Suvi Tolvanen

Improving the Ticketing Process of the Case Company

Metropolia University of Applied Sciences

Master of Engineering

Industrial Management

Master's Thesis

May 3, 2023

This Master's Thesis represents the culmination of many months of hard work and dedication to explore the Industrial Management field. The past year has been a challenging but truly rewarding journey. This journey had a great impact on my view of business and development.

I want to thank my master's thesis advisor Dr. Thomas Rohweder for his guidance throughout this research project. His valuable insights and feedback have helped me refine and shape the idea of this project. I also want to thank M.A. Sonja Holappa for her guidance in writing this thesis.

I am grateful for my fellow students for sharing this unique experience and for the continuous peer support. I am also grateful for my colleagues at work for their encouragement.

Finally, I would like to thank my family and friends for all the endless love and support for my passion to learn and grow. Thank you.

Suvi Tolvanen
Espoo
May 3, 2023

Abstract

Author:	Suvi Tolvanen
Title:	Improving the Ticketing Process of the Case Company
Number of Pages:	80 pages + 2 appendices
Date:	3 May 2023
Degree:	Master of Engineering
Degree Programme:	Industrial Management
Professional Major:	Data Driven Business
Supervisors:	Dr. Thomas Rohweder, Principal Lecturer
	M.A. Sonja Holappa, Senior Lecturer

The objective of this study was to improve the ticketing process of the case company. The ticketing process did not provide entirely desirable and accurate data to produce valuable analysis directly. This study was targeted to find strengths and weaknesses in the ticketing process.

The research design of this study consisted of four stages. The first stage covered the current state analysis, the second stage covered the conceptual framework, the third stage covered the initial improvement recommendations and the final stage covered the validation of the initial improvement recommendations.

The choices of this study grounded on the research plan and data analysis plan. The first data collection consisted of strengths and weaknesses of the ticketing process. According to the current state analysis, communication related matters were selected as the key strengths and weaknesses of this study. The conceptual framework was built on communication including three elements: documentation, training and channel. The second data collection consisted of initial improvement recommendations and the third the validation of the recommendations.

After the validation, approved improvements were implemented in the production use. Implementing means that the final improvements were delivered to the process management team for them to use when there is an opportunity.

The outcome of this study is an improved ticketing process. The implemented improvements had a direct impact on communication related weaknesses and may have a positive impact on other weaknesses in the ticketing process. In the best scenario, this study will enable a more communicative culture in the case company.

Keywords:	Ticketing Process, Improvement, Communication

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List of Abbreviations

IT: Information Technology.

SIAM: Service Integration and Management. An approach to manage multiple suppliers and integrate them to provide seamless services.

SMO: Service Management Office. A governing body that manages ITSM practices and sets policies, standards, processes and procedures to provide valuable IT services.

ITSM: Information Technology Service Management. A set of activities to design, build, deliver, operate and control IT services.

ITIL: Information Technology Infrastructure Library. A framework of best practices for delivering IT activities.

CSA: Current State Analysis.

CF: Conceptual Framework.

MS: Microsoft.

FAQ: Frequently Asked Questions.

1 Introduction

Many companies monitor their performance extensively and make actions based on those measurements. In the Information Technology (IT) industry, many companies measure their operational performance with a ticketing system. A ticketing system consists of tickets, a ticketing tool and operational ticketing processes. Ticket is a single event which is reported in a certain predefined manner, for example a request for a new password would be a service request ticket and reporting a fault would be an incident ticket.

An efficient ticketing process is a mandatory for a valuable performance analysis. An efficient ticketing process is easy for every stakeholder to understand and implement. When every ticket in the system is correctly processed the data is precise and highly valuable. An inefficient ticketing process causes misunderstanding of performance measurement indicators. If performance indicators are misunderstood the actions based on those indicators can lead the ticketing process to an even more inefficient direction.

A ticketing process could turn inefficient for example if the meaning of the measurement indicators is not certain and thoroughly considered. It is quick and simple to add some new features such as a checkbox to the ticket template, but would it be better to thoroughly consider the operational ways of working. It is simple to create a measurement indicator, but would it be better to understand how the data is really formed. This study concentrates on improving the ticketing process in the case company.

1.1 Context

The case company provides IT and business consulting globally. The company has several offices all over Finland. The business unit in question provides IT service and Service Integration and Management (SIAM) services in a multivendor environment in the financial services market area. SIAM service enables internal and external services and service providers to be seamlessly

and cost-effectively connected to each other to meet the needs of the business. A centralized Service Management Office (SMO) takes care of the integration of all IT services and service providers.

The SMO team consists of seven process managing professionals and a team leader. The IT Service Management (ITSM) areas are based on Information and Technology Infrastructure Library (ITIL) practices: service request management, incident management, problem management, change management and configuration management. The author of this thesis has experience in each of the practice areas listed.

1.2 Challenge, Objective and Outcome

A ticketing system is necessary to manage operations in a multivendor environment. However, over time services, needs and even values can be changed rapidly while the ticketing system is not changed equally. This accumulates angularities to the ticketing process and the performance measurement can slightly start to lose focus.

The challenge is the ticketing process, which has accumulated angularities over time. This causes extra hours of work for those who are handling the tickets and for those who are analyzing the data. When the process is complicated and angular it will be most likely followed incorrectly. If the process has been followed incorrectly the data analysis can be manual work requiring strong concentration and carefulness. Actions such as adding a checkbox to the template are usually only based on the view from the data perspective. These kinds of actions may not be as meaningful and effective as they could be if viewed from other perspectives also.

The object of this study is to find a way to improve the ticketing process to be more efficient and therefore to produce more reliable ticketing data for analysis and action planning. The outcome of this study is the improved ticketing process.

1.3 Outline of the Thesis

The purpose of this study is to find an answer for the challenge presented in the previous section. The duration of the study was four months and was carried out through a single iteration of four stages. The first stage covers the current stage analysis (CSA) of the ticketing process. The second stage covers ideas based on literature and the conceptual framework (CF). The third stage covers improving the ticketing process with initial recommendations. The fourth stage covers improving the ticketing process with final recommendations.

This thesis includes seven chapters. Chapter 1 covers the introduction including context, challenge, objective, outcome, and the outline of this study. Chapter 2 covers the project plan including research approach, research design and data plan. Chapters 3, 4, 5 and 6 cover sequentially the stages presented in the previous paragraph. Chapter 7 covers discussion and conclusions of this study.

The thesis implements an improvement to the ticketing process for the case company based on the final recommendations, which are presented in chapter 6. The following chapter presents the project plan including research approach, research design and data plan.

2 Project Plan

Previous chapter covered the introduction including context, challenge, objective, outcome, and the outline of this study. This chapter covers the research approach, research design, and data plan of this study.

2.1 Research Approach

According to Saunders et al. (2019) there is a continuum where all business and management research projects can be placed. One extreme of the continuum is to purely understand processes and outcomes of business and management. This approach is often called basic, fundamental or pure research and it is impactful in academic communities. The other extreme of the continuum is research approach for direct and immediate use. This approach is called applied research and it is impactful in practitioner communities. (Saunders 2019: 45-46)

Applied research approach is more relevant for a thesis study compared to basic research. The purpose of this applied research approach is to improve understanding of a particular business and management problem. Applied research can have different paths such as case study and action research. Case study has intensive and in-depth nature and action research works through several iterations. These paths have very strict procedures and therefore are not suitable for a thesis. (Saunders 2019: 45-46, 292-306)

According to Kananen (2013) thesis is a combination of theory and practice to solve a problem or to understand a phenomenon. The applied research approach path of this study is applied action research which is also known as design research. Design research includes both quantitative and qualitative research methodologies. (Kananen 2013: 12, 20-22)

2.2 Research Design

The purpose of the research design is to visualize the stages of this study. The research design includes a single iteration of four stages which are shown in the figure below (Figure 1). The outcome of this study was achieved when each stage has been completed.

Stage 1 - Data 1 Current State Analysis	Stage 2 Literature	Stage 3 - Data 2 Improvement	Stage 4 - Data 3 Validation
Description of the Current Ticketing Process Analysis of Strengths and Weaknesses Key Strengths and Weaknesses	Ideas from Literature on the Key Weaknesses	Ideas on Improving the Key Weaknesses	Feedback and Corrections to the Initial Improvement Recommendations
Summary of Strengths and Weaknesses	Conceptual Framework	Summary of Initial Improvement Recommendations	Final Improvement

Figure 1. The research design of this study.

As figure 1 shows, the first stage is to provide the current state analysis of the ticketing process. The current state analysis consists of the description of the current process, analysis of strengths and weaknesses, and the key strengths and weaknesses. The outcome of the first stage is the summary of strengths and weaknesses.

The second stage is to provide the conceptual framework. The conceptual framework consists of ideas from literature on the key weaknesses. The outcome of the second stage is the conceptual framework.

The third stage is to provide improvement recommendations. The improvement recommendations consist of ideas on improving the key weaknesses in the ticketing process. The outcome of the third stage is the summary of initial improvement recommendations.

The fourth stage is to validate the recommendations. The validation consists of feedback and corrections to the initial improvement recommendations. The outcome of the fourth stage is the final improvement of the ticketing process.

2.3 Data Plan

As shown in Figure 1 in the previous section, the data is collected from three of the four stages. Each data collection includes the content, source, informant, timing, and outcome. The following figure (Figure 2) shows in more detail how the data was collected at each of the three stages of this study.

	Stage 1 - **Data 1** Current State Analysis	Stage 3 - **Data 2** Improvement	Stage 4 - **Data 3** Validation
Content	Description of the Ticketing Process Analysis of Strengths and Weaknesses Key Strengths and Weaknesses	Ideas on Improving Key Weaknesses	Feedback and Corrections to the Initial Improvement Recommendations
Source	Related Documentation, Observation, Interviews, Email Inquiry	Workshop	Workshop
Informant	ITSM Process Managers, Stakeholders	Key Stakeholders	ITSM Process Managers
Timing	January	March	April
Outcome	Summary of Strengths and Weaknesses	Summary of Initial Improvement Recommendations	Final Improvement

Figure 2. The data plan of this study.

As shown in Figure 2, the data of this study was collected in stage 1, stage 3, and stage 4. Data 1 was conducted to perform the current state analysis. The current state analysis included the description of the current ticketing process, analysis of strengths and weaknesses, and key strengths and weaknesses. Data 1 was collected from ticketing process related documentation, observation, interviews, and email inquiry. Informants on Data 1 interviews were five ITSM process managers (A, B, C, D) including the author of this study (E). The discussion framework is in appendices of this study (Appendix 1). Informants on the Data 1 email inquiry were four service managers (F, G, H, I). The email inquiry is in appendices of this study (Appendix 2). Data 1 was completed in January and the outcome was the summary of strengths and weaknesses.

Data 2 was conducted to create recommendations for improving the ticketing process. The improvement recommendations included ideas on improving the key weaknesses of the ticketing process. Data 2 was collected from a workshop. Informants on Data 2 were four ITSM process managers (J, K, L) including the author of this study (E), and a service team leader (M). Data 2 was completed in March and the outcome was the summary of initial improvement recommendations.

