



Expertise
and insight
for the future

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Creating Development Plan for ERP Support

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Bachelor of Engineering

Industrial Management

Bachelor's Thesis

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<p>Opinnäytetyön tavoitteena oli parantaa olemassa olevia prosesseja ja toimivuutta ERP-tuen tapausryhmässä. Tapausryitys on suuri tekninen palvelujen tarjoaja sähkö- ja viestintäverkoille. Tapausryhmä tarjoaa tukea yritysyhteyksessä käytettävään ERP-ohjelmistoon.</p> <p>Tutkimus suoritettiin tutkimalla ensin nykyisin käytettyjä prosesseja ja toimintoja tekemällä haastatteluja tapausryhmän sisällä. Haastattelut tarjosivat näkemyksen heikkouksista ja vahvuuksista. Löydettyjä heikkouksia tutkittiin soveltamalla parhaita käytäntöjä ja tarjolla olevaa tietoa, tätä kutsutaan opinnäytetyössä kirjallisuuskatsaukseksi.</p> <p>Kirjallisuuskatsauksen ja haastattelujen yhdistelmästä muodostettiin ehdotukset. Ehdotukset perustuivat haastatteluissa havaittuihin heikkouksiin ja rakennettiin keskittymään näiden ongelmien ratkaisemiseen. Ehdotukset luotiin ja seuraava askel oli antaa ehdotuksille validointi, joka perustui palautteeseen.</p> <p>Validointi johti ehdotuksissa tiettyihin muutoksiin ja lisäyksiin, joista lopullinen ehdotus luotiin. Lopullinen ehdotus toimii tämän tutkielman tuotteena ja sen edut luovat paremman palvelutason ja paremman toimivuuden tapausryhmässä.</p>	
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<p>The thesis aims to improve existing processes and functionality within the case team of ERP support. The case company is a large technical provider of technical services for power and communication networks. The case team is providing support for ERP software that is used in the case company.</p> <p>The study was conducted by researching first the currently used processes and functions through conducting interviews within the case team. The interviews provided insight on a set of weaknesses and strengths. The weaknesses pointed to relevant available knowledge and best practices to look for solutions.</p> <p>The outcome of the current state analysis and the literature review were used to create the proposals. The proposals were based on weaknesses discovered in the interviews and were built in a focus of solving these issues. The proposals were created, and the next step was to provide validation for the proposals, which was based on feedback.</p> <p>The validation led to certain changes and additions to the proposal, and thus the final proposal was created. The final proposal serves as the product of this thesis and the benefits of it help create better levels of service and improved functionality within the case team.</p>	
Keywords	ERP, Knowledge Management, Process Management

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1 Introduction

The thesis aims to research possible development areas in the field of ERP Support and specifically the functions and process of the case team. The thesis tries to adduce issues of having processes unmapped or unorganized, through investigating the current state of these processes. With the completed solution proposed in this thesis, the case company should be able to save time and provide a more effortless service which in turn should provide better value of service and help the end users working with the ERP.

1.1 Business Context

The company in question is a leading provider of technical services for power and communication networks. The company employs over 7000 professionals in several countries internationally. The company is also listed to one of the biggest stock markets in Northern Europe.

The main customers of the company are big teleoperators, electricity network providers, and miscellaneous power and electricity related projects. The markets are limited and highly competitive, which requires a good quality of service to keep the customers satisfied. In addition, the margins are small and there is no room for errors.

The thesis is carried out for the IT department and specifically for the ERP Support team. The ERP Support team is working closely with other IT teams under IT. Mainly the teams involved are Integration team, business operation team and business intelligence team.

1.2 Business Challenge, Objective and Outcome

The object of this thesis is to investigate the existing processes in the case company and to find ways to improve and develop these processes even further. The scope of this thesis is to tackle issues related to the unmapped processes and creation of new instructions to further the understanding of the work done and therefore provide a better quality of service. This should lead into faster service times and cut down the errors possibly made in the ticket handling.

The outcome of this thesis is a Development plan aimed at fixing the issues the ERP Support team is having. Ultimately, the thesis can be used to help in future recruitment of employees, in order for them to better understand the work that the department is doing and streamline the induction for the newcomers.

1.3 Thesis Outline

The study is based on internal team interviews along with a literature study. The scope of the thesis focuses mainly on issues related to the tickets reported in Finland and the handling of these tickets.

This thesis is written in 7 sections. The first section is the introduction for the thesis and the company involved. The second section explains the methods used for the thesis. The third section includes researching and analyzing the current state at the case company regarding processes in order to identify any issues. The fourth section investigates best practices and theory available to tackle the issues identified through the Current State Analysis. The fifth section introduces the outcome of the thesis in the form of a Proposed Development Plan. The sixth section is to validate the project and thesis. The final section provides conclusions and evaluates the overall usefulness of the thesis in a brief summary.

2 Method and Materials

The Methods and Materials are introduced in this section. The section is divided in three subsections, i.e. Research Design, Project Plan and Data Collection & Analysis. The Research Design is used to give an overview of the Thesis and how the research was conducted. Project Plan introduces the timetable and critical steps in the completion of the thesis. Data Collection and Analysis describes what data was collected for this study and how.

2.1 Research Design

The Research Design is divided in 5 main steps:

1. Objective
2. Current State Analysis
3. Literature review
4. Proposal building
5. Validation of proposal

These are introduced in the Research Design diagram below in Figure 1.

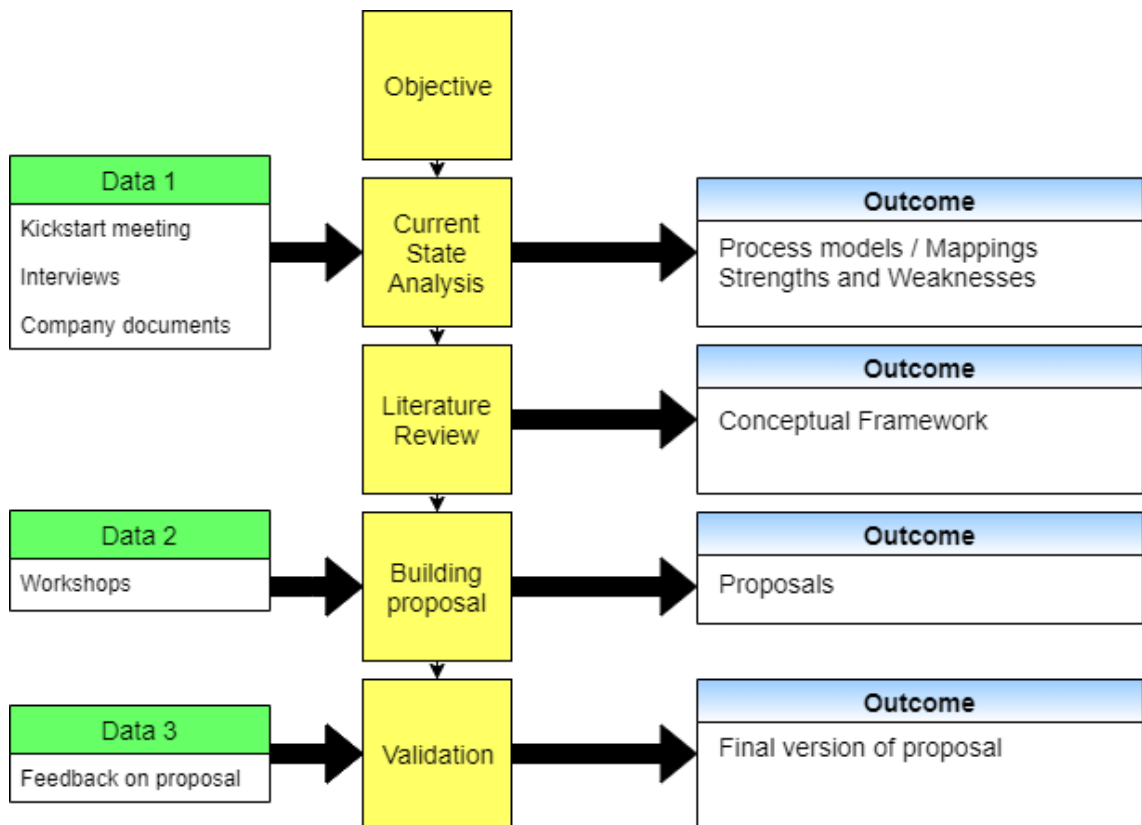


Figure 1. Research Design

As can be seen in Figure 1 the research design starts with the Objective. The next stage is building business challenge, objective and finally the outcome for the Project. Data 1 is collected from kick-off meeting, interviews, working experience in company and mostly from company documents, which are available. These three components form the Current State Analysis. The Current State Analysis provides an outcome of the following: Processes models of key processes used and Strength and Weaknesses analysis. This analysis provides better the understanding of what could be done better and be developed in the coming proposal.

The next research step is Literature Review, and this is based on the knowledge gained from the previous steps. In this phase it is to research best practices and available knowledge on relevant topics such as Incident Management and Process Management. The outcome of these steps complete and accurate conceptual framework. With the conceptual framework the research can then be used to build the Proposal.

The proposal building is based on the Data 2, which consists of interviews and from possible workshops, where proposal is further defined. Building the proposal is then started, which takes in account all the previous knowledge gained from Current State Analysis and Literature Review. These two combined provides the building materials for the outcome, which is the first version of Proposal.

Data 3 consists of the feedback received from the first version of Proposal. This information is then used to validate and fix the proposal accordingly and is the final step in this Research Design.

2.2 Project Plan

The research of this study was done during the time the author was working in the case company. It was done between 10.09.2019 – 4.11.2019, see Figure 2 for further details of the project schedule.

