vet) Hur blev ni introducerade till kunskapshanterings-processen i ITIL?
      ii. Kan du förklara hur den processen ser ut i er verksamhet?
      iii. Hur upplever du att den fungerar?
      iv. Ger ITIL någon beskrivning på vilka metoder som skall användas vid kunskapshantering, framförallt kunskapsöverföring?
8. Vad anser du är viktig kunskap för er organisation och verksamhet?
9. Hur särskiljer ni mellan information och kunskap?
10. Vad är era uttalade mål med kunskapsöverföring?
11. Hur anser du att ni uppfyller dessa mål?
12. Hur arbetar ni med kunskapshantering inom ramen för ITIL?
13. Styr ITIL ramverket er kunskapshantering och kunskapsöverföring?
14. Har ni behövt göra egna modifikationer för att uppnå ytterligare kunskapsöverföring?
15. Har ni någon kunskapshanteringsstrategi och får vi ta del av den?
16. Hur upplever du att ITIL och kunskapshantering fungerar i kombination?
17. Hur arbetar ni för att överföra kunskap mellan olika individer och/eller organisatoriska enheter?
18. Hur arbetar ni med kunskapshanteringssystem gällande kunskapsöverföringen i ITIL ramverket?
19. Används olika tillvägagångssätt för att överföra olika typer av kunskap?
20. Har ni identifierat andra typer av relevant kunskap som ej går att överföra via system?
    Hur hanteras detta?
21. Hur inkorporeras roller, grupperingar, experter, osv från ITIL i kunskapshanteringen?
22. Har ni några andra uttalade eller uttalade processer förutom systemen för att överföra kunskap?
    a. Vilken ytterligare kunskap anser ni att ni kan överföra genom dem?
23. Hur ser processen ut för införandet/skapandet av en kunskapsartikel?
24. Hur används kunskapen och av vem?
25. Hur tror du användarna av kunskapen som överförs upplever den?
26. Hur säkerställer ni att kunskapen är tillräckligt rik för slutanvändaren/mottagaren?
27. Klassificerar ni olika typer av kunskap för att förstå hur den på bästa sätt kan göras tillgänglig?
28. Vad för typ av tyst kunskap har ni i er organisation?

ENGLISH VERSION

Background
1. Is it ok if we record the interview?
2. Do you want to be anonymous in this study?
3. What is your official role in the organization?
4. How long have you been employed with this role, and how long have you been working with knowledge management?
5. What does your role imply in the organization?
6. What are your work assignments?

Knowledge management and knowledge transfer
7. Do you have the knowledge management process from ITIL implemented?
   a. If yes
      i. (If you know) How did you get introduced to the knowledge management process from ITIL?
      ii. Can you explain how the process is implemented in your organization?
      iii. How do you believe it is working?
      iv. Does ITIL provide any description regarding which methods that should be used when managing knowledge, and especially transferring knowledge?
8. What knowledge is of importance to the organization according to you?
9. How do you distinguish between information and knowledge?
10. What are your stated goals with knowledge transfer?
11. How do you believe the organization fulfills them?
12. How do you work with knowledge management within the ITIL framework?
13. Do you believe the ITIL framework steer your knowledge management and knowledge transfer?
14. Have you had to do any modifications to complement aspects of knowledge management?
15. Do you have a knowledge management strategy, and may we take part of it?
16. In your opinion how do you believe ITIL and your knowledge management work in combination?
17. What does your organization do to transfer knowledge between different individuals and/or organizational units?
18. How do you work with knowledge management systems regarding knowledge transfer within the ITIL framework?
19. Are different methods of knowledge transfer used in order to transfer different types of knowledge?

20. Have you identified any other types of knowledge that cannot be transferred through information system? How is that managed?

21. How are roles, groups, experts, etc. from the ITIL framework incorporated in the knowledge management?

22. Do you have any other pronounced or unspoken processes besides the systems for transferring knowledge?
   a. What additional knowledge do you think you can transfer through them?

23. How does the implementation/creation process of a knowledge article look like?

24. How is the knowledge used, and by whom?

25. How do you think the users perceive the knowledge?

26. How do you ensure that the knowledge in the articles contain enough richness to suffice the end-user?

27. Do you classify different types of knowledge to understand how it best can be made available?

28. What kind of tacit knowledge do you have in your organization?