Data 3 was conducted to validate the initial improvement recommendations to improve the ticketing process. The validation included feedback and corrections to the initial improvement recommendations. Data 3 was collected from a workshop. Informants on Data 2 were two ITSM process managers (A, B) and ITSM process owner (N). Data 3 was completed in April and the outcome was the final improvement.

The next chapter presents the current state of the ticketing process including the description of the ticketing process, the current state analysis, and the key strengths and weaknesses.

3 Current State of the Ticketing Process

Previous chapter covered the research approach, research design and data plan of this study. This chapter covers the current state analysis. The current state analysis is vital to understand strengths and weaknesses of the ticketing process. After mapping the ticketing process and revealing the strengths and weaknesses, the key weaknesses were chosen to be improved.

3.1 Overview of the Current State Analysis

The current state analysis was performed and Data 1 was collected at the first stage of this study. The high-level description of the ticketing process was mapped based on internal process guidance documents. The Strengths and weaknesses of the ticketing process were based on interviews with process managers and email inquiry responses from service managers.

As mentioned on the introduction of this study the challenge was undesirable and inaccurate data from the ticketing process. The first interviewees were process managers who are holding the big picture of the ticketing process. The interviews with process managers were conducted in two separate online meetings. The framework of these interviews is shown in Appendix 1. After acknowledging the pain points from that aspect an email inquiry was sent to thirteen service managers. This email inquiry is shown in Appendix 2. Four of the service managers replied to the inquiry and conversation continued with them to clarify certain thoughts.

All revealed strengths and weaknesses were collected and analyzed. The key strengths and weaknesses were selected for further analysis. All materials for further analysis were collected by observing current operating methods.

3.2 Description of the Ticketing Process

In this study, a person participating in the ticketing process is called a specialist. The ticketing process can involve one or more specialists from different roles

such as expert, service manager or project manager. The responsibilities regarding the ticketing process are divided between different roles according to what different teams consider to be the most efficient way to work. Generally, an expert is responsible for the technical execution whereas service and process managers are responsible for monitoring the overall picture. The ticketing process in figure below (Figure 3) is compatible with every ticket type in the ticketing system.
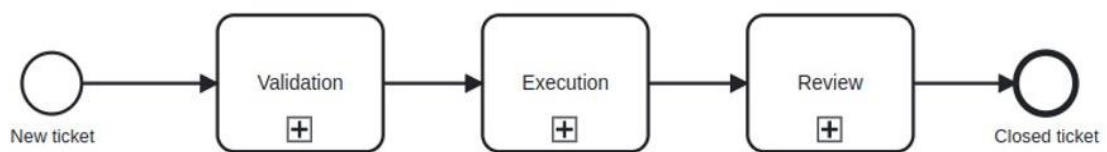
Figure 3. The ticketing process.

As Figure 3 shows, the ticketing process, from a new ticket to a closed ticket, includes three subprocesses. These subprocesses are validation, execution and review. The ticketing process starts right after a ticket has been created to the ticketing system and ends after every subprocess has been performed. Next sections describe these subprocesses in more detail. Red and green notes in the figures are strengths and weaknesses found in the process. Those are summarized in Figure 8 at the end of this chapter.

3.2.1 Validation Subprocess

Validation is an important subprocess of the ticketing process. A well validated ticket is valuable for all stakeholders. Valuable validation means that specialists have a clear picture for the execution subprocess when the ticket has been well described and prioritized. Service managers have reliable data of the current situation of the workload in their responsibility area. Process managers have reliable data of the current situation of the workload to maintain process management practices. Leaders have reliable data of the current situation of the workload to monitor resources. Ticket creators have a good understanding on

how the matter is progressing. The validation subprocess is presented in the figure below (Figure 4).
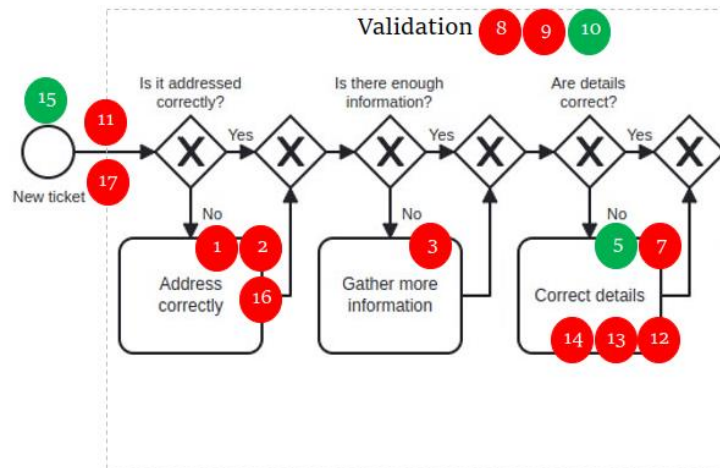
Figure 4. The validation subprocess showing strengths and weaknesses.

As Figure 4 shows, the validation starts right after a ticket has been created to the ticketing system. Three things must be checked during the validation. At first the specialist checks if the ticket is addressed correctly, if not, the specialist must find the most suitable address to forward the ticket to. If the ticket is correctly addressed the specialist checks if there is enough information on the ticket, if not, the specialist must gather more information. Finally, the specialist checks that the details are correct on the ticket, if not, the specialist must correct the details. Details to be corrected could be for example the priority defined by the creator of the ticket or the status of the ticket such as 'Waiting' or 'In progress'.

According to Data 1 there were 17 strengths and weaknesses in total that were identified in the ticketing process. One strength, from the moment when a ticket has been created to the moment when the ticket has been closed, was visibility of everything in the ticketing system. Three strengths and weaknesses were observed to concern the validation subprocess in general. One strength was that support is always available. Two weaknesses were that specialists forget the process quite often and the process guidance documents are hard to find.

From the start of the validation subprocess the first weakness was that the ticketing tool does not give a notification of a new ticket. The other weakness from the start of the validation subprocess was that sometimes a ticket has been created in the wrong ticketing tool. In such cases the matter does not reach the right specialists immediately.

Three weaknesses were revealed when a ticket needed to be addressed correctly. In some cases, the topic has been causing misunderstanding regularly. When assigning the ticket, some of the support groups may not be updated and that can cause that the tickets are forgotten to be re-assigned. Tickets can be forgotten also when gathering more information about the matter without a response.

Correcting the details is crucial but there were also some inconveniences according to Data 1. Some service managers said that the terminology is not clear throughout the process and there are features on the ticketing tool that are illogical or are asked to be used illogically. Also, it was mentioned that English is very limited in the ticketing tool. On the positive side it was said that prioritizing tickets is easy.

3.2.2 Execution Subprocess

The execution subprocess starts right after the validation subprocess. Execution is vital but it does not have a direct effect on the ticketing process itself. The ticketing process demands that the ticket is correctly assigned and suitable execution actions will be made. The execution subprocess is presented in figure below (Figure 5).
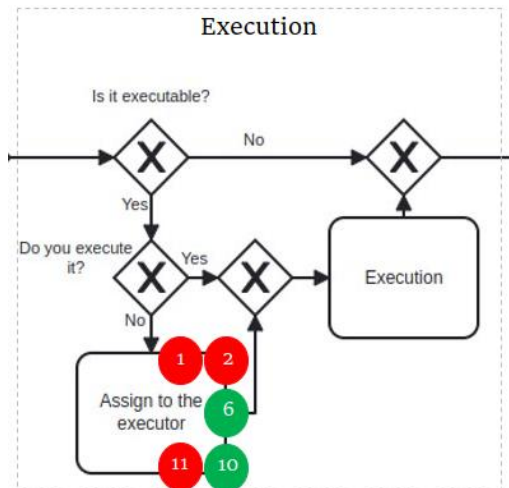
Figure 5. The execution subprocess showing strengths and weaknesses.

As Figure 5 shows, the execution starts when the ticket has been validated. The specialist decides if the matter is executable, and if it is, the specialist will execute it or the specialist will assign it to another specialist who could execute it.

The execution subprocess was affected by three of the same weaknesses that affected the validation subprocess. The first identical weakness, when re-assigning the ticket, was that some of the support groups may not be updated. Therefore, the specialist cannot be convinced whether the matter is taken care of after re-assigning. The second identical weakness was that the ticket has been forgotten to be assigned after validation subprocess. The third identical weakness was that there is no notification from the tool when the ticket has been assigned to another specialist. In addition to weaknesses, service managers said that assigning tickets is easy and there is always help available if not sure where the ticket should be assigned.

3.2.3 Review Subprocess

The review subprocess starts right after the execution subprocess. Review is the most important subprocess in the ticketing process. It demands correct documentation of all the actions and details concerning the ticket. The information from the review subprocess is extremely important for stakeholders

for the same reasons as the validation subprocess. The validation subprocess provides the data of the current situation of the workload whereas the review subprocess provides history documentation of all of the tickets in the ticketing system. The review subprocess is presented in figure below (Figure 6.
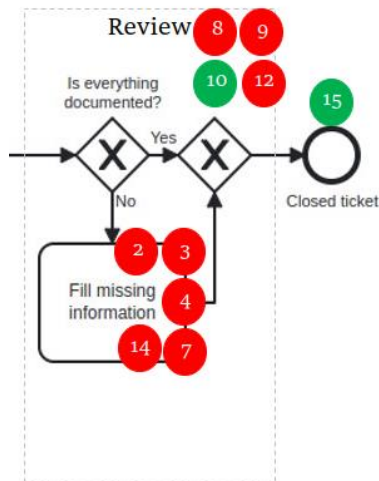
Figure 6. The review subprocess showing strengths and weaknesses.

As Figure 6 shows, the final subprocess before the closed ticket is reviewing the ticket. After execution the specialist checks that all information has been documented on the ticket. When all information has been documented, the ticket will be closed and the ticketing process ends.

According to Data 1 the review subprocess has similar weaknesses as the validation subprocess and the execution subprocess. Some of the specialists forget the process and do not find the process guidance documents easily or the terminology is not clear for them when the ticket should be reviewed. Those features mentioned earlier which are wanted to be used illogically are making reviewing difficult for some specialists. These weaknesses have a direct effect on the quality of the ticket. When the process is forgotten, the ticket can be also forgotten. The ticket could be lacking information and therefore not closed or it is forgotten to be assigned to someone who should perform the review subprocess. In the review subprocess there was one new weakness regarding

the amount of tickets. Some specialists are not able to find all relative tickets to combine together when the amount of tickets is rather large.

3.3 Analysis of Strengths and Weaknesses of the Ticketing Process

All strengths and weaknesses of the ticketing process presented in the previous chapter can be divided into four categories which are management, communication, tool and content.