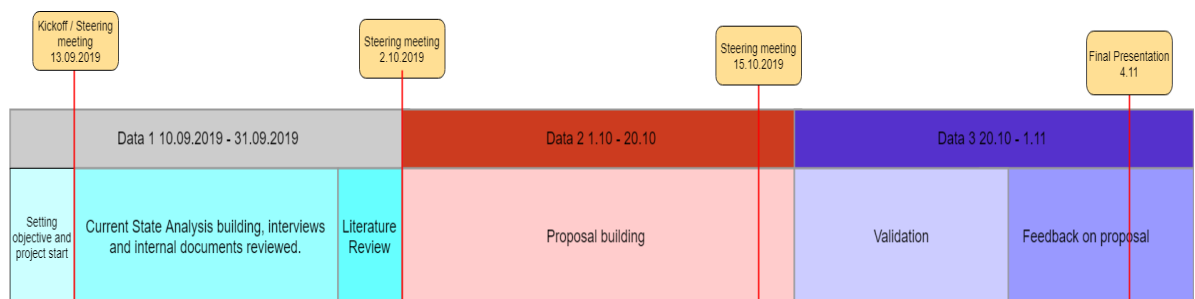


Figure 2. Project Plan

As the project plan displays, the project was started with a kick-off meeting. Then it was continued by interviews within the ERP support team to gain better understanding of the current processes and to find ideas what could be developed, thus forming the basis for Data 1. Data 1 would then be used to build Current State Analysis. Data 2 was built between 1.10.2019 – 20.10.2019 in 20 days approximately. This formed the proposal and theory of the study.

Data 3 was gathered as feedback gained from the proposal and the final revisions were then added to the thesis. After the validation, the final version of the project was created.

2.3 Data Collection and Analysis

The thesis draws on a variety of data sources. As seen in Table 1 the Data collection was set in 3 different phases 1, 2 and 3. The data collection was started by forming Data 1, which started with a kick-off meeting and was followed by 5 rounds of interviews with different case team members.

Table 1. Details of interviews, workshops and discussions, in Data1-3. (based on: Aittola 2015)

	Participants / role	Data type	Topic, description	Date, length	Documented as
	Data 1, for the Current state analysis (Section 3 and 4)				
1	Application Specialist, Instructor	Meeting	Kick-off meeting	Sep 2019, 1 hours	Field notes
2	Solution owner	Face to face Interview	Interview to determine better processes and ideas	Sep 2019, hours	Field notes
3	Application Specialist, Instructor	Steering 1	Interview to determine better processes and ideas	Sep 2019, 1 hour	Field notes
4	Database Specialist	Face-to-face Interview	Interview to determine better processes and ideas	Sep 2019, 1 hour	Field notes
5	Application Specialist	Face-to-face Interview	Interview to determine better processes and ideas	Sep 2019, 1 hour	Field notes
6	Application Specialist, Instructor	Face-to-face Interview	Interview to determine better processes and ideas	Sep 2019, 1 hour	Field notes
	Data 2, for Proposal building (Section 5)				
9	Team	Workshops about monitoring	Workshops about monitoring	Oct 2019, 1 hour	Field notes
10	Team	Discussion	Steering 2	Oct 2019, 1 hour	Field notes
	Data 3, from Validation (Section 6)				
11	Team	Final presentation	Validation, evaluation of the Proposal	Oct 2019, 1 hour	Field notes

As Table 1 shows, Data 2 consists of two meetings with the team. The first one concentrated more on what had been found out and the second focused on what should be included in the proposal. Finally, Data 3 was collected as feedback to the initial proposal by organizing a group interview.

In these data collection sessions, the main source of information was interviews and workshops. Part of the interviews were conducted face-to-face, however some of the interviews were done via Skype call. This was done because some of the case team members were not present in the office and live abroad and work in different locations. The questions (See Appendix 1.) were prepared before the interviews and sent to the interviewees for quick glance on the subject.

As can be seen in Data 2 the workshops were held after the interviews and focused on monitoring. The skype meetings were recorded additionally, however these were classified as confidential and only for case team use.

Table 2. Internal documents used in the current state analysis, Data 1

	Name of the document	Amount/ number of pages	Description
A	ERP user manuals	72 pages	Internal instructions
B	SharePoint guidelines	100+ pages	Internal documents

As can be seen in the Table 2 this project explored several internal documents. The main documents included case company IT documentation, which is only for ERP Support team use and can only be found within the ERP application. The documents were mainly explored or the current state analysis to get a better understanding of the current processes and their strengths and weaknesses.

Some of the data was collected, when the author was working in the case company before the thesis project. Working experience is also used as one source of data. The combination of the interviews, working experience, internal documents and the kick-off meeting form the basis for the Current State Analysis. The findings of the Current State Analysis are introduced in full detail in section 3.

3 Current State Analysis

This section provides the results of the current state analysis and the processes the case company has been using in ERP support. The section includes the overview of the CSA stage and then all the explored fields as subsections. This section ends at the summary of the findings of the current state analysis.

3.1 Overview of CSA Stage

The issue is that the ERP team has unmapped processes and roles that need to be described and analyzed to gain better understanding of the processes and easier knowledge sharing by doing so. The current state analysis was built by having interviews with the case teams' employees to understand better the processes and their weaknesses and strengths. The experience gained by working in the case company, also helped with the understanding of the processes. After the interviews, also internal documents were analyzed and reviewed for greater understanding. This led to analyzing of the data gained from working experience, internal documents and interviews.

The interviews were selected to be key stakeholders in the critical processes in the department. The product of this was different take of development ideas from all sides of the team. The interviews were aimed to be easily approachable, so more content was provided. In the interviews it was also recorded, what generally used accesses the team members had and it was recorded as chart further detail can be found in the below section.

3.2 Analysis of the interviews

All the interviews were read, and the information gathered and summarized. The following Table 3. was built based on the data gathered.

Accesses	Knowledge					
Accessess & Knowledge	A	B	C	D	E	F
TOOL 1	X		X			X
TOOL 2	X					X
TOOL 3	X					X
TOOL 4	X	X	X	X	X	X
TOOL 5		X				X
TOOL 6	X		X	X	X	X
TOOL 7						
RESPONSIBILITY 1	X		X	X*		X
RESPONSIBILITY 2	X	X		X*		
RESPONSIBILITY 3	X		X*	X*		X
RESPONSIBILITY 4		X*				
RESPONSIBILITY 5	X	X	X	X	X*	X
* Expert						

Table 3. Access & knowledge

Table 3 shows, which team members have accesses for certain tools or systems and what knowledge they have. In the table the first row depicts each team members as letters and the columns on the right are the Tools used on light blue background. The knowledges are depicted on the right but are on yellow background to make a clear distinction between the Access and Knowledge.

Issue was raised of not having available search function that would search inside each instruction is not in use and was deemed useful in the interviews. This function would allow easier access to internal documents and better knowledge sharing through the team. This functionality would, also cut down duplicate instructions created.

It was also raised that monitoring is found to be complex and most cases inefficient. It was found that monitoring doesn't have clear set of instructions. The simple monitoring issues could be handled with just instructions, but the more complex and occurring rarely will need communication within team or with third party members.

Knowledge sharing is still limited within only few people in the team and should be taken into wider use. Word cloud was created from the interviews but was left out due to too vague in many parts and not giving much additional information about the issues.

3.3 Internal Documents and Instructions

Internal documents were read and investigated for what development ideas could be made to documents. As can be seen from Figure 3 most documents/instructions are missing reference ticket, which sometimes could be added. Other findings were that the appendix and document history of the instruction is missing.

Id	Stream Name	English Desc	Local Desc	Company ID	Notes	Attachments	Window in ERP	Created	Template	Format	Reference to ticket
1	Document Group	Description of the document		COMPANY 1			1 Travel Request	Employee : Yes		Word	No
2	Document Group	Description of the document		COMPANY 1			1	Employee : Yes		PP	No
3	Document Group	Description of the document		COMPANY 1			1 Customer Order	Employee : No		PP	No
4	Document Group	Description of the document		COMPANY 2			1	Employee : No		PP	No
5	Document Group	Description of the document		COMPANY 2			1	Employee : Yes		Word	No
6	Document Group	Description of the document		COMPANY 2			1 Overview	Employee : Yes		Word	No
7	Document Group	Description of the document		COMPANY 2			1 Overview	Employee : Yes		Word	No
8	Document Group	Description of the document		COMPANY 2			1 Overview	Employee : Yes		Word	No
9	Document Group	Description of the document		COMPANY 2			1	Employee : Yes		Word	No
10	Document Group	Description of the document		COMPANY 2			1	Employee : Yes		Word	Yes
11	Document Group	Description of the document		COMPANY 2			1	Employee : Yes		Word	No
12	Document Group	Description of the document		COMPANY 2			1	Employee : Yes		Word	No

Figure 3. Analysis of instructions

The document history and appendix would help significantly the search of correct instructions in the issue solving. As currently there is no search functionality that would provide information inside documents. It is now advised to have lengthy instructions that contain multiple issues as the instructions can be searched with the Microsoft Word -search.

3.4 Monitoring

As the case team is responsible for monitoring the ERP, the monitoring is done as a proactive measure to prevent incidents occurring for customers and thus preventing unnecessary tickets, which could have been handled in monitoring. The monitoring process is simplified in Figure 3 below. The monitoring process was mainly built by the knowledge gained, while working in the case company.