3.3.1 Management Category

The management category includes strengths and weaknesses concerning ticket management. Generally, according to the ticketing process, service managers and project managers are responsible for the tickets in their management area. Service and project managers, for their part, make sure that specialists have an effective working environment so they can concentrate on ticket execution. An effective working environment means regularly updated information concerning the management area in question. For example, an updated list of support group members and relations between tickets and other concerned items in the ticketing system. Service and project managers also ensure that tickets are valuable and are processed according to the ticketing process. This ensures that tickets are not forgotten to be assigned or reviewed. Although, when was asked what would be helpful in the ticketing process one of the service managers responded the reality as follows:

> More clearer responsibilities, maintaining support group information, more coherent processes. (Data 1: Informant F)

Due to the clarity and valuable analysis all relative tickets and other items in the ticketing system should be combined together. Combining relative tickets and items is crucial for understanding the big picture of the situation in every practice area in the ticketing system. One of the service managers pointed out as follows:

> There are a lot of tickets and sometimes it is hard to find and combine relative things together. (Data 1: Informant F)

When collecting Data 1, it was revealed that maintaining the big picture might need overlapping manual work. One of the interviewees pointed it out following way:

> At the moment certain types of tickets are maintained in two different places. (Data 1: Informant H)

Also, strengths were noticed in the ticketing process from management point of view. It was said that prioritizing tickets is easy and assigning tickets between specialists is easy.

In conclusion the management related strengths were that prioritizing tickets is easy and assigning tickets between specialists is easy. Whereas the weaknesses were outdated lists of support group members, a ticket has been forgotten to be assigned or reviewed, a ticket has been missing information for a long time and therefore not closed, and final weakness was that it is hard to find and combine all relative tickets due to the number of tickets.

3.3.2 Communication Category

The communication category includes strengths and weaknesses concerning communication between process management and specialists. Communication procedure consists of process guidance materials, training sessions and three different communication channels. The first channel is an intranet where guidance documents are available for the specialists in the business unit in question. Second channel in use is Microsoft Teams for sharing more specific information for the same audience as the intranet. The third channel is an email address which is shared with process managers to give more targeted information for specialists.

As a communicational strength of the ticketing process it was said that support is always available. Specialists can reach the process managers at any time during the day. One of the interviewees described the strength as follows:

> Production support, which monitors that all stakeholders follow the process. (Data 1: Informant B)

Even though there is a need to constantly remind the specialists of the ticketing process. Some parts of the process are forgotten easily and even the process terminology is not completely clear for all specialists. Such weaknesses can cause misunderstandings in the ticketing process. Support and guidance is needed but some of the informants thought that those are not sufficiently accessible. One of the service managers pointed out as follows:

> We have self-made guidance documents for our support group. Those instructions are updated weekly. General guidance documents are hard to find. (Data 1: Informant F)

Surprisingly, when asked where ticketing process related help could be found, one of the service managers commented as follows:

> A production support address would be a great addition. (Data 1: Informant G)

Even though the production support address already exists.

In conclusion the communication related strength was that support is always available. Whereas the weaknesses were that the terminology is not clear through the process, specialists forget the process quite often, and process guidance documents are hard to find.

3.3.3 Tool Category

The tool category includes strengths and weaknesses concerning the ticketing tool. The reason for a ticketing tool is to gather every necessary detail in a certain place for all of the stakeholders to work together. An effective tool is crucial for effective work and for operational analysis. One of the service managers described the strength of the ticketing tool as follows:

> Everything is visible in the process, what has been executed and the criticality of the tickets. The tool enables easy assigning and

things will not be forgotten to someone's personal email. (Data 1: Informant H)

There were some weaknesses pointed out when collecting Data 1. Informants experienced the lack of email notifications from the tool as a weakness. For example, it could be effective to receive a notification of a new or recently assigned ticket. Without notification there is a risk that tickets are forgotten to be checked.

The ticketing tool should be simple and user friendly to enable a effective working environment. However, one of the informants stated as follows:

The ticket template has fields that look editable, but are not. (Data 1: Informant I)

Also, when collecting Data 1, it turned out that specialists think that some features are wanted to be used illogically which causes confusion through the ticketing process. It was also mentioned that English is limited even though there are people working in English.

In conclusion the tool related strength was that everything is visible. Whereas the weaknesses were lack of notifications, some features are wanted to be used illogically, some fields are illogical, and English is limited.

3.3.4 Content Category

The content category includes strengths and weaknesses concerning the matter of the ticket. A well described ticket is valuable. A good quality content on the ticket enables effective work. The ticket is assigned quickly to the right support group and it will be handled directly without time consuming information gathering. Although the content of the ticket is extremely important for the execution, the content is not strongly connected to the ticketing process itself.

One of the informants described the weaknesses concerning the ticket content as follows:

> There are few particular ticket contents which are difficult to identify and therefore difficult to assign forward. One does not know the existence of the internal production support group or how to assign tickets there. (Data 1: Informant F)

During the interviews it was revealed that there are tickets with certain content that should be processed in other tools.

In conclusion there were not any particular strengths mentioned concerning the content on the ticket. The weaknesses were that tickets with certain topics cause misunderstanding regularly and a ticket has been created in a wrong tool.

3.4 Key Strengths and Weaknesses of Communication

In this study key strengths and weaknesses of the ticketing process were identified to concern the communication category. The communication category was selected because communication is crucial to maintain the overall understanding of the ticketing process. It is also crucial for getting feedback from specialists so that the continual process improvement is possible. Effective communication may also have a direct impact on other previously mentioned weaknesses on the ticketing process. The ticketing process related communication methods in the case company are collected based on observation by the author of this study.

3.4.1 Documentation

The ticketing process guidance documents are in Microsoft PowerPoint format. Each practice area has a separate process guidance document. The guidance documents on the intranet are scattered in multiple locations. Figure below (Figure 7) shows the file structure of the guidance documents on the intranet.
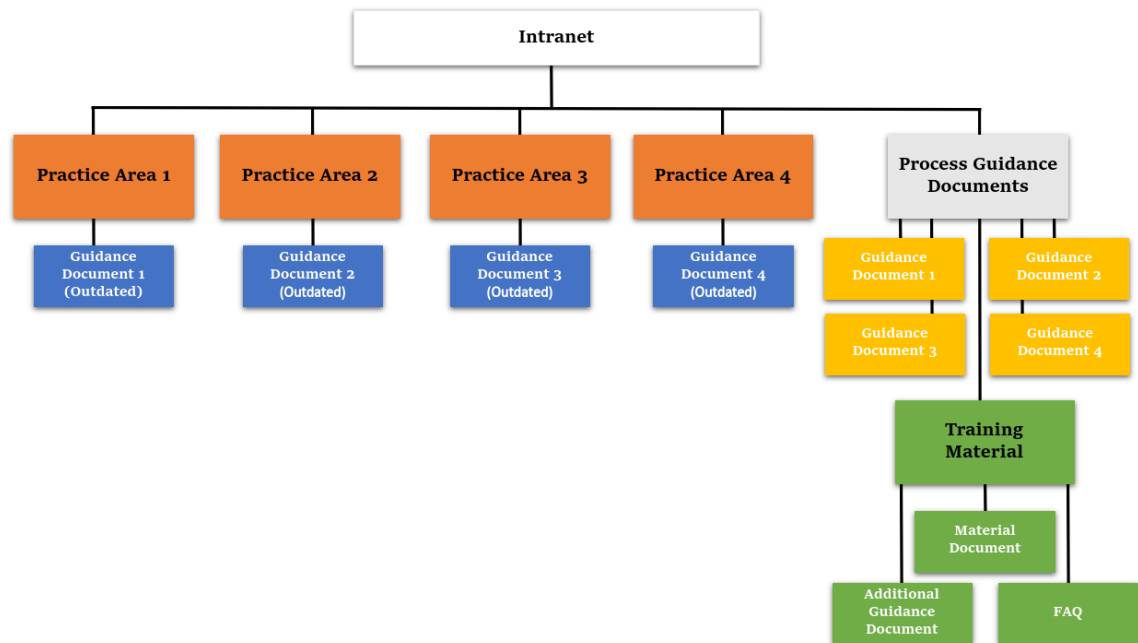
Figure 7. The intranet file structure in the case company.

As shown in Figure 7, the file structure consists of multiple similar files. There is guidance documentation in each practice folder. In addition to these, there is also a separate process guidance folder consisting of similar guidance documents as in the practice folders.

Maintaining the same document in multiple locations can unintentionally cause files not to be updated in some locations. In addition to these there is a separate training material folder consisting of training material and some additional guidance documents. This amount of guidance documents, training materials and additional guidance documents can cause confusion when needed information is not necessarily in the accessed document.

3.4.2 Training

In the case company there are three types of online training sessions organized using Microsoft Teams. The first training session type is for all specialists and it concentrates on the practices at a high level. This type of training session usually includes two-hour long events. This type of training session is mainly for new employees and it is arranged twice a year. The second training session

type is usually concentrating on only one practice area and it is available for all specialists. The third training session type is targeted for a specific group or team. This type of training is usually ordered by the team or the need has been noticed by the process manager. Training sessions are comprehensive, consisting of a lot of information. This can cause forgetfulness due to the amount of information.

3.4.3 Channel

In addition to guidance documents and training sessions there is one more way to announce more specific information for example about changes in operating methods or information of ticket features. Such announcements are published in a certain Microsoft Teams channel. The same Microsoft Teams channel is used for multiple other announcements in the case company. Therefore, altogether there are three communication channels in use: Intranet, MS Teams and email.

3.5 Summary of Strengths and Weaknesses of the Ticketing Process

All of the strengths and weaknesses revealed when collecting Data 1 are shown in figure below (Figure 8). The strengths are listed in red and the weaknesses are listed in green.

Management	1) Outdated lists of support group members 2) A ticket is forgotten to be assigned or reviewed 3) A ticket has been missing information for a long time and therefore not closed 4) It is hard to find and combine all relative tickets due to the number of tickets 5) Prioritizing tickets is easy 6) Assigning tickets between specialists is easy
Communication	7) Terminology is not clear through the process 8) Specialists forget the process quite often 9) Process guidance documents are hard to find 10) Support is always available
Tool	11) Lack of notifications 12) Some features are wanted to be used illogically 13) Some fields in ticket templates are illogical 14) English is limited 15) Everything is visible
Content	16) Tickets with certain topics causes misunderstanding regularly 17) A ticket has been created in a wrong tool

Figure 8. The summary of strengths and weaknesses of the ticketing process.

As shown in Figure 8, there were seventeen strengths and weaknesses in total divided in four categories: management, communication, tool and content.

The management related strengths were that prioritizing tickets is easy and assigning tickets between specialists is easy. Whereas the weaknesses were outdated lists of support group members, a ticket has been forgotten to be assigned or reviewed, a ticket has been missing information for a long time and therefore not closed, and final weakness was that it is hard to find and combine all relative tickets due to the number of tickets.

The communication related strength was that support is always available. Whereas the weaknesses were that the terminology is not clear through the process, specialists forget the process quite often, and process guidance documents are hard to find.

The tool related strength was that everything is visible. Whereas the weaknesses were lack of notifications, some features are wanted to be used illogically, some fields are illogical, and English is limited.

The content related weaknesses were that tickets with certain topics cause misunderstanding regularly and a ticket has been created in a wrong tool. There were not any particular strengths mentioned concerning the content category.

The key strengths and weaknesses of the ticketing process were identified to concern the communication category. Effective communication may also have a direct impact on other weaknesses on the ticketing process. The ticketing process related communication methods in the case company were collected based on observation by the author of this study. The communication methods include three elements: documentation, training, and channel.

The next chapter presents the ideas on improving the ticketing process from literature focusing on communication, documentation, training and channel.

4 Conceptual Framework for Improving the Ticketing Process

The previous chapter covered the current state analysis including the strengths and weaknesses of the ticketing process in the case company. This chapter discusses existing knowledge on communication practices and particularly on how to improve process guidance documentation, organizing meaningful training sessions and choosing the best channels to enable effective communication. The outcome of this chapter is the conceptual framework for creating initial improvement recommendations.

4.1 Overview of the Conceptual Framework

The conceptual framework was performed at the second stage of this study. The conceptual framework was created based on the key weaknesses chosen in the previous chapter. The main framework concentrates on communication and on the three elements within communication. These three elements are documentation, training, and channel.

The references were chosen to fit their purpose to find ideas on communication in general and more precisely on those three elements. Communication focuses on how communication in the work environment has changed over time, and what is strategic communication and creating participation. The framework of the documentation element focuses on finding what could be improved when presenting and building a process document. The training element focuses on organizing and building a training material. The channel element focuses on choosing the right channel and finding ideas on how to avoid communication barriers.

4.2 Communication

The ideas on communication in general were referenced from Business Communication for Success (2015) by University of Minnesota which is an adapted edition of a work, without an author. The reference was chosen to be a

part of the conceptual framework of this study due to accuracy with the internal communication.

Sharing and understanding a meaning is the core of communication. According to Business Communication for Success (2015) the communication can be divided into eight crucial parts: source, message, channel, receiver, environment, context, feedback and communication barrier. (Business Communication for Success, 2015: 7-11)

The source part is responsible for planning, developing and delivering the message. The message part is the meaning and it is delivered with, for example, writing style or tone of voice. The channel part is something that transports the message from source to receiver. The receiver part receives the message. The environment part is both a physical and psychological atmosphere. The context part is a scene. The feedback part signals how the message was received. The communication barrier part is any barrier in these parts. (Business Communication for Success, 2015: 7-11)

The framework of communication focuses on how communication in the work environment has changed over time, and what is strategic communication and creating participation.

4.2.1 Effective Internal Communication

The ideas on effective communication were from Barrero et al. (2020), Yang et al (2022), Szatar (2022), Tolks et al. (2021) and Mark et al. (2008). Barrero et al. have investigated how Covid-19 affected working from home. Yang et al. have investigated how collaboration has been affected when working from home. Szatar is a product marketing manager in a company which provides video communication software. Tolks et al. (2021) highlight the disadvantages of asynchronous communication. Mark et al. (2008) have studied the time consumed when switching tasks. The references were chosen to find ideas on how to keep internal communication effective.

In early 2020 communication environments changed rapidly from office working to remote working. According to Barrero et al. (2020) in 2020 37% of Americans were working from home. In comparison before the 2019 (Covid-19) pandemic only 5% of Americans worked full-time from home. (Barrero, 2020)

Remote working has decreased conversations at the coffee machine in the office environment. According to Yang et al. (2022) American office workers have become increasingly stagnant and siloed during working from home. Remote working has increased asynchronous communication and decreased synchronous communication. Yang et al. (2022) claims that in a remote working environment it is difficult to share and gather fresh information over the organization. (Yang, 2022)

Synchronous communication is communication in real time when asynchronous communication is not. Szatar (2022) points out that synchronous communication can be unprepared, such as a quick question to a nearby colleague or conversation at the coffee machine. It also can be scheduled, such as a meeting in Microsoft Teams. Szatar (2022) argues that synchronous communication was the default communication style at the offices before the 2019 pandemic. (Szatar, 2022)

Szatar (2022) points out advantages of synchronous communication. Advantages are that it is a good way to discuss sensitive topics and give direct feedback. In complex topics brainstorming in real time is an effective way to find solutions. Synchronous communication is effective also when there is a crisis and immediate attention is needed. (Szatar, 2022)

On the other hand, synchronous communication has disadvantages. Szatar (2022) argues that synchronous communication is time consuming and, in some cases, it may not be a respectful use of time of the colleagues. Researchers Mark et al. (2008) confirm the previous argument. Mark et al. (2008) claim that switching between tasks takes 23 minutes. According to Mark et al. (2008) people can compensate for a certain amount of interruptions but constant

interruptions can overload people. According to Szatar (2022) synchronous communication also can cause progress delays when a suitable time cannot be found for a meeting. (Szatar, 2022. Mark, 2008)

Szatar (2022) points out the advantages of asynchronous communication. Advantages are that it allows the receiver to go through the message at their own pace and provide a meaningful response. Asynchronous communication can be a better way of communication for introverted people. It is also a good tool to be used before meetings such as an agenda document. (Szatar, 2022)

Considering that Szatar, the author of the previous reference, is working in a company that provides video communication. There are not any disadvantages of asynchronous communication covered in that reference. Therefore, Tolks et al. (2021) argue that asynchronous communication has disadvantages such as limited collaboration and possibility for misunderstanding when social interaction is missing. According to Tolks et al. (2021) huge amounts of asynchronous data can eventually be problematic and risk of privacy violations increases.

In conclusion, switching from office work to remote work has affected organizational communication. Employees can feel stagnant and siloed. Communication has changed from casual and synchronous to be more asynchronous. Synchronous and asynchronous communication styles both have advantages and disadvantages. It is important to understand the better style to communicate case by case.

4.2.2 Creating Participation

The ideas on creating participation were from Dahlman et al. (2021) and Carlzon (2018). Dahlman et al. (2021) are authors of Strategic Internal Communication (2021). Carlzon (2018) has been referenced in the book of Dahlman et al. (2021) and chosen to be mentioned also in this study. The references were chosen for this study to find ideas on creating participation in the case company.

The key to good communication is understanding. According to Dahlman et al. (2021) listening is the most important part in organizational communication. Leaders in the company may have a strong opinion of the strategic direction and vision. Dahlman et al. (2021) claim that this habit may be due to the organizational culture, leaders seeing themselves as superheroes or managers who do not understand the value of experiences of colleagues. (Dahlman, 2021: 71-82)

Dahlman et al. (2021) underline that if the signals are refused to be listened to the organization may lose the market position. Dahlman et al. (2021) have collected some example organizations who did not take the advantage of listening and trusted only opinions of the leaders, and therefore lost their leading position. The following list is from to Dahlman et al. (2021) but the descriptions are compressed for this study:

- Blackberry: Ignored the user experience when focusing on developing phones with a joystick and keyboards.
- Ericsson Mobile: Ignored the user experience when focusing on strong engineering instead of market.
- Enron: Advocated a zero-error culture and that was why co-workers did not dare to show negative information or their mistakes.
- Kodak: Ignored the signals of the digital photo revolution.
- Motorola and Nokia: Focused only on hardware and did not understand the value of software.
- Polaroid: Insisted that there is a market for paper photographs, despite the digital photo revolution. (Dahlman, 2021: 71-82)

Dahlman et al. (2021) point out that former CEO of SAS, Jan Carlzon, stated in his book Moments of Truth (1985) that

> …only those who dare to lose will win, (Carlzon, 2018: 138)

and

> …the only time you don't make mistakes is when you are sleeping. (Carlzon, 2018: 138)

According to Dahlman et al. (2021) it is important to create a culture where employees are allowed to make mistakes to enable new and innovative ways of thinking. Dahlman et al. (2021) claim that companies still fail to let employees share the mistakes and focus on listening in order that the organization may grow, learn and prevent crises. (Dahlman, 2021: 71-82)

In conclusion, the success of an organization depends on the way leaders listen and understand the signals of the employees. Communicative coworkership allows learning from colleagues. Common weaknesses in internal communication are that employees are not listened to and understood which could lead to losing the market position.

4.3 Process Documentation

The ideas on documentation in general were referenced from the International Organization for Standardization (ISO) (2019). The reference was chosen based on the accuracy with organizational processes.

Describing processes is important for business development. Without process description developing and changing the environment is challenging. According to the International Organization for Standardization (ISO) (2019), quality management standard ISO 9001, standards have had a major role in process thinking and process development in operational systems. (ISO, 2019)

ISO (2019) points out that ISO 9001 consists of seven quality management principles. These principles enable constant value creation for stakeholders. The first principle is understanding customers and their needs for the future. The second principle is effective leadership and clear direction. The third principle is competent and engaged people. The fourth principle is understanding processes and achieving predictable results. The fifth principle is creating value continuously and reacting quickly to changes. The sixth principle is making decisions based on data. The seventh principle is setting a management plan for important relationships. (ISO, 2019)

The most important thing is to understand what to do and how to work. The process is based on well described process documentation that every stakeholder can understand. The framework of the documentation element focuses on finding ideas on improving to present and build a process guidance document.

4.3.1 Building a Process Document

The ideas on building a process document were from Arter (2022). Arter is a Finnish consulting company having process development as one of their core business. The reference was chosen for this study to find ideas on building a process document in the case company.

According to Arter (2022) a process documentation can be presented in three parts. These parts are, in this order, a process summary, process diagram, and description of steps. (Arter, 2022)

Arter (2022) points out that the process summary gathers the most important information concerning the process: name, purpose, owner, initial situations, final status, customers and stakeholders, needs and requirements, key resources, goals and success factors, metrics, control and development procedure and interfaces of the process. (Arter, 2022)

According to Arter (2022) the process diagram is a visualization of steps in the process. Generally, a good process diagram is clear and logical consisting of about 20 objects and fitting in one page.

The description of steps explains in detail what affects the different stages: steps and tasks, responsibility, important and critical factors, instructions, methods and models, generated and traceable information. (Arter 2022)

In conclusion, the process documentation should include a clear reason for the process. The description and visualization of the process in high-level should be

clearly explained. When the process document is clear the terminology could be better understood.

4.3.2 Presenting a Process Document

The ideas on presenting a process document were from Waller (2011). Waller is a researcher who has been benchmarking documents of organizations. The reference was chosen for this study to find ideas on presenting a process document in the case company.

Waller (2011) claims that there are criterias which should be considered when building a document. These criterias can be categorized in four categories. The first category is language, the second category is design, the third category is relationship, and the fourth category is content. (Waller, 2011)

The first category, language, means that the document should be easily understood by everyone who has access to the document. The document should tell directly what is needed and from who and the wording and terminology should be clear. For readability the language should be plain and in standard format. (Waller, 2011)

The second category, design, means that the visualization of the document should be simple and, as language, it should be easily understood by everyone who has access to the document. The design of the entire document should be built to be obvious for the reader including elements such as diagrams, lists and tables. The document should be well structured and the overall appearance must be reader friendly, for example navigating in the document should be easy. (Waller, 2011)

The third category, relationship, means that it should be clear who is communicating and providing the document. There should be contact details and guidance on how to contact. Knowledge and skills of the targeted audience should be considered carefully. (Waller, 2011)

The fourth category, content, means the way the purpose of the document has been communicated. The document should be relevant for the audience. If any actions are needed from the reader that should be clearly described. (Waller, 2011)

In conclusion, the process guidance document must be formalized to be easily and clearly understood for knowledge exchange. There are writer and consumer benefits when creating a well-structured document. From the writer aspect, the structure is repeatable on other similar guidance documents and from the reader aspect, the reader is familiar with the appearance.