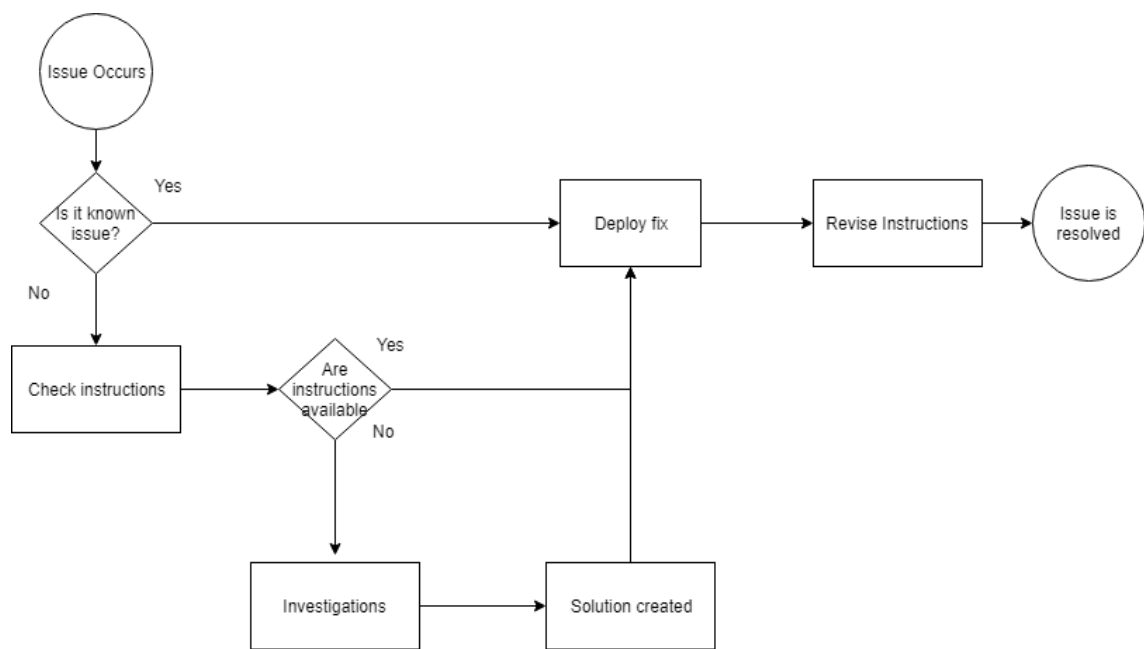


Figure 4. Monitoring

As can be seen in Figure 4, the instructions are in key role as most of the issues are complex and require multiple steps, before the fix is deployed in entirety. This same process can also, be applied to any Issue that occurs and need to be resolved and the fix needs to be documented in the instructions.

Currently there are no general instructions available of monitoring, which could be useful as in interviews some found monitoring complicated. In the interviews it was, also stated that it is hard to know, which errors are critical and what are not. It was, also stated that it is hard to know what can be changed to deploy the fix and what cannot be changed.

Monitoring is happening within the ERP and there is a special custom lobby built for the monitoring purposes. From there the one who is monitoring can oversee the errors and warnings happening in ERP and related systems. For now, the monitoring does not have the guidelines and responsibilities are set only on very vague level.

3.5 Ticket handling

Ticket handling was missing the basic process model; hence this was created, as shown in Figure 5. Ticket handling in general seemed to already be in good standings as everyone in the interviews did not address any major issues with it. Some functional issues were raised by some saying that ticket editing is not as fluid as it could be but they had already addressed the problem

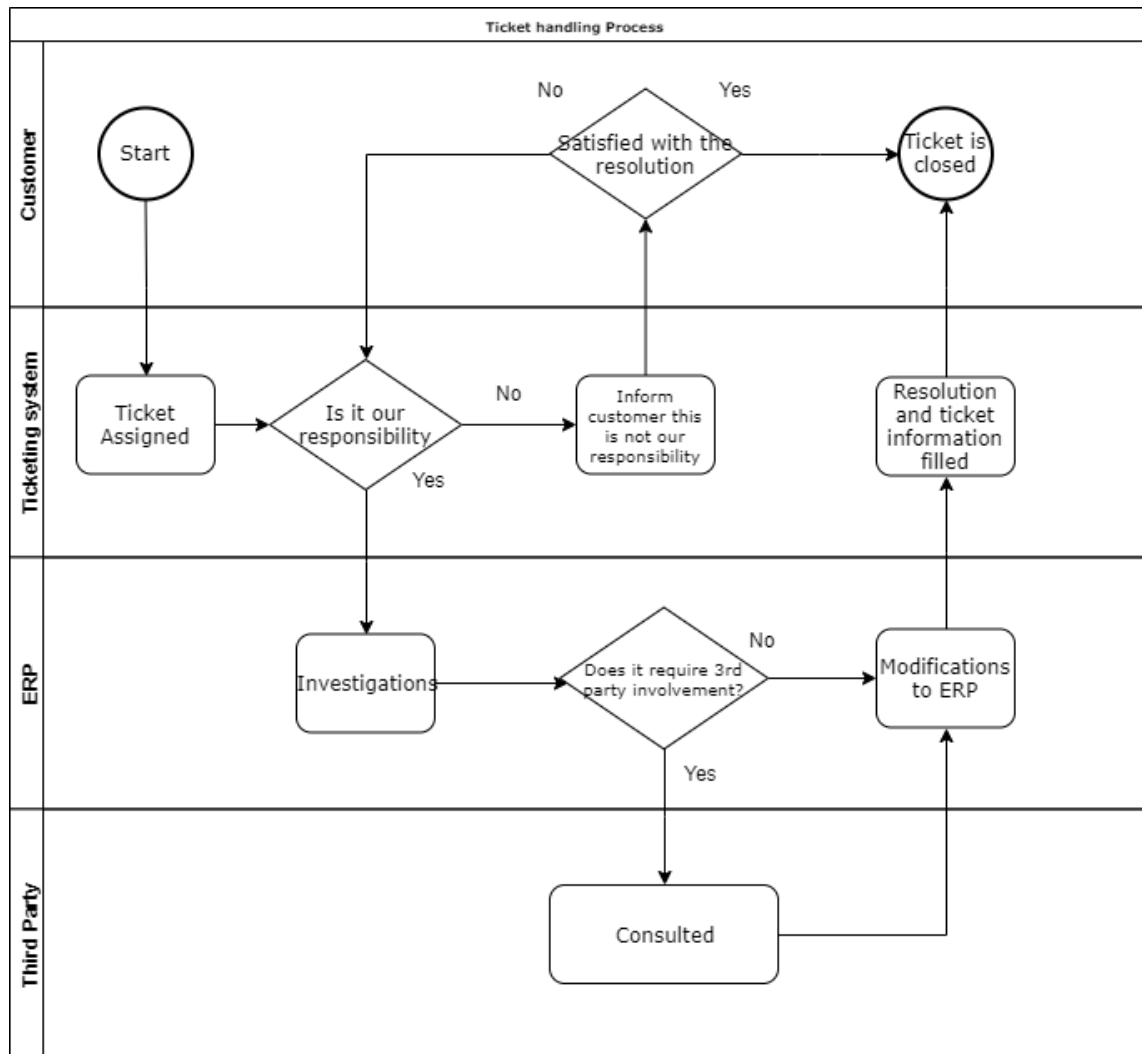


Figure 5. Ticket handling.

The categorization of ticket was noted to miss some key categorizations as there can only be found two categories for work order handling. However, the work order handling includes much more than two. The other one of the existing categories, 'Other', implies that the categories are not thought to the end.

3.6 Summary of Key Findings from the Current State Analysis

The strengths and weaknesses of the current state analysis are summarized in the following table. The table also shows what literature the outcome of the CSA points to. The strengths, which were found can be seen on the right and on the left side we can see the weaknesses. After consideration the foundation for available knowledge was built and can be seen in the lower half of Figure 6. The main set of knowledge is gathered from ITIL sources as this is closely related with the practices used in the case company. The chosen fields that were chosen are incident management, team management, process management and knowledge management.

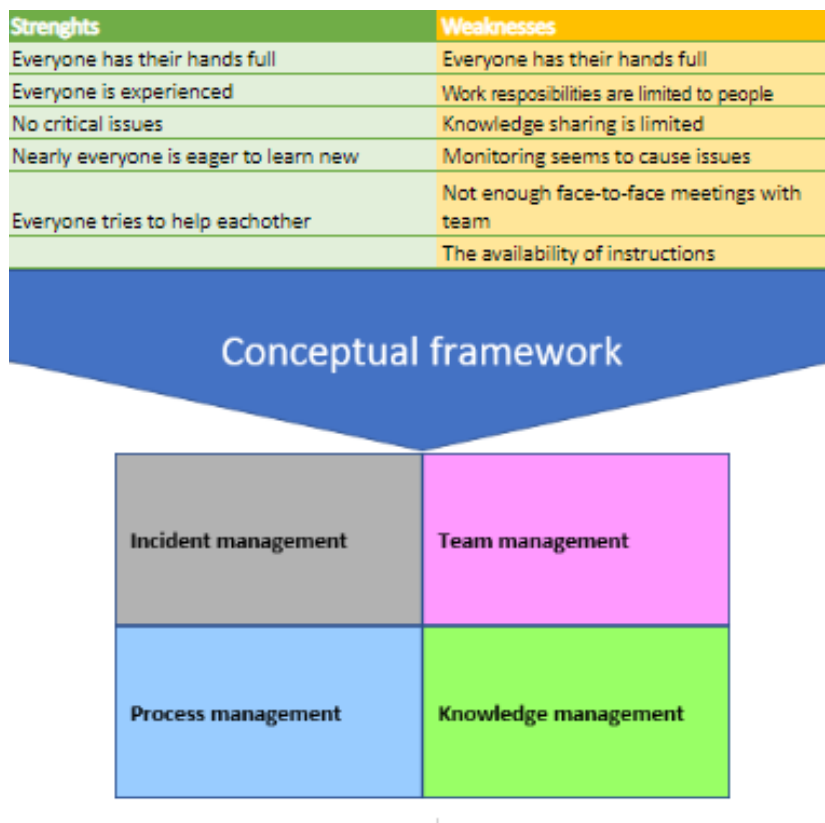


Figure 6. S&W and Available knowlegde

4 Available Knowledge and Best Practice on ERP support

This section investigates available knowledge and best practice for ideas on how to solve the issues revealed by the CSA. Most issues are related to incident management, team management, process management and knowledge management. It should be noted that the main area of knowledge is gathered from ITIL perspective as this is something that the case company is also using in its basic processes, therefore this section starts off with a general chapter on ITIL.