4.4 Training

The ideas on training in general were referenced from Kaminske et al. (2022). Kamisnke et al. (2022) have investigated the effect of distractions. The reference was chosen based on the accuracy with organizational training sessions to maintain the focus during learning.

Since the lately changed communication environment, due to the 2019 pandemic, the amount of organizational online meetings has increased and in addition to that people are surrounded with many different kinds of notifications these days.

According to Kaminske et al. (2022) the presence of mobile phones lowers the attention during learning. When gathering, using and managing information, attention is essential. Kaminske et al. (2022) claim that, trying to focus on multiple tasks at once, what is tended to call "multitasking", is actually task switching. In order to switch and engage to the new task, it requires a multi-step process which can come with a cost. Kaminske et al. (2022) presents the multi-step process: First the person must stop; then look for new information; then find the new framework; and finally, be engaged with the new task. It has been revealed that a notification does not distract only the owner of the device, it also distracts others in the communication environment. (Kaminske, 2022)

The most important part of learning and understanding is focus. Minimizing all distractions and allowing participants to focus is crucial. The framework of the training element focuses on organizing training sessions and building a training material.

4.4.1 Organizing a Training Session

The ideas on organizing a training session were from Harvard researchers Szpunar et al. (2013) and Harvard staff writer Reuel (2013). Szpunar et al. (2013) discovered the effect of asking questions during lecture was effective for learning. Reuel (2013) interprets the academic discussion around the research. The references were chosen for this study due to accuracy on organizing a meaningful training session in the case company.

Harvard researchers Szpunar et al. (2013) discovered that when organizing short tests during online lectures student mind wandering decreased by half, notes were written more diligently and learning the material improved. Szpunar et al. (2013) conducted an experiment to prove how adding tests to online lectures can help students to keep focus on the lecture content. Figure below (Figure 9) presents how the experiment of memory and mind wandering was conducted. (Szpunar, 2013)
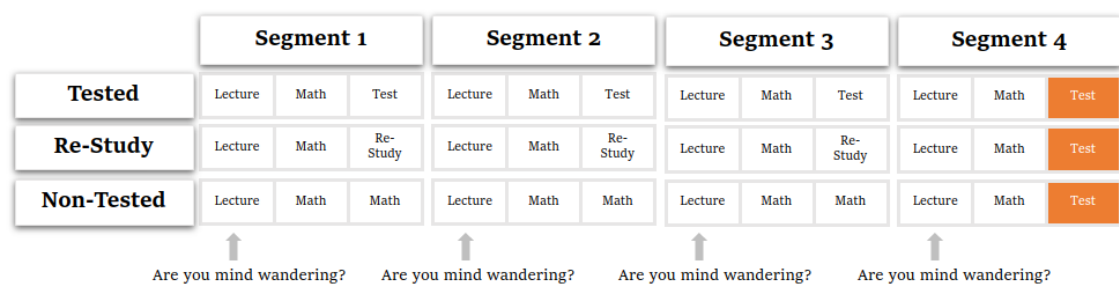
Figure 9. Memory and mind wandering experiment arrangement, modified from Szpunar et al. (2013).

As Figure 9 shows, the experiment consisted of three groups and four segments. The experiment involved 48 students who were asked to learn a 21-minute video lecture in each segment. Students were instructed that there is a

break between each segment. Each break consisted of one minute of solving an unrelated arithmetic problem followed by either another unrelated arithmetic problem or a lecture related test. Students were also instructed that after each segment there could be a 2-minute phase when test questions are presented along with answers. To evaluate mind wandering there was an experimenter involved who asked the question during the lecture and the student replied by marking yes or no on a paper. Figure below (Figure 10) presents the results of the experiment. (Szpunar, 2013)

Figure 10. Memory and mind wandering experiment results, modified from Szpunar et al. (2013).

As Figure 10 shows, students in the tested group were mind wandering less than students in the non-tested and re-study groups. Students in the tested group were taking more notes than students in the non-tested and re-study groups. They also answered more correctly on the test of the last segment than students in the non-tested and re-study groups. This all was revealed when comparing the groups. (Szpunar, 2013)

Harvard staff writer Peter Reuel made observations before the experiment was published. According to Reuel (2013) Szpunar has claimed that some students have expressed that they have spent as long as four hours to complete an hour-long online lecture when combating all distractions. According to Reuel (2013) Szpunar has claimed that generally it is said that online lectures should be engaging and short but there is an absence of testing to support it. (Reuel, 2013)

In conclusion, when organizing a training session, it has to be considered how to maintain the focus of the audience. When the focus is maintained the possibility of forgetfulness decreases. When the participant interacts during the learning session, learning is more effective.

4.4.2 Building a Training Material

The ideas on building a training material were from Mautz (2019). Mautz is a keynote speaker and a writer. In his article, Mautz (2019) analyses teaching methods of Dominic Walliman. The reference was chosen for this study due to accuracy on building a meaningful training material in the case company.

Mautz (2019) speaks in his article about strong communication skills and scientist Dominic Walliman who teaches complex topics such as quantum physics to kids. Mautz (2019) claims that great thoughts are worthless if the audience is not understood. According to Mautz (2019) Walliman has suggested four steps for good communication. The first step is to understand the audience, the second step is to focus on the plot, the third step is clarity over accuracy and the final step is to let the audience understand the fascination of the speaker. (Mautz, 2019)

According to Mautz (2019) the knowledge level of the audience must be always understood before the session. The session should always start at that level. It is a waste of time and focus if starting from the basics which are already familiar with the audience. It is also better if the audience does not immediately know the level of the presenter. Although, the latter could be impossible in organizational sessions. If the level of the audience is not known it is good to ask and find out at the start of the session. (Mautz, 2019)

Mautz (2019) claims that the next step is to focus on the plot. As already mentioned in this study, it is important to maintain the focus of the audience. Mautz (2019) argues that the focus will be lost if the audience loses the interest towards too detailed presentation. Communication must be memorable,

emotional, and clear. Only the most important points can be opened with relevant details.

The third step according to Mautz (2019) is clarity over accuracy. The main thing in the session is to give the basic understanding of the topic. The ticketing process with several different practice areas can turn out to be very detailed and complex. According to Mautz (2019) it is better to give a lighter explanation which is not completely accurate, than an overly complex and accurate explanation. Details can be provided if the audience requests it.

The final step according to Mautz (2019) is to let the audience understand the fascination of the speaker. When the audience understands the fascination, it is possible that they will feel the same. This makes it easier to reason why strategy or process should be followed. (Mautz, 2019)

In conclusion, it is important to focus on the plot. It is better to choose clarity over accuracy and provide complex details only if requested by the audience. It is also important to get the audience attracted by the topic. This could make them reason about the topic.

4.5 Channel

The ideas on channels in general were referenced from Samuel (2021). In her article, Samuel (2021) considers possibilities when choosing a communication channel. The reference was chosen based on the accuracy with channels.

According to Samuel (2021) a tool for good collaboration should be adjusted for the work environment such as adjustable chairs and tables. Samuel (2021) claims that there are eight things to consider when choosing a channel: customization, awareness, discretion, security, sharing, downtime, teamwork and learning. Employees around the company may need to use the same applications to have access to everything relevant but that does not mean that those applications should work the same way for all. Own tasks and a team

dashboard should be at the front and centered when all other is faded in the background. (Samuel, 2021)

The main purpose of a channel is to be an effective tool for collaboration. The framework of the channel element focuses on choosing the right channel and finding ideas on how to avoid communication barriers.

4.5.1 Choosing a Channel

The ideas on creating participation were from Szatar (2022) and Samuel (2021). In addition to synchronous and asynchronous communication, Szatar (2022) considers channels in her article. Samuel (2021) considers possibilities when choosing a communication channel. The references were chosen for this study due to accuracy on choosing a channel in the case company.

When deciding a channel, it is good to think about the way of communication. According to Szatar (2022) there are five things to consider: the size of the audience, the need for interaction, the urgency of the topic, the complexity of the message and the risk of misunderstanding. (Szatar, 2022)

If the size of the audience is huge it is better to reach them with asynchronous tools. Scheduling a meeting for a huge audience can be challenging. If the audience is small, a synchronous communication style is better to maintain effective dialogue. (Szatar, 2022)

If there is a need for interaction, for example collaboration or brainstorming, synchronous communication is better. Asynchronous communication is better for non-actionable announcements. (Szatar, 2022)

If the topic is urgent, asynchronous communication gives more time to provide a more thoughtful response. If any immediate actions are needed, synchronous communication is better. (Szatar, 2022)

If the message is complex, asynchronous communication is better when the message is accessible again within easy reach. Synchronous communication is a good option if the message is not able to be summarized and immediate input or feedback is needed from recipients. (Szatar, 2022)

To minimize the risk of misunderstanding, an asynchronous message can be polished with words, tone of voice or facial expressions. A synchronous message is more effective if the message is urgent. (Szatar, 2022)

Samuel (2021) claims that the best communication channels enable users to customize notifications. They also let users customize whether they want to receive notifications by email, text message or within the application itself. (Samuel, 2021)

Occasionally discretion is needed for example when asking feedback from colleagues on a work in progress but not wanting to give them the ability to edit the text. Good collaboration tools will let users share their work on their own terms and make it easy for them to know who has access to that material. (Samuel, 2021)

The best channel to communicate is easy to learn to use. Individuals have very different technical skill levels or simply varying degrees of passion for learning new. It is important to keep the channel simple but also offer optional features. (Samuel, 2021)

In conclusion, when choosing a channel, it is important to find a suitable tool to reach the audience. The audience must be easily aware of the message that is intended for them. It is crucial that everyone who needs the message has access to the chosen channel. It is crucial that the channel is easy to use for everyone to share their best practices and create participation.

4.5.2 Avoiding Barriers in Communication

The ideas on avoiding barriers in communication were from Samuel (2021) and Nimbus (2022). Samuel (2021) claims that notifications have a huge impact on people. Nimbus is a platform for collaboration which offers solutions for communication barriers. The references were chosen for this study due to accuracy on avoiding communication barriers in the case company.

According to Samuel (2021) notifications have a large impact on people. A notification could encourage awareness of the team as a whole but it could simply be a distraction. An overly active channel can drive individuals to disable notifications altogether. On the other hand, individuals might feel isolated when there are not any notifications. (Samuel, 2021)

Sharing information is crucial in organizations. However sometimes there are barriers which block communication. Nimbus (2022) has gathered common communication barriers in organizations. These barriers are: knowledge silos, lack of time, trust, motivation, and incentives, fear of criticism or judgement, lack of tools or skills, and language and terminology barriers.

Knowledge silos limit the free and open communication within the organization, which results in a lack of coordination. This occurs when teams or departments operate independently rather than as part of a big picture. (Nimbus, 2022)

Lack of time, trust, motivation and incentives these all are barriers in communication. Overloaded employees do not have energy to share any information. If the organization leads the performance through competition, members may not trust each other. Motivation and incentives are important and it is more likely that employees share information if they believe that it is valued and utilized. (Nimbus, 2022)

Some employees may fear that they can be criticized or judged for sharing their thoughts, or being seen unqualified if they do not have the right knowledge or expertise. These communication barriers can be a major block for improvement

and productivity. The hierarchical or competitive culture of the organization may lead to feeling that sharing information is considered unnecessary. (Nimbus, 2022)

According to Nimbus (2022) lack of technical tools or skills is a barrier for sharing information effectively. Nimbus (2022) points out that there are also language or terminology barriers, thus it can be difficult to share the same understanding with one another.

Samuel (2021) points out that one downside of remote working is to draw a line between work and personal time. According to Samuel (2021) this should be considered to avoid sending work related notifications after working hours.

In conclusion, most common communication barriers should be avoided to create effective communication and participation. For each message there should be a suitable and carefully considered strategy. When communication barriers have been acknowledged and tools are utilized in the best deemed manners it could encourage sharing information, for example feedback and suggestions.

4.6 Summary of the Conceptual Framework

This chapter discussed existing knowledge on communication practices and particularly on how to keep internal communication effective and create participation. Figure below (Figure 11) visually summarizes the conceptual framework of this study.
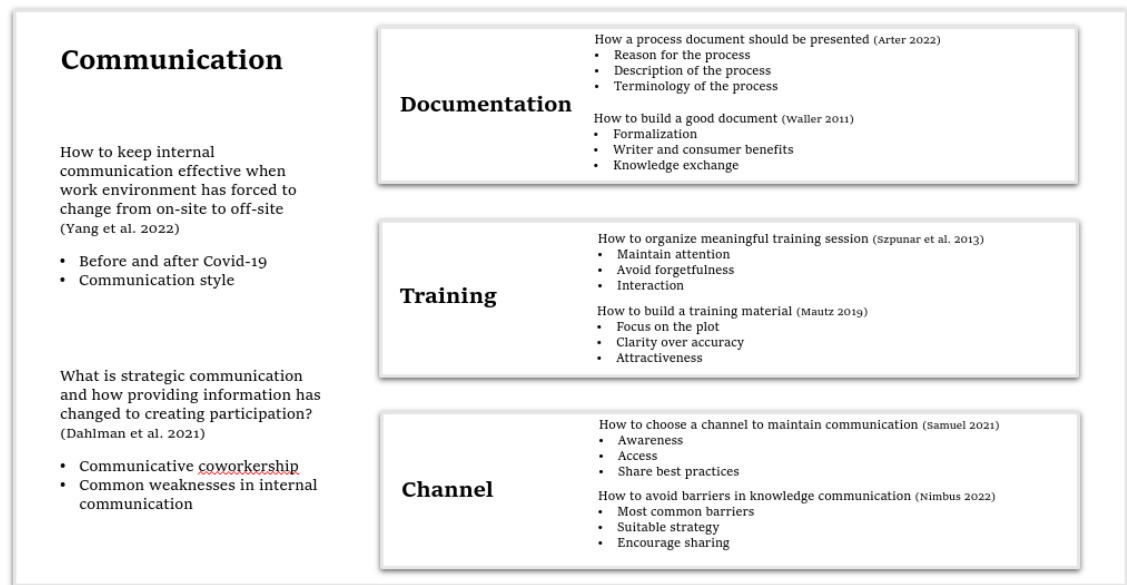
Figure 11. The conceptual framework of this study.

As Figure 11 shows, communication includes three elements. The documentation element focused on finding ideas on presenting and building a process document. The training element focused on finding ideas on organizing a training session and building a training material. The channel element focused on finding ideas on choosing the channel and avoiding communication barriers.

Switching from office work to remote work has affected organizational communication. Employees can feel stagnant and siloed. Communication has changed from casual and synchronous to be more asynchronous. When synchronous and asynchronous communication styles both have advantages and disadvantages, it is important to choose the better style to communicate the message. The success of an organization depends on the way leaders listen and understand the signals of the employees. Communicative coworkership allows learning from colleagues. Common weaknesses in internal communication are that employees are not listened to and understood which could lead to losing the market position.

The documentation element covered ideas on presenting and building a process document. The process documentation should include a clear reason for the process. The description and visualization of the process in high-level

should be clearly explained. When the process document is clear the terminology could be better understood. The process guidance document must be formalized to be easily and clearly understood for knowledge exchange. There are writer and consumer benefits when creating a well-structured document. The structure is repeatable on other similar guidance documents and the reader is familiar with the appearance.

The training element covered ideas on organizing a training session and building a training material. It has to be considered how to maintain the attention of the audience. When the attention is maintained it is possible to avoid forgetfulness. When the participant interacts during the learning session, learning is more effective. It is important to focus on the plot. It is better to choose clarity over accuracy. It is also important to get the audience attracted by the topic.

The channel element covered ideas on choosing the channel and avoiding communication barriers. The audience must be easily aware of the message that is intended for them. It is crucial that everyone who needs the message has access to the chosen channel. It is crucial that the channel is easy to use for everyone to share their best practices and create participation. Most common communication barriers should be avoided. For each message there should be a suitable and carefully considered strategy. When communication barriers have been acknowledged and tools are utilized in the best deemed manners it could encourage sharing information, for example feedback and suggestions.

The ideas from the conceptual framework are used in the following chapter to broaden the perspective when building the initial improvement recommendations for the case company.

5 Initial Improvement Recommendations for Ticketing Process

Previous chapter covered the conceptual framework for finding ideas to improve the ticketing process. This chapter covers recommendations on how to improve the ticketing process.

5.1 Overview of Initial Improvement Recommendations

Improvement recommendations were produced based on Data 2 presented in Figure 2 in the second chapter of this study. Data 2 was collected through an online workshop where all of the key stakeholders were invited. Five process managers from various practice areas and the service team leader participated in the workshop.

The idea of the workshop was to find ideas or suggestions to improve the ticketing process. The workshop started with presenting the findings of the current state analysis and the key strengths and weaknesses of this study. Then presenting the conceptual framework of this study to demonstrate what was found to be applicable for this study from the literature. The workshop continued discussing to gain new insights and perspectives on how to improve the ticketing process in the aspect of communication. The online workshop was recorded to support the written notes for further analysis.

All of the improvement ideas and suggestions discussed in the workshop were summarized for further processing to validate initial improvement recommendations.

5.2 Communication

Communication is essential for sharing and improving ticketing process related information. It is important to understand that communication does not refer to the means of delivering instructions and granting access to the documentation of the ticketing process. Communication is the process of exchanging

information between sources. Providing, listening and understanding the message of each source are necessary for effective communication.

The ticketing process consists of many details in each practice area. Specialists may not deal with the ticketing process on a regular basis. This raises the possibility that essential steps in the ticketing process will be forgotten or the terminology will not become familiar.

Ideas for communication were discussed at the online workshop. The focus of the discussion was on effective communication and creating participation to improve the ticketing process in the case company.

5.2.1 Recommendations for Effective Communication

There are two styles of communication: synchronous and asynchronous communication, as was described in the conceptual framework section. It is crucial to choose the communication style that works best in the situation.

In the online workshop of initial improvement recommendations, it was discussed that synchronous communication is beneficial when introducing anything new for the first time, such as a new feature in the ticketing tool. When communicating in real time, the audience can respond right away and provide direct feedback on this new feature. In the early phases of implementation, the feature, or the guidance document of the feature, can be modified according to the feedback.

Synchronous communication is an effective communication style. However, synchronous communication requires the audience to be present at a specific time, regardless of whether that time is convenient for them in order to participate. Asynchronous communication allows the audience to participate at their own time and pace.

It was decided in the online workshop of the initial recommendations that the best approach to introduce a new feature is through a recorded online session.

A recorded session can reach a wider audience when the recording is afterwards made available to all stakeholders. When the target audience is large, both the possibility of receiving responses and feedback rise.

In the online workshop of initial improvement recommendations, it was discussed that the dialogue is necessary for effective communication. However, it is important to comprehend that not everyone who would need that information or would like to give feedback will find a live session convenient for their schedule. It was recommended to find a suitable channel also for the asynchronous conversation after a live session.

5.2.2 Recommendations for Creating Participation

When creating participation, it is crucial to comprehend the worth of experiences and competencies of co-workers. In order to steer the ticketing process in the desired direction, participation of specialists matters. The probability of accumulating pointless angularities to the ticketing process rises, when the improvements are done without participation of specialists.

While performing the current state analysis of this study, it was revealed that the ticket template has features that are not functioning as expected. This has frustrated specialists, and some specialists have even discovered solutions to work around it. Such situations may have been corrected immediately or perhaps avoided with active participation.

The importance of gathering feedback to improve the ticketing process was highlighted during the online workshop of the initial recommendations. It was recommended to gather feedback in order to identify areas for improvement. Feedback can be collected directly or indirectly from different sources. Indirect feedback is received from a secondary source, such as a ticket or irrelevant chat conversation.

Creating participation in the ticketing process requires listening specialists and also noticing the deviations in the ticketing data. Deviations in the ticketing

process could include, for example, a certain group continually combining relative tickets incorrectly. These deviations should be collected for the same purposes as feedback.

In addition to collecting feedback and taking notes of deviations, validating changes with specialists creates valuable participation. New features or process improvements should not be released without involvement of specialists. The interest of specialists and valuable participation in the improvement process could be lost if specialists are not brought into the process.

In the online workshop of initial improvement recommendations, it was discussed that creating participation requires attention to co-workers. Participation is important to improve the ticketing process to serve the needs of every stakeholder equally. Collaboration means that everyone is working toward the common goal and the input of each participant is valuable.

5.3 Documentation

Process documentation is the core of the ticketing process. Process documentation explains in detail the steps of the process. The documentation also includes information about the purpose of the process and measurement methods.

In the online workshop of initial improvement recommendations, it was discussed that the ticketing process documentations in the business unit of the case company need to be updated and unified. Process guidance document of each practice area includes a comprehensive description of the process. However, the visual appeal and user experience need to be enhanced.

Discussion in the online workshop included ideas on process documentation of the ticketing process in the case company. The focus of the conversation was on presenting and building a process document.

5.3.1 Recommendations for Presenting a Process Document

The case company has comprehensive process documents concerning the ticketing process. However, the measurements should be presented in greater detail. Specialists must fully understand the purpose behind the process. The process does not simply result in an outcome of a single ticket. The result is also a reflection of how well the process met the needs of all parties involved. It could be easier to follow the process and meet targets if the measurements are precisely understood and the terminology is clear.

In the online workshop of initial improvement recommendations, it was discussed that the metrics should be explained more thoroughly and the purpose of each practice area should be more strongly emphasized in the process documentations.

5.3.2 Recommendations for Building a Process Document

The user experience is important in process documents. Every practice area should have standardized process documents, which would make the layout more familiar. When information is presented in the same format, it is easier to find the needed information.