4.1 ITIL

ITIL (Information Technology Infrastructure Library) is a set of knowledge of good practice in Service Management. ITIL is used internationally in many organizations and it is following the ISO/IEC 20000 standard. While this standard needs to be audited and certified ITIL offers the knowledge to achieving this standard. The ITIL has two components

1. ITIL Core - guidance of best-practices applicable for all types of organizations that provide service for business. See Figure 7.
2. ITIL Complementary Guidance – Complementary and more specific about the industry sectors organization types and operation models

Of these two the study will focus more on the ITIL Core part. The ITIL Core consists of five publications, which can be seen in detail in Figure 7. These are Service Strategy, Service Design, Service Transition, Service Operations and Continual Service Improvements. The main publications used for this thesis are Service Strategy, Service Transition and Service Operations. (Taylor et al. 2007:7-8)

Service Strategy is instructions on how to develop, design and implement service management. The guidance is provided by underpinning the practice of service management that are used in development of service. Organizations use this guidance as to set objectives and expectations of performance towards service of their customers. Service Strategy is also used to identify, select and prioritize opportunities as well as handling of costs. (Taylor et al. 2007:8-9)

Service Transition offers guidance on how to development and improve capabilities for transition of new and changed services. Service Transition provides guidance on how the set requirements of Service Strategy are considered, while planning and executing changes. The Service Operations are also investigated that the risks and failures are as minimal or nonexistent, when these changes are deployed. In overall the Service Transition offers guidance on managing complex changes to services and preventing service management processes having undesired consequences. (Taylor et al. 2007:7-8)

Service Operations focuses on management of service operations. It is guidance of achieving effectiveness and efficiency in the delivery and support of service. The objectives set on service strategy are often realized through service operations. The service operations offer guidance on maintaining stability of service and allowing changes in design, scale, scope and service levels. Organizations are given guidelines on processes, methods and tools and these are controlled in two forms control perspectives reactive and proactive. (Taylor et al. 2007:9)



Figure 7. ITIL Core (bmc. 2016)

4.2 Incident management

In this chapter the study explores Incident management, Request Fulfilment and finally RCA (Root Cause Analysis). The main purpose of this chapter is to study the issues found on Current State Analysis such as Monitoring causing issues

Incident management is the process of dealing with all unplanned interruptions to an IT service or otherwise affecting the quality of the IT services. The ITIL definition is the following for Incident, “An unplanned interruption to an IT service or reduction in the quality of an IT service” (Taylor S., Cannon D. and Wheeldon D. 2007, p. 46). The incident management includes failures, questions or queries from the end users, IT staff or the incidents can be detected automatically and be registered by the event monitoring tool. (Taylor et al. 2007:46)

Purpose of the incident management is to restore normal levels of service operations as were before the incident occurred. The aim is to provide the restoration as quickly as possible to keep the impact on business operations as minor as possible. This is done to provide as best possible quality of service. The scope of quality is agreed upon the Service Level Agreement. (Taylor et al. 2007:46-47)

The scope of incident management includes all events, which disrupt the services. Mainly these are reported by the end users, by either service desk, event management interface or by incident management tool. The technical staff can also log incidents, which would cause issues for the end users. Incidents should not be confused with the service requests. As these two are different the incident unplanned disruption, while service request is usually a minor change and agreed upon beforehand. (Taylor et al. 2007:46-47). The service requests are explained in more detail in subchapter 4.2.2 Request Fulfilment.

The value of incident management for business.

1. The capability of resolving and detecting incidents provides less downtime to business, which will eventually lead to a better availability of the service offered. Less downtime is more service provided.
2. Better understanding of incidents, when they occur thus allowing a more accurate prioritization, whether it is critical incident or a minor one.
3. Potential improvements are easier to identify and understand, which is needed for the fix.
4. The ability to see, which training, or service needs are needed for the IT or for business personnel.

(Taylor et al. 2007:47)

The effects of incident management can be easily seen in the business operations and the effects can be analyzed. The value of incident management can be easily accessed and therefore is usually the first ITIL Service Operation taken in use. (Taylor et al. 2007:47)

Incident models are predefined models that provide instructions on how to resolve reoccurring incidents. All incident models should include the following:

1. Steps to resolve the incident
2. The order these steps should be performed
3. Responsibility on, whom to consult on the incident
4. Estimation on how quickly the resolving actions can be deployed
5. Procedure of escalation, who should be informed and on what timetable
6. The collection of information of the incident, which is needed for the resolution

The incident model should be deployed in the incident management tool and should be easily available, when the incident occurs, which has a created incident model. (Taylor et al. 2007:47)

Major incidents should have a different procedure than regular incidents. This can be provided by categorization and when certain levels of urgency and impact is reached the major incident should be dealt with major incident process. The major incident procedure should be handled by the major incident team, which is led by the incident manager. The major incident team will focus on the major incident alone and try to find a quick resolution to it once it has occurred. If the problem management is implemented all major incident cases should be studied to find the underlying problem behind the incidents and try to prevent it from happening in future. (Taylor et al. 2007:47-48)

Incident identification and logging are usually done in the incident management tool. Ideally all incidents should be resolved before there is any complication in the end user level. The needed information for incident logging should include at least the following:

1. Unique reference number
2. Incident categorization
3. Incident urgency
4. Incident impact
5. Incident prioritization
6. Date/time recorded
7. Id of the person/group who is recording the incident
8. Method of notification
9. Contact information
10. Description of the incident

11. Incident status
12. Support person, who is assigned to the incident
13. Related problem or known error
14. Closure category
15. Resolution date and time
16. Closure date and time

(Taylor et al. 2007:49)

Incident categorization is done when the incident is logged in. The categorization will differ in different organizations and it can prove hard to provide accurate categorization. The following steps should provide some insight on how to set categories properly

1. Hold brainstorming sessions with parties involved
2. Include other categories on the category levels and set up logging tools
3. Have short periods of certain decided categories and see what feedback you get from users and from data
4. Perform incident analysis and try to figure out what incidents are performed and try to categorize it first on higher level then on lower levels
5. Review and repeat these processes until it seems that incidents can be categorized even to lower levels and they are valid and provide better understanding of the incident service provided

(Taylor et al. 2007:50)

Incident closure procedure should include checking that the incident is fully resolved and the users are satisfied with resolution. The following should also be checked:

1. Closure categorization, it should be set as mandatory to categorize the incident to even lower levels
2. User surveys should be deployed for at least certain percentage of incidents
3. Documentation of the incident it should include the steps used to resolve the incident
4. If problem management is implemented it should be connected to new or existing problem
5. The formal closure of the incident

After formal closing of the incident it can be that the incident is not properly solved and raised again. In case of reopening of incidents there should be some set of rules how these are handled. For example, after closing of incident there is still one day period of reopening the incident. Such rules should be clearly documented, and service informed of this reopening procedure so it would be same for all involved with incidents (Taylor et al. 2007:53).

The next subchapter will focus on the Request fulfilment and service request processes. Incidents and service requests go usually in hand in hand; however, they are not the same and the incidents were described in this chapter and now service requests are explored in the next subchapter.

4.2.1 Request Fulfilment

Request Fulfilment in ITIL is mainly focused on service request. Service Requests are various types of demands created by the end users for the IT department. Most of the service requests are small changes that are needed to be done by the service provider example of a service request could be a simple password reset. The service requests are usually reoccurring, small risk and usually own a separate process.

The purpose of Request Fulfilment is the service request process from user to the service provider. This will provide answers on how service requests are handled. The objectives of the Request Fulfilment are listed below:

- Have a channel of reporting service request for example a ticketing tool
- Inform users about the availability of the service requests
- Source and deliver components as requested
- Assistance with general information, comments or reclamations

(Taylor et al. 2007:55-56)

The scope of Request Fulfillment will vary on what kind of service request are offered for the users. Some organizations can choose to handle service requests with incident management process however, incident is usually something unplanned and service requests are something planned. Eventually the decision is up for the organization to decide what Request Fulfillment entails and what are categorized as change requests and what are service requests. (Taylor et al. 2007:56)

The value Request Fulfillment offers for business operations is in possibility to offer fast and effective standard services. This can be seen as improved productivity and better quality of service on the business side. The bureaucracy will be cut down on small changes as the service is standardized. (Taylor et al. 2007:56)

Most service requests are triggered the same way as Incidents either through service desk, or it could be checked in through self-service reporting tool. The service requests have the same closure procedure as is for incidents (See chapter 4.2).

4.2.2 Root Cause Analysis (RCA)

To understand root cause analysis, it is also needed to understand problems. There are two clear characteristics of a problem:

1. Having a problem is by default a state of issues plagued with difficulty or undesired status
2. A problem represents a challenge that encourages solving to establish desirable outcome.

(Andersen, B, & Fagerhaug. 2006:12.)

Beneath all problems lies a cause for the problem. When solving is deployed it should be considered to use the following approach:

1. Identify the cause of the problem
2. Look for ways to eliminate this cause and prevent them from recurring

There can be multiple causes and the causes can be classified by the following

- Symptoms – Symptoms are not regarded as actual causes rather signs of the existing problem
- First-level causes – First-level causes are causes that are directly linked to the problem
- Higher-level causes – High-level causes are causes that lead to the first-level causes. While these are not directly the reason for the problem. High-level causes create links, cause-and-effect relationships, which ultimately lead to the problem created.
- The reason behind all problems is the root cause that lead to higher-level causes. See Figure 9.