In the online workshop of initial improvement recommendations, it was discussed that the ticketing process documents need a table of contents that automatically directs users to the right page by clicking on the subtitle. It was also recommended that the ticketing process documents also need references as links and regular updating.

The navigation on the ticketing process documentation in the case company is based on subtitles. Subtitles do not indicate directly the right page in the document. Subtitle with page numbers could be more indicating. However, an automatic table of contents enables transition to the correct page by clicking on the subtitle. The automatic table of contents would save time when navigating to the correct slide on the document.

The ticketing process documentation consists of few sentence long quotations of one source document. These quotations are the reasoning for the ticketing process. However, there is no information about the original document for further investigation. In the online workshop of initial recommendations, it was considered that direct link references to the source document would be a good idea to include in the ticketing process guidance documents. This would enable readers to go to the source document to fully comprehend the arguments behind the purpose of the process.

In the online workshop of initial recommendations, the format of the process documents was taken into consideration. It was recommended that in addition to Microsoft PowerPoint format there could also be a recorded audio format. Microsoft PowerPoint enables audio to be recorded on the document. A spoken approach might improve comprehension of the process.

The ticketing process documents should be updated frequently to preserve their value. Even while the fundamentals of the ticketing process remain unchanged, it is important to convince stakeholders that the materials are fresh and updated.

In the online workshop of initial improvement recommendations, it was discussed on how to build a process document. The process documents need an automatic table of content to make navigation easier. The format of the Microsoft PowerPoint document should include audio. References should be direct links to the source document and the process documents should be updated regularly to preserve the value.

5.4 Training

The ticketing process needs to be taught to every specialist. The purpose of training is to provide the skills and knowledge needed for working within the ticketing process. Both specialists who are unfamiliar with the ticketing process and those who have forgotten it will benefit from the training.

It was mentioned in the online workshop of initial recommendations that the training should be customized for small audiences to preserve interactive communication. Receiving comments and feedback during interactive communication is valuable and beneficial for each party.

Discussion in the online workshop for initial improvement recommendations included ideas for training the ticketing process in the case company. The discussion concentrated on training sessions and building a training material.

5.4.1 Recommendations for Training Sessions

In the online workshop of initial improvement recommendations, it was discussed the effectiveness of big open-to-all events. Big open-to-all events include introduction of multiple different practice areas at once. The audience may lose the focus on the topic when there is a large amount of new information.

In the online workshop of initial recommendations, it was discussed that it would be more effective to record one high level training session in asynchronous communication manners. This could enable the specialists to concentrate on the desired topic at their own time and pace.

In addition to recorded sessions, it was also recommended that training sessions should be separated into theoretical and practical sessions. Theoretical training sessions focus on the ticketing process on a high level. Practical training sessions focus on customized topics according to the needs of the audience. Theoretical training sessions could be asynchronous whereas practical training sessions could be more effective when organized synchronously. One of the participants of online workshop of initial improvement recommendations stated as follows:

> Auditorium-type training sessions do not work, because there are people who do not dare to interact when there is a lot of crowd. The smaller and more familiar the group is, the better the training sessions work and people learn. (Data 2: Informant J)

It is important to maintain the concentration of the audience. In order for the audience to learn, it is essential that they remain awake and concentrated during the training session. Asking questions during the training session is a great method to keep the audience focused. The trainer should prepare suitable techniques in advance to challenge the audience during the training session when the session is customized for a small group. The challenge, for example, could be occasional questions during the training session about the subject or a staged scene that is relevant and applicable to the work tasks of the audience.

During the training session it is important that the trainer has muted all devices and ensured that the background is quiet. It was recommended in the online workshop for initial recommendations that there should be an assistant in the training session to take care of the distractions. Accidentally unmuted lines, meeting lobby notifications and chat messages are all potential distractions in online meetings. Announcing at the beginning of the training session that there will be an assistant taking care of these possible distractions, could help the audience to ignore such distractions during the online training session and focus on the topic.

It was suggested in the online workshop for initial recommendations that training sessions could be advertised. For example, training sessions could be advertised for team leaders who could determine whether the team needs assistance with topics related to the ticketing process. One of the participants of online workshop of initial improvement recommendations stated as follows:

> It would be beneficial if there is a list available and distributed to the team leaders who could check the team-specific needs. (Data 2: Informant M)

It was recommended that training sessions could occasionally be advertised in suitable internal channels. This might raise the awareness of all the different types of support available.

In the online workshop of initial improvement recommendations, it was discussed on how to organize training sessions. It was recommended that the

synchronous training should be customized for small audiences. Big open-to-all events should be changed from synchronous to asynchronous format. During the training sessions it is important to take care of any distractions and keep the audience awake asking questions or presenting interactively a task related scene. Advertising occasionally training sessions in various channels raises the awareness of the support available.

5.4.2 Recommendations for Building a Training Material

The training materials are essential for supporting learning. The training materials should be simple and it has to be built with the audience and purpose in mind. The knowledge should be easily applicable in everyday work of the material receiver.

The needs of the audience should be clearly defined as possible before a training session. In order to communicate with the audience on their level, it is important to focus on why the information is significant to them. An overview of the subject in question may be included in the training materials. However, only important ideas and keywords should be included in the training materials, not an excessive amount of text.

In the online workshop of initial improvement recommendations, it was discussed that the training material document should be as brief and concise as possible, if the training session is recorded for use in the future. If the training session is not being recorded and the information is intended for specialists who were unable to attend, more specific information should be included in the training material document.

For example, detailed information could be presented on separate slides in a Microsoft PowerPoint presentation. In a training material that is presented in synchronous manners those separate slides with written details can be skipped when the topic has been covered by speaking. This could enable the live audience to maintain the focus on live presentation and simple slides.

In the online workshop of initial improvement recommendations, it was discussed that it is important to keep the training material clear rather than strictly accurate. Due to complex subprocesses of the ticketing process there are many exceptions at the operational level. The basic understanding of the information is crucial. If the audience needs more precise information concerning their own work tasks, more exact information can be discussed during the training session and added to the material afterwards. The reason for the training material has to be emphasized. After all it is important that the audience understand why the information is given and why it is important.

5.5 Channel

Channels transfer information and ensure that the information reaches all intended recipients at the right time. A good strategy for using different channels is necessary for effective ticketing process communication.

In the case company the intranet platform is a channel to manage and share fundamental information. Channels such as the intranet are solely based on asynchronous communication. The intranet channel provides easy access to the ticketing process related documentation and training materials. The intranet channel is stable and reliable. That means once the information is uploaded to the intranet channel, it stays in one place and is easy to find even after a long time. The intranet as a communication channel is highly valuable when the file structure is well implemented. Information is easy to find from a well-planned, implemented and maintained intranet channel.

An email is a channel to communicate quickly. An email is mainly based on asynchronous communication but it can be used also for synchronous communication. Well-structured email can be stored and retrieved easily. The recipients of an email are carefully selected and the message can be targeted for a specific audience. Microsoft Teams is a channel to communicate instantly. Channels such as Microsoft Teams are based on more synchronous communication than asynchronous communication. However, the messages

and announcements eventually blend in and disappear completely when new information is taking place.

The online workshop for initial recommendations included ideas on communication channels of the ticketing process in the case company. The discussion concentrated on choosing a channel and avoiding communication barriers.

5.5.1 Recommendations for Choosing a Channel

The creation of participation and effective communication benefits from the well-planned use of channels. The purpose, urgency and complexity of the message should all be considered while selecting a communication channel. In addition to message, the targeted audience and confidentiality must be properly taken into consideration.

In the online workshop of initial improvement recommendations, it was discussed that the ticketing process guidance materials should be located as close to specialists as possible. It was recommended to link the process guidance documents to the ticket template or in a separate information card on the ticketing tool. One of the participants of online workshop of initial improvement recommendations stated as follows:

> From operating instructions to process guidance, everything could be covered under a specific information card in the ticketing tool. (Data 2: Informant L)

Another participant proposed the following:

> Links to the process guidance documents on the ticket template in the ticketing tool. (Data 2: Informant J)

However, original guidance documents must not be duplicated in any case but it is highly recommended to use links in proper locations to enable easier navigation to the original ticketing process documents.

Microsoft Teams can be used for synchronous and asynchronous communication. Synchronous communication in Microsoft Teams is used mainly in training sessions. The chat feature of Microsoft Teams can be used to contact the process management team. Asynchronous communication in Microsoft Teams is used when creating announcements in the channel feature. Announcements are effective to share tips and reminders. One of the participants of online workshop of initial improvement recommendations stated as follows:

> Let's make use of Teams to make announcements about various topics. Little doses of advice such as "do you remember…" or "did you know…". (Data 2: Informant J)

The process management team has been publishing small announcements even before this study. However, the announcements have been unstructured. A structured announcement could be more informative for the reader and the reader can decide if it is valuable to him or her. Figure below (Figure 12) shows an example of a Teams announcement.

Announcement

[Description] [Practice area]

[Add here the announcement what has been changed or what is new.
- Explain why the audience needs the information
- Keep it short and succinct
- Use lists for clarity]

Find more [Practice area] related information from here.

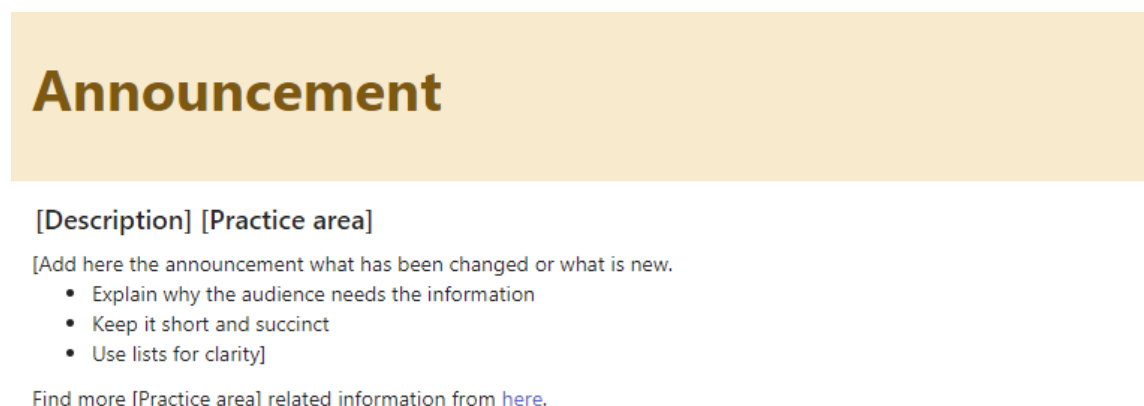Figure 12. An example of an announcement in Teams.

Figure 12 presents the recommended structure for the announcements. The announcement should be presented shortly and succinctly. To unify the announcements the background color or image should differ from other announcements. The announcement should include a short description and clarify which practice areas are related to the announcement. The

announcement should be as simple as possible and visually appealing. To bring process guidance documents closer to the specialist, there should be links for further related information.