(Andersen, B, & Fagerhaug. 2006. Root Cause Analysis:13-14)

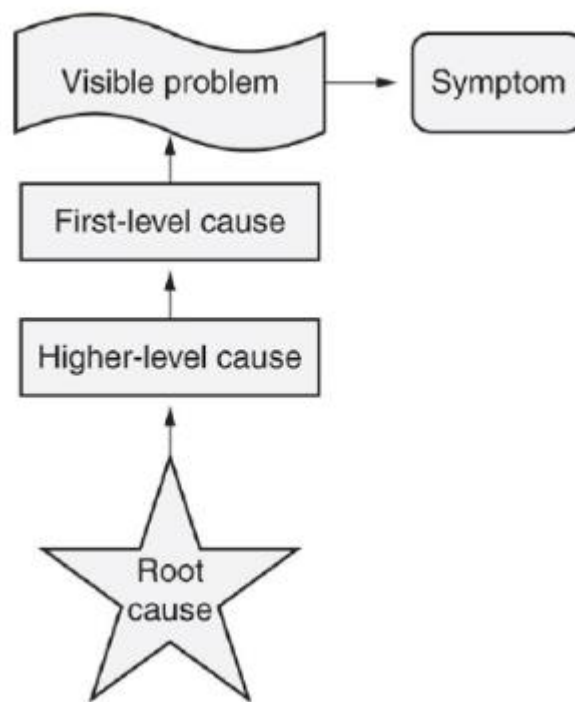


Figure 8. Root Cause diagram (Andersen, B, & Fagerhaug. 2006:15)

The root cause analysis is structured investigations that aims to identify the true cause of problem and the actions to eliminate the cause as can be seen in Figure 9. Root cause analysis includes wide range of approaches, tools, and techniques, which are used to uncover the cause of problems. In root cause analysis there are variety of approaches, which differ from one another. Some focus on identifying, while others are more general problem-solving techniques. (Andersen, B, & Fagerhaug. 2006:20)

The problem-solving process that can be used is depicted in Figure 10. The recommended root cause analysis tools and the explanation of that problem process step listed below:

1. Problem understanding -> Method that helps to understand the process. Recommended tool to use: Flowcharts that paint the picture of the business process
2. Problem cause brainstorming -> Tools that can be applied for different stages of analysis. Recommended tool to use: Brainstorming session with process stakeholders.

3. Problem cause data collection -> The tools and techniques to gather data related to the problem and the cause of the problem. Recommended tools to use: Sampling to gather small effective sample of the problem data.
4. Problem cause data analysis - > Tools to make the most of the collected data related to the problem. Recommended tools to use: Histogram, an visual diagram that helps to identify anomalies and patterns.
5. Root cause identification -> The basis of root cause analysis and is never a single approach. Recommended tools to use: Cause-and-effect chart, tool used to analyze possible causes of the problem. Five whys, Approach used to go deeper into causal relationships
6. Problem elimination -> Solutions that will remove the root cause and will eliminate the problem. Recommended tools to use: Six thinking hats, a technique that forces people to step on different roles.
7. Solution implementation -> Techniques and advice to help in the change process. Recommended tools to use: Tree diagram, for planning project for implementing improvements.

(Andersen, B, & Fagerhaug. 2006:21-22)

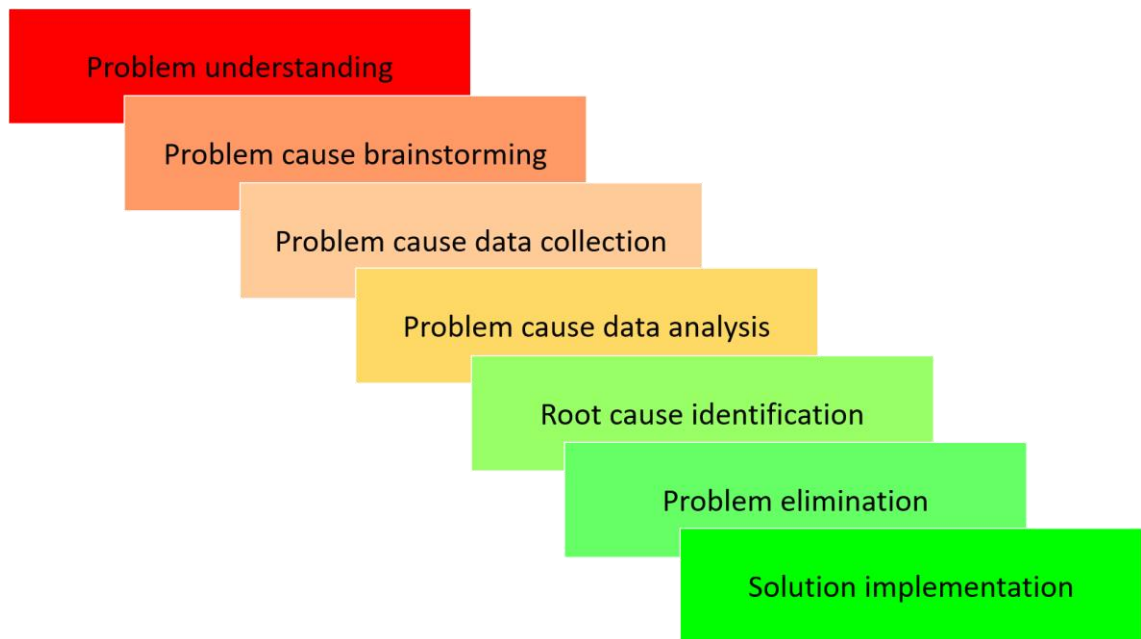


Figure 9. Problem process (Andersen, B, & Fagerhaug. 2006:17)

4.3 Team management

In this chapter the study explains roles and responsibilities from ITSM perspective and assesses face-to-face meetings.

4.3.1 Roles and responsibilities

The definition of role in ITSM is a set of responsibilities, activities and authorities granted to a person or a team. Process and functions define the role and its purpose. Teams and individual persons can have multiple roles and roles should not be confused by the job titles as incident manager and problem manager can be carried out by a single person. As organizations differ there are diverse ways of filling certain responsibilities and roles. Differences of small IT organizations to large IT organizations depicted in Table 5. (bmc 2017)

Small IT Organizations	Large IT Organizations
Shared roles	Separated roles
Separation of duties limited	Separation of duties maximized
Generalization of skills	Specialization of skills
Less complexity	More complexity

Table 4. Difference of roles in small and large organizations. (bmc 2017)

Maturity of organization should always be researched before setting roles or responsibilities. Example of crucial factors are organization's age, size, geographical spread and technology involved. These factors should be studied carefully if they are overlooked it can lead to problems. The roles and responsibilities tend to change in time and should be checked that they are on point and if not then adjusted accordingly. (bmc 2017)

Categorization or combination of roles can be done in a several separate ways. Most common way of dividing is directly interacting with people roles and then the roles dealing directly with technology involved. Sometimes the role can even be a hybrid of these two options, a little bit of people involvement and some technology knowledge and know-how. Also, the divide can be made upon the roles responsible for services and then the ones responsible for processes. (bmc 2017)

There should always be a clear definition of accountability and responsibility as they are essential for the ITSM and are completely different entities, as depicted in Table 2 below. To help with the understanding of which people or teams are accountable or responsible, it is in best practice to use RACI model, which is an abbreviation of words Responsible, Accountable, Consulted and Informed. The RACI model is used in organizations to define the roles and responsibilities in relation to processes and activities. It provides a compact, concise and an easy method of tracking who is doing what within the organization. In RACI model there is always one person accountable for an activity, therefore there can only be one process owner for each process and one service owner for each service. (bmc, 2017)

The roles defined in the RACI model are further explained in the Table 6. below.

Responsible	Accountable
Performer of the task. Responsible for accomplishing the tasks or activities. Necessary doesn't have the authority to ensure that others of the same responsibility get the tasks/activities done.	Having an ownership of a process, and/or activity. The person who is being held accountable and guarantees that the goals and objectives are being followed. Only one person can be accountable for each task.
Consulted	Informed
Group of people that are being consulted and whose opinions are taken into consideration. Providing information and knowledge for the activity.	The people being kept informed of the progress. Receiving information about the process implementation and of its quality.

Table 5. Table 6. RACI roles explained. (bmc, 2017; itsmprofessor, 2011)

RACI model can be built to simple table format See Table 5. In the model it is common to use only letters of R(Responsible), A(Accountable), C(Consulted) and I(Informed) to fill in what are the responsibilities of each participant role in each set of activities. Top row depicts the roles/workers involved. The right column depicts the set of each activities. It is paramount of only having only one Accountable in each activity and at least one Responsible.

	Example Role 1	Example Role 2	Example Role 3	Example Role 4
Example Activity 1	R		A	C
Example Activity 2	A	I	R	I
Example Activity 3	RA	I	C	I
Example Activity 4		A	R	IC

Table 5. Example of a simple RACI model.

4.3.2 Face-to-face meetings

The value of face-to-face communication even though there are technologies that enable remote meetings all over the globe. The surest way to establish and nurture human relationships is through face-to-face meetings. These relationships are rooted in social bonding and symbolic expression of commitment. Contrasting social aspects of communication with information aspects such as information transfer, finding common ground, repairing misunderstandings and referring to shared objects of environment. (Hinds et al. 2002:84)

Information exchange is the goal of communications, but by focusing exclusively on information social process is overlooked. People create social fields within where communication takes place. These social fields are potential for productive communication between two people. These social fields can have knowledge over from a long period of time. (Hinds et al. 2002:84)

The face-to-face meetings are often thought to have less value than a simple e-mail that conveys the same message, however these face-to-face meetings built more trust, understanding and sense of on the same mission. It has also been investigated that 93 percentage of communication effectiveness is determined by non-verbal cues. To get the most of face-to-face meetings it is recommended to follow the following guidelines.

1. Prepare and send the team facts and figures before the meeting. This way everyone is already prepared and ready for the meeting, so no time is wasted.
2. Keep people standing and remove the chairs. This is to keep meetings short and more focused on the topic. Unnecessary chatter is kept in minimum.
3. Be selective on what is agreed upon agreeing on everything is not always the best way to go
4. Setting expectations on the meeting on how long the meeting takes approximately and informing the participants.

5. As it is a face-to-face meeting it is in good practice to focus on listening and looking into non-verbal cues.

Important part is also to take time and bond with your team members and understand them as individuals in part of the team. (Forbes. 2015.)

4.4 Process management

In this chapter it is researched best practices in par with process management and on the focus of process modeling.

Process is a transformation of inputs into outputs. The five elements that characterize this transformation are the following: inputs and outputs, flow units, network of activities and buffers, resources and information structure.

- Inputs are real or unreal items that are in the process from the environment
- Outputs are real or unreal items that are flown back into the environment
- Flow units or jobs are items that flow throughout the process
- Network of activities and buffers
 - o Activities are the simplest form of transformation
 - o Buffers store flow units that have finished activity, but are waiting for the next activities start
- Resources are tangible assets that are divided between capital and labor categories
- Information structure is information that is needed in order to perform activities

(Damji & Damji. 2014:60-63)

Process model is a diagram that consists of a group of activities that are connected sequentially as predecessor to successors from outputs and inputs. These are organized in several paths, which explain a certain functioning in organization. The business process model is set of activity models and execution constraints between them. The development of process models is necessary because of the difficulty to conduct experimental testing of the original process. Testing is necessary to identify problems within the process and to find solutions to improve it. (Damji & Damji 2014:25)

Process model should have all the characteristics to make the model as reflection of the original process as possible. This enables the model to behave as the real business process does. The transferring of the original business process to the model is essential to carry out the necessary experiments and tests without the business impact. The accuracy of the model is important as without it key elements can be overlooked in the process and the developing of the process can be done incorrectly. (Damji & Damji 2014:25-26)

Business process modeling is the approach of identifying, understanding and analyzing the process. After the process is carefully investigated it can be modeled using a modeling technique in order to capture the true essence of the process modeled. Process model developing should identify, study and understand the functionality and this can be deployed by interviews within the organization. The purpose of these interviews is to identify the workflow, work process and activities performed within the process. (Damji & Damji 2014:25-26)

4.5 Knowledge management

Knowledge management is important factor for identifying, capturing and applying the knowledge accumulated by knowing employees in order to preserve and create the knowledge base for organization. The function of the knowledge management is to spread knowledge within the framework of the organization. Knowledge management is greatly reliant on employees, which will contribute to it and consequently create a competitive and successful organization. (Damji & Damji 2014:85-86)

Implementing knowledge management for organization helps the organization to identify, triggering and storing the knowledge of its experienced employees. This will prevent

knowledge leaking during the change of employees. Knowledge management is important for creating knowledge necessary to carry out actions that bring quality and effectiveness for business processes. (Damji & Damji 2014:85-86)

It is stated that most important intellectual assets that organization has is the knowledge of its employees and thus it should be captured and stored so that it can be easily accessed and revised. Knowledge management sets first to identifying and capturing knowledge at individual employee, group of employees and organizational levels and then secondly applying this knowledge at these three levels by development a system that provides the knowledge and requires the use of it. (Damji & Damji 2014:85-86)

4.5.1 Unknown matrix

The unknown matrix depicted in the Figure 11. should be carefully investigated by the management in order to explore knowledge residing in the organization. The first row of the Figure contains information about the knowledge the organization knows and what knowledge is not known.

		Information sources	
		Known	Unknown
User awareness	Known	Know that we know	Know that we don't know
	Unknown	Don't know that we know	Don't know that we don't know

Figure 10. Unknown matrix (Damji & Damji 2014:87)

- Know that we know: The management knows that there are knowledge sources within the organization, which contain knowledge about a working area that needs to be captured and applied.
- Know that we do not know: The management knows that the organization doesn't have the knowledge and new knowledge should be created as an innovation in this area

The second row has information about what knowledge the organization has but is unaware about it and information about knowledge organization does not have and does not know about. (Damji & Damji 2014:86-87)

- Do not know that we know: The management is unaware of the found knowledge within the organization, and this knowledge is only in the minds of the employees.
- Do not know that we do not know: The management thinks that it knows everything however it doesn't know about the hidden knowledge, which is applied by the competitors.

The Known-Unknown matrix is an excellent tool of knowledge management that can be used to identify and capture the knowledge that exists within the framework of the workplace and explores the possibilities of what information should be created. (Damji & Damji 2014:88)

4.5.2 User manuals

Generally good guidelines for user manuals and designs to avoid and use when writing the user manuals:

- Include one-page quick guide
- Present instructions step-by-step
- Use purposeful and effective colors
- Use readable and clean font

- Avoid using too small font hence at least 12 px
- Use a consistent layout and template
- Use consisting color coding
- Use bolding only to signal an importance of the task
- Make effective use of pictures and diagrams
- Avoid using saturated blue for text and on small detail and never on red background

(Hodgson 2019)

Users can easily get frustrated, when they can't find what they are looking for in user manuals, hence it is good to provide good findability for the manuals. Good practices to provide quality findability:

- Organize information hierarchically
- Code hierarchy with colors
- Divide sections by chronology of use, frequency of use, categories and expertise level of user
- Denote importance by using colors and contrast
- Create key word index
- Make quick start guide easy to access

(Hodgson 2019)

The how in giving instruction is the key role of user manuals. It is crucial that instructions are easy to read and understand. Many user manuals have incomplete instructions. The following listing provides good principles, when setting the instruction:

- Provide step-by-step sequences
- Provide pictures with visual stepping points
- Avoiding lengthy text sections
- Using actual language instead of business terms and abbreviations
- Explaining of symbols
- Avoiding creating dead end instructions
- Avoid patronizing anyone
- Never assuming former knowledge of the user
- Easy to get back to instructions if the task is left incomplete
- Easy to work through the instructions from start to finish

(Hodgson 2019)

4.6 Conceptual framework

Findings made in Section 3 current state analysis pointed to relevant information found on either books or web sources. When literature was completed the proposals were formed. Figure 12 depicts this process in detail.

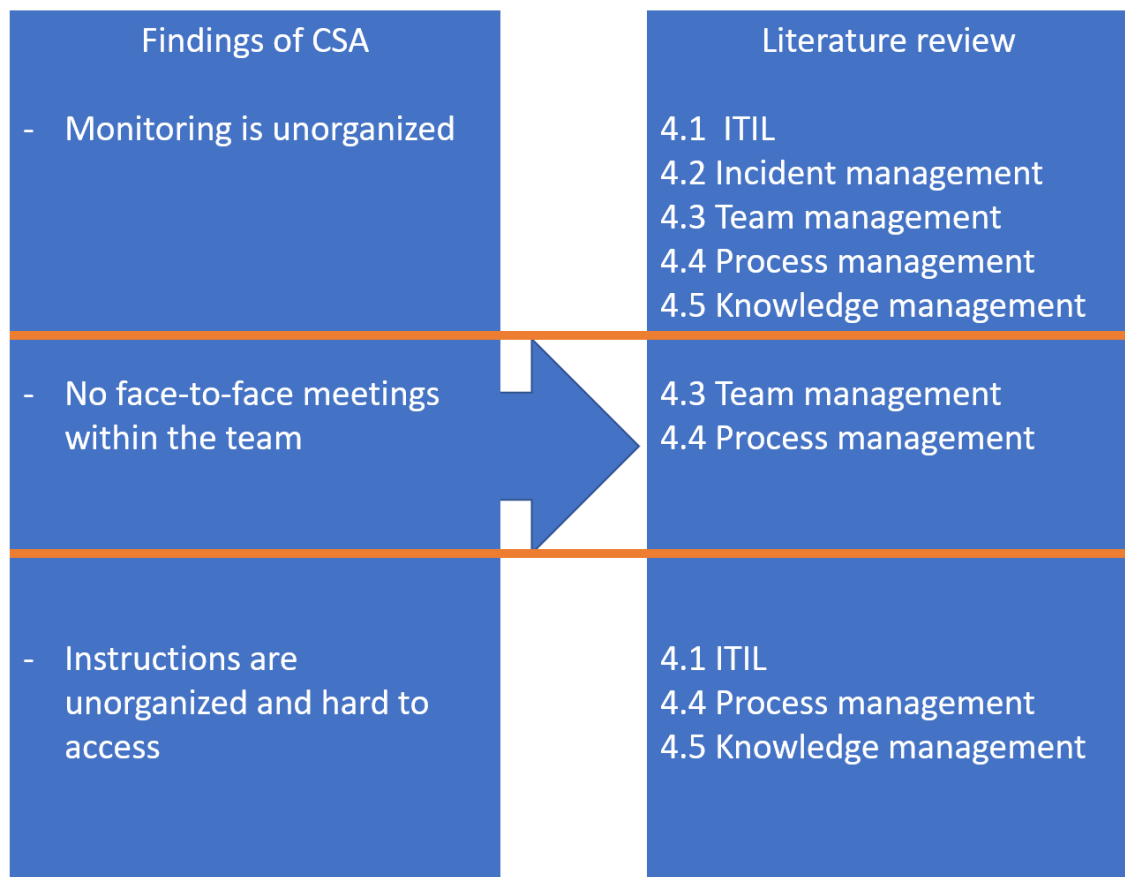


Figure 11. Findings of CSA and Conceptual Framework

As can be seen in Figure 12, the finding that monitoring is unorganized was reviewed with literature in chapters 4.1 ITIL, 4.2 Incident management, 4.3 Team management, 4.4 Process management and finally in 4.5 Knowledge management. The finding of no face-to-face meetings was investigated in chapters 4.3 Team management and 4.4 Process management. Lastly the finding of instructions are unorganized and hard to access was investigated in chapters 4.1 ITIL, 4.4 Process management and finally in 4.5 Knowledge management.

5 Building the Proposal for Improving ERP support for the Case Company

This section describes the building of proposals for ERP support. The basis of this sections is introduced in sections of current state analysis and in the literature review.

5.1 Overview of Proposal Building Stage

The Findings of CSA and Conceptual Framework that were first introduced in section 4 are now depicted with the related proposals in Figure 13. The proposals are explored in detail in the following subchapters of this section.

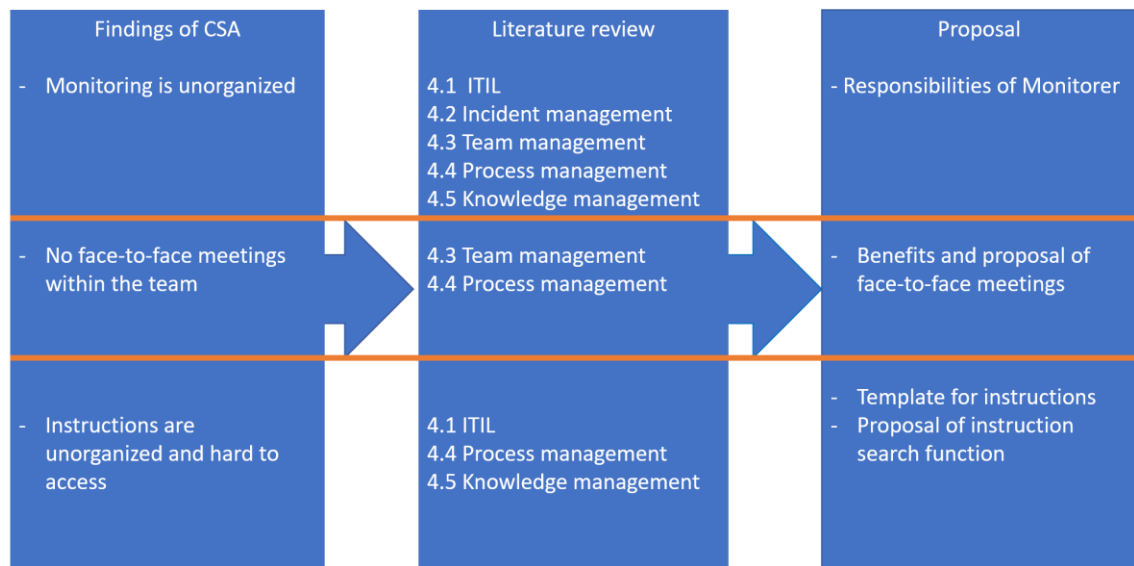


Figure 12. Findings of CSA and Conceptual Framework with Proposals

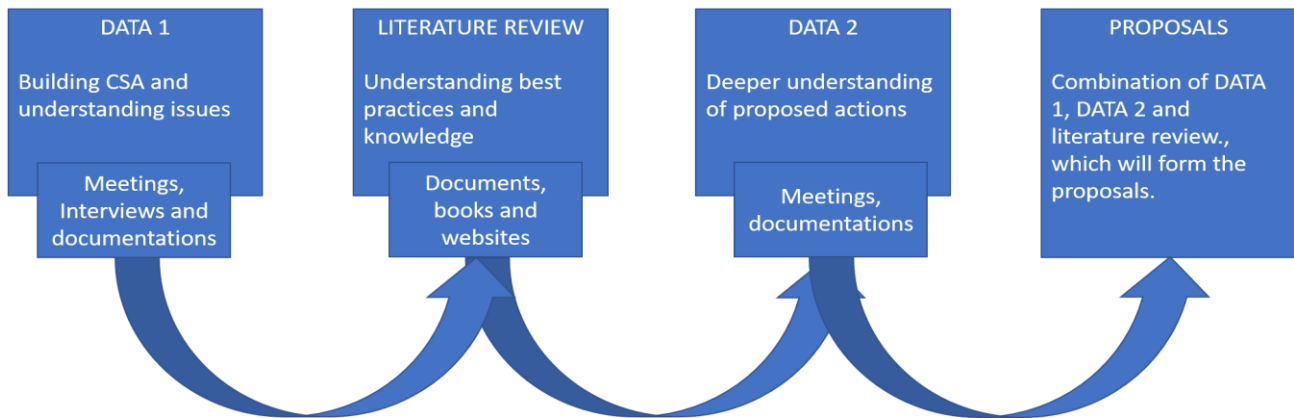


Figure 13. Logic of the proposal building

As can be seen in Figure 14 data 1 was first analyzed and understood, then meetings, interviews and documentations were prepared as part of Data 1. Data 1 consisted of 5 interviews where the logic was to see what could be done better in the processes used in the ERP Support team.

As is seen in Figure 14 the ideas were formed and the next step was to analyze the findings by using relevant knowledge and best practices found from literature. The internal documents, web pages and book sources were analyzed and the logical understanding of issues was starting to form a picture. The next step was to combine the data 1 and data 2 and form the proposals. Some feedback was already gained from the case team in formal discussion and team meetings.

This section goes through all the proposals by chapters and introduces the benefits of the proposals when implemented.

5.2 Key Findings from data 1 and of the Current State Analysis

Weaknesses
Everyone has their hands full
Work responsibilities are limited to people
Knowledge sharing is limited
Monitoring seems to cause issues
Not enough face-to-face meetings with team
The availability of instructions

Figure 14. Weaknesses found

As can be seen in Figure 15, it is found that there were 6 issues that were raised however only three issues of these were chosen for the final proposals to be investigated further. From these three the following four proposals were created:

1. Responsibilities of Monitorer
2. Benefits of Face-to-Face meetings
3. Template for instructions
4. Proposal of instruction search functionality

In some parts the findings of Data 1 were inconclusive and the reason why some of the weaknesses were left out and further investigations were not conducted. The inconclusiveness was due to interviews containing for and against the same issues, however these chosen ones were agreed upon that they would need some improvements. It is also to be noted that as the Author of this thesis is also working for the case company there is some bias and opinion, which also led for the choosing of these proposals.

Data 2 consisted of workshops where monitoring was investigated in detailed levels and the upcoming proposal guidelines were taught to the team members involved with monitoring. The workshops were done through Microsoft Skype meetings and the participants were taught to do monitoring by using the new responsibilities and guidelines.

5.3 Proposals

The proposals are described in individual chapters as that they are not related by problem, only by the team experiencing the problems.

5.3.1 Responsibilities of Monitorer

The responsibilities of the monitorer were investigated and many of the case members were not experienced and lacked proper guidelines and responsibilities of the monitorer. The responsibilities were now provided, and the guidelines were set in the same way as the theory suggested the RACI model responsibilities were set hence the following agreement is to set Responsible, Accountable, Consulted and Informed. The organizational maturity was not needed to research as this responsibility was affecting only on team level.

The Responsible for monitoring is always set in the monitoring lobby to overview and be responsible for that weekday it is set. For example, Team member A will have the weekday X to be responsible for the monitoring and clearing out issues regarding it. It was agreed upon to notify if the scheduled monitoring day is not possible for the Team Member.

The workshops (Data 2) were provided for the case team where the monitoring responsibilities were updated and shown what is needed to do by the monitorer during every scheduled day. The possible questions were answered, and faulty behavior was corrected. Finally, most importantly information was shared about the monitoring issues. The guidelines and responsibilities can be found in Appendix 2. The following responsibilities were created and can be seen below:

Responsibilities

1. To check monitoring approximately every hour to see that no anomalies are happening in the system
2. Clear all known issues from the lobby (as many as possible) and prioritizing on the **red text** coloured boxes as these are critical issues that need to be resolved immediately
3. Investigate unknown issues and try to figure out the problem either solving them by yourself or asking help from Teams.
4. Reviewing instructions and possibly update the existing one if more accurate or up to date fix is available
5. Assigning of unassigned tickets of ticketing system from queues:
 - 1. Queue
 - 2. Queue
 - 4. Queue
 - 5. Queue
 - 6. Queue
6. Communicate with team if you are unavailable to perform monitoring and leaving messages that some issues are solved by you or that some issues were left.

5.3.2 Benefits of Face-to-Face meetings

It was found out in the interviews that some miscommunication and misunderstanding is happening. The lack of also trust and knowledge of what the others are doing within the team is causing some minor issues, which according to the literature review would be good to solve by using face-to-face meetings. The benefits of face-to-face meetings are the following

1. Meetings build more trust between the participants
2. Meetings increase understanding
3. The feeling of being on the same mission
4. 93 percentage of communication effectiveness is determined by non-verbal clues

The proposal would be to arrange two meetings per year within the case company. Two meetings would be enough to get to know people as the difficulty arises as the team consists of different nationalities and people are working from different locations.

5.3.3 Instruction template

The instruction template was created, because it seemed to be that many of the instructions were not in unison and different kind of instructions had been created. Many instructions lacked the document history and the table of contents. Thus, it was agreed to create an instruction template, which would include these two. The template was added as an appendix, it contains clear headings, table of contents and document history.

The benefits of having templates in place for instructions will create more effortless access to instructions as they are now easier to create with relevant basic information. The possible use is also to make instruction creating easy and so in the end it would lead to more instructions created.

Templates will provide easier communication with the person who created the instruction as now the document history would provide the information about the person who has created the instruction. For example, if issues occur it is easy to communicate with the person who has created the instruction or in case the document has some erroneous information it can be communicated with the creator of the instruction.

5.3.4 Proposal of having search functionality to search

The current issue is that with the current search function you can only search instruction on the header level. If the header does not contain the search word it is not shown in the search. The search is currently done inside the ERP system as all the instructions are contained within the ERP. There are couple of proposals depending on what could be done to have this search functionality implemented.

The first option is to keep the instructions in the ERP. This would mean that the ERP would need to be implemented with a new search functionality that would go through all the instruction on header level as well as in contents of the instructions. This could be

done also by adding the documents subheadings as part of the search functionality as it would be impossible to add the entire contents of the instruction to the search functionality. One possibility is also to ask the supplier of the ERP to create new functionality to search through word documents, but this direction would create additional costs.

The second option would be to move the instructions to the Microsoft SharePoint. In Microsoft SharePoint there is already a functionality to search through documents on basic text level. The case company is already paying for Microsoft SharePoint service so in this case it would be cost free. The pains of this solution would be that if SharePoint is down it would cause the loss of access to instructions and probably affect service levels.

The move of instructions to SharePoint would be quite effortless as these can be imported to SharePoint quite easily and anyone would be able to do it. So, the costs of deploying this would only be expense of employee's time. The SharePoint also provides document history and easy rollbacks to the documents if wrong revisions are made.

Overall the ability to search inside the documents would cause significant improvement on the access of all instructions. This would lead into fewer duplicate instructions to be created and the ability to control instructions more effortlessly. The benefits are clear for this function and in data 1 interviews it was clear that everyone agreed that it was useful to have. In the next Section, the validation of these proposals is made and based on that it is known better, which options are chosen.

6 Validation of the Proposal

This section describes the results of validation of the Proposal developed in Section 5. The first chapter introduces the overview of the validation stage. The evaluation was based mostly on the feedback gained from the ERP team. The final proposal includes minor changes to the initial proposal.

6.1 Overview of Validation Stage

The validation stage was built based on the feedback gained from the case team. The most feedback was gained for the Responsibilities of Monitorer proposal as this had been one of the major issues. Other proposals did receive some more minor feedback from the case team.

The validation was gathered from team meetings through direct questions of how the proposals are and what could be done better. It is to be noted that most of the issues were already investigated in the case company and now the proposals created in this thesis just strengthen the ideas the company has for fixing the issues.

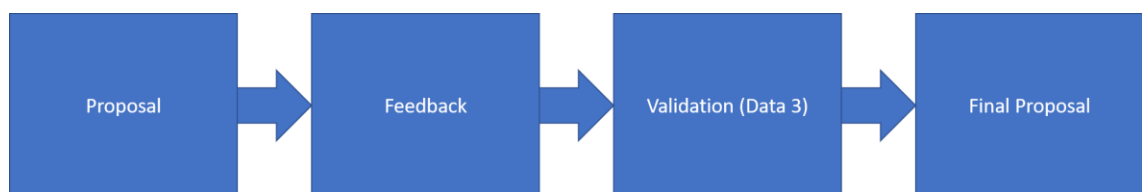


Figure 15. Validation process.

As can be seen in Figure 15 the validation process is started from the proposals and the presenting of these proposals. The next step was to present the proposals to the case team and form validation. The validation Data 3 then provided the changes for the proposals and helped create the final proposal.

6.2 Further Developments to Proposal (Based on Validation)

This chapter introduces all the proposals and presents the feedback gained from the case team. It presents future development and actions to take on the proposals.

6.2.1 Suggestions for Responsibilities of Monitorer

The proposal of responsibilities of monitorer was well received and gave clairvoyance for the monitorer's responsibilities. The responsibilities were first discussed and few additions were made for the guideline sections, such as if one is set as monitorer and has some more urgent matters to attend to it would be advised to inform the person accountable for monitoring so substitute can be found for monitoring.

In the feedback it was also pointed out that it would be good to know the scheduled monitoring periods for each person prior the monitoring day. This would help to plan other tasks so that during ones monitoring day the person responsible could prioritize on the monitoring issues rather than having to deal with other matters. It was discussed that it could be better to have it once every second week instead of once every week. The proposal for the monitoring schedule can be found below.

Monday	Tuesday	Wednesday	Thursday	Friday
A	B/C	D/E	F/G	A/H

Table 6. Schedule for Monitoring

In Table 5, schedule for monitoring, it can be seen that in weekdays Monday and Friday have the same person per week on monitoring leaving other case members more time to perform non-monitoring tasks. Person A in this schedule is the person who is accountable for monitoring. Other letters represents the case team members, who are involved in the monitoring.

6.2.2 Benefits of Face-to-Face meetings

The benefits of Face-to-Face meetings were discussed and were agreed upon however the Face-to-Face meetings were still deemed unnecessary by some as these meetings can just be held as Skype meetings. The benefits would be weighed down due to traveling done by case team members. Unrelated to this thesis some meetings were already scheduled within the case team to be held.

6.2.3 Instruction template

The instruction template was shown to the team members and it was received with mixed feelings as sometimes it would be good to only write short instructions and thus no template would probably be needed. It was also noted that it would be good to deploy these instructions for everyone use automatically without the need for everyone to download the instructions and set them themselves for the folder. This will need to be discussed with an IT technician from case company to have the instructions set for everyone automatically.

Overall the instructions were found useful. It was added that it would be good to have also standard change templates and many more for different documentation reasons. Only the standard change template can be found from the final proposal and no other templates were created for the Final Proposal.

6.2.4 Proposal of having search functionality to search

The search function was deemed as needed and there had already been a change request for such functionality. The options were discussed about, which proposal option should be chosen, and it was agreed it would be best to have them inside ERP.

The option of having the search function only inside ERP was chosen and was discussed with the ERP's consultants. It was set to be investigated can the search functionality be deployed. The issues were in between production side of ERP and test environment side and it was thought that it could probably be implemented on the test environment. For the Final Proposal there were no changes on this part as it was investigated by the ERP consultants.

6.3 Final Proposal

Based on Data 3 that was formed from the feedback received, certain additions were made to the proposal such as the schedule of monitoring and template for standard change. The following Table 6 depicts the currently processed proposals and displays, which party is responsible for taking the proposal onwards and the status of the proposal.

Proposal	Responsible	Status
Proposal of instruction search functionality	ERP consultants	Started
Benefits of Face-to-Face meetings	Team leader	Proposed
Responsibilities of Monitorer	Thesis worker	Completed
Template for instructions	Thesis worker	Completed
Schedule for monitoring	Thesis worker	Completed
Template for standard change	Thesis worker	Completed

Table 7. Proposal statuses

The following proposals that were created can be found in the appendix

1. Appendix 2 Responsibilities of Monitorer
2. Appendix 3 Template for instructions
3. Appendix 4 Template for standard changes
4. Appendix 5 Schedule for monitoring

7 Summary and Conclusions

This section presents the conclusions of the thesis built for ERP support and provides a summary of the thesis from the beginning of the thesis project to the proposals and validation of the proposals.

7.1 Executive Summary

The thesis was based on the idea that there could be certain aspects that could be done better within the case team. Therefore, investigations of, which internal team functions and processes could be done better were set. Interviews were planned with team members and questions were prepared accordingly to get sufficient data and forming data 1. Data 1 consisted also of internal documents and knowledge gained, while working in the case team. Data 1 formed the Current State Analysis.

Based of the findings done in Current State Analysis the best practices and available knowledge were researched. The main area of research was ITIL knowledge. The workshops contained the responsibilities of the monitorer and the actions monitorer should do, while scheduled for monitoring. The workshops would be the data 2.

The literature review and data 2 formed together the proposals. The proposals were the written set of responsibilities and guidelines for monitoring, proposal of having more face-to-face meetings within the team, templates for instruction and standard changes, the proposal of having a better search functionality for instructions.

The next step for the thesis was to validate the proposals. The validation of the proposals was done by receiving feedback from the case team the thesis was done for. The feedback was received, and certain modifications and additions were made for the proposal, which led into the creation of the final proposal.

The final proposal consisted of the following creations

- Proposal of having two face-to-face meetings within the team
- Templates for standard change and instructions in general
- Responsibilities and guidelines of monitorer
- Proposal of improved search functionality for instructions

The overall benefits for the case team and company will be much more fluid processes and the cutting down of misunderstandings and building better trust among the case team members. This will ultimately help provide better service and happier customers, which is the main goal of the case teams work.

7.2 Next Steps and Tips for Implementation of the Proposal

The next steps would be to take these proposals and implement them as core elements of the work. Even after they are implemented it would be advisable to use them consistently and work on improvements and new ideas so that these proposals are not left to dust.

7.3 Thesis Evaluation: Objective vs. Results

The thesis was built on the idea of improving the existing processes and to research what could be done better. This goal was reached as current processes were investigated and new ideas and proposals were found and implemented. The biggest challenge was to build this thesis in a rather short amount of time which created some complications.

The “what could have been done better” would have been to create more accurate questions that were asked from the interviewed personnel. The questions could have unveiled more issues than were now found. However, overall this thesis was a success. The objective was reached and proposals were created.

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Interview questions

(For case company use only)

The Responsibilities of Monitorer

Responsibilities and guidelines of monitoring

1. To check monitoring approximately every hour to see that no anomalies are happening in the system
2. Clear all known issues from the lobby (as many as possible) and prioritizing on the **red text** coloured boxes as these are critical issues that need to be resolved immediately
3. Investigate unknown issues and try to figure out the problem either solving them by yourself or asking help from Teams.
4. Reviewing instructions and possibly update the existing one if more accurate or up to date fix is available
5. Assigning of unassigned ticketing system tickets from queue:
 - 1. Queue
 - 2. Queue
 - 4. Queue
 - 5. Queue
 - 13. Queue
6. Communicate with team if you are unavailable to perform monitoring and leaving messages that some issues are solved by you or that some issues were left. IF URGENT THINGS ARISE PLEASE LET THE ACCOUNTABLE MONITORER KNOW SO SUBSTITUTE CAN BE ASSIGNED IN MONITORING.

Guidelines

- It's good to follow the process of checking first the **red colored** boxes and then moving on to problems that you know you can easily solve.
- When these are done it would be good to go through the issues one by one and using the user manuals as help.
- Issues that you can't find from instructions or any discussion about it is advised to use Microsoft Teams as a platform to ask guidance of what the issues are.

The template for instructions

(For case company use only)

The template for standard change

(For case company use only)

Schedule for monitoring

Monday	Tuesday	Wednesday	Thursday	Friday
A	B/C	D/E	F/G	A/H

Table 8. Schedule for Monitoring