It is important to keep in mind that announcements will eventually get lost and forgotten over time. However, the specialists would be able to comment directly on the Teams announcement and the process management team presence may become more familiar in the business unit in the case company.

In the online workshop for initial improvement recommendations it was discussed that links to the process guidance documents should be as close to the specialists as possible. It was also recommended that Teams announcements should be released occasionally to maintain awareness of the support available.

5.5.2 Recommendations for Avoiding Communication Barriers

In the online workshop of initial improvement recommendations, it was discussed that the intranet channel should be more intuitive to use for all who are working with the ticketing process. If the initial recommendations from the online workshop are followed, the intranet structure would look like that in the figure below (Figure 13).
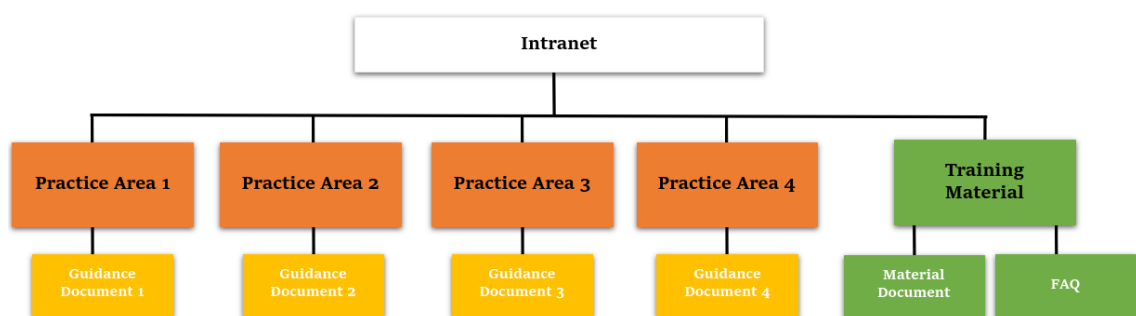

Figure 13. The recommended intranet file structure for the case company.

As Figure 13 shows, it was recommended that all of the outdated process guidance documents should be removed. It would be more intuitive for the

specialists to find the ticketing process related documents from the correct folder concerning the practice area in question. All material concerning training would be better to keep in one separate folder. The training material folder would consist of additional information concerning the ticketing process. The training material would have links to official process guidance documents allowing deeper investigation. In addition to the training material document it is good to have a separate file for frequently asked questions (FAQ). The FAQ document is valuable to understand what type of issues there have been and how those have been resolved.

It was discussed in the online workshop of initial recommendations that the ticketing process related documents should be reviewed in the intranet. Ticketing process related documents should be updated, archived or removed from the intranet as necessary.

Communication barriers may arise as a result of unwanted notifications. People can silence the channels if there are too many notifications. This prevents not only non-urgent messages, but also urgent messages to be received. It is essential to avoid using notifications unless absolutely necessary.

In the online workshop for initial improvement recommendations it was discussed that the intranet should be more intuitive to use and the ticketing process related materials should be reviewed and maintain only valuable materials. To avoid communication barriers, it was recommended to not use notifications if not necessary.

5.6 Summary of the Initial Improvement Recommendations

This chapter discussed the initial improvement recommendations to improve process guidance documentation, organizing meaningful training sessions and choosing the best channels to enable effective communication. The recommendations were collected from the conceptual framework and Data 2 collection. The figure below (Figure 14) visually summarizes the initial improvement recommendations of this study.
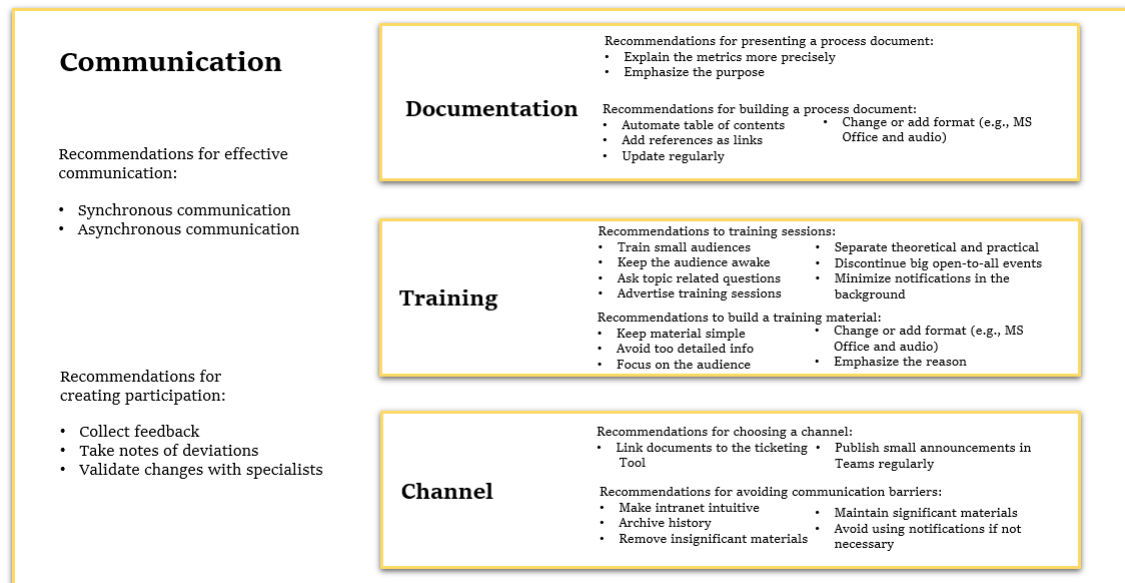
Figure 14. The initial improvement recommendations of this study.

As Figure 14 shows, the initial improvement recommendations concentrated in communication, documentation, training and channel. Ideas for communication concentrated on effective communication and creating participation. It was discussed that synchronous and asynchronous dialogue is necessary for effective communication. Participation is important to serve the needs of every party equally for the common goal.

Ideas for documentation concentrated on presenting and building a process document. It was discussed that the ticketing process related metrics should be explained more thoroughly and the purpose of each practice area should be more strongly emphasized in the process documentations. The process documents need an automatic table of content to make navigation easier. The format of the Microsoft PowerPoint document should include audio. References should be direct links to the source document and the process documents should be updated regularly to preserve the value.

Ideas for training concentrated on training sessions and building a training material. It was discussed on how to organize training sessions. It was recommended that the synchronous training should be customized for small audiences. Big open-to-all events should be changed from synchronous to

asynchronous format. During the training sessions it is important to take care of any distractions and keep the audience awake asking questions or presenting interactively a task related scene. Advertising occasionally training sessions in various channels raises the awareness of the support available. It is important to keep the training material clear rather than strictly accurate. Due to complex subprocesses of the ticketing process there are many exceptions at the operational level. The basic understanding of the information is crucial. If the audience needs more precise information concerning their own work tasks, more exact information can be discussed during the training session and added to the material afterwards. The reason for the training material has to be emphasized. After all it is important that the audience understand why the information is given and why it is important.

Ideas for the channel concentrated on choosing a channel and avoiding communication barriers. It was discussed that links to the process guidance documents should be as close to the specialists as possible. It was also recommended that Teams announcements should be released occasionally to maintain awareness of the support available. the intranet should be more intuitive to use and the ticketing process related materials should be reviewed and maintain only valuable materials. To avoid communication barriers, it was recommended to not use notifications if not necessary.

The initial improvement recommendations are validated in the following chapter to determine the final improvements to the ticketing process for the case company.

6 Validation of the Initial Recommendations

Previous chapter covered initial improvement recommendations to improve the ticketing process. This chapter covers validation, feedback and corrections of initial improvement recommendations.

6.1 Overview of the Validation

Validation of initial recommendations were produced based on Data 3 presented in Figure 2 in the second chapter of this study. Data 3 was collected through an online workshop in which there were the process owner and two process managers who did not participate in the previous workshop concerning initial improvement recommendations. All participants heard about the improvement recommendations for the first time intentionally.

The idea of the workshop was to ensure that the initial recommendations provided were appropriate for their intended purpose to improve the ticketing process. The workshop started presenting the key strengths and weaknesses of this study. Then presenting the conceptual framework of this study to demonstrate what was found to be applicable for this study from the literature. After that presenting the initial improvement recommendations on how to improve the ticketing process in the aspect of communication. The workshop continued discussing how the initial recommendations fit to their intended purpose and how to make the improvement recommendations even more effective. The online workshop was recorded to support the written notes for further development to correct the initial improvement recommendations.

After the improvement recommendations were corrected based on the feedback, participants of the online workshop for validation of initial improvement recommendations approved, postponed, corrected or rejected them. All final improvements were implemented immediately. Implementation means that the final improvements have been delivered to the process management team for them to use when there is an opportunity.

6.2 Communication

In the current state analysis, it was observed that the terminology of the ticketing process was not completely familiar for the specialists. Also, it was revealed that the specialists forget the process quite often and when they need they do not find the process guidance documents.

In the online workshop for initial improvement recommendations were discussed that the ticketing process consists of many details in each practice area and specialists may not deal with the ticketing process on a regular basis.

In the aspect of communication, the online workshop for validation of initial improvement recommendations focused on recommendations considering effective communication and creating participation to improve the ticketing process in the case company.

6.2.1 Validation of Effective Communication

In the online workshop for initial improvement recommendations were discussed that dialogue is necessary for effective communication. To maintain valuable dialogue, it has to be possible for everyone to join sessions in synchronous or asynchronous manners. It was recommended to find the most suitable channel also for conversation and feedback afterwards.

In the online workshop for validation of initial improvement recommendations feedback was given on the previously mentioned recommendations. It was discussed that asynchronous communication could be valuable but it has to be carefully planned. Training sessions and dialogue in synchronous manners is considered to be more effective than asynchronous especially if the information is more detailed. There could be a lot of opinions and those are more effectively gone through in synchronous manners. A recorded live session with conversation can be confusing to follow later on and it seems quite unlikely that there would be effective asynchronous communication afterwards.

In the online workshop for validation of initial improvement recommendations corrections were given on the previously mentioned recommendations. Information is good to be shared for everyone also in asynchronous manners but it must be carefully planned case by case to avoid confusion. One of the participants of online workshop of validation for initial recommendations stated as follows:

> A recorded video could be valuable to go through the basics, but everything with even a bit more in-depth is better to go through in a live training session. However, the recorded video could be a good basis for the live training session, then everything does not need to be explained over and over again. (Data 3: Informant B)

Therefore, focusing more on synchronous communication recommendation was approved. Whereas the use of asynchronous communication needed more consideration and more identified opportunities. The latter recommendation was postponed to be fully implemented in the future. However, it is valuable to find such opportunities for asynchronous communication.

In conclusion, to keep communication effective, the final improvement was to focus more on synchronous communication. Opportunities for asynchronous communication should be better identified therefore the recommendation was postponed for consideration in the future.

6.2.2 Validation of Creating Participation

In the online workshop for initial improvement recommendations were discussed that creating participation requires attention to co-workers. Collaboration is important to improve the ticketing process to serve the needs of everyone. This means that everyone is working toward the same goal. It was recommended to collect feedback, take notes of deviations and validate changes in the ticketing process with specialists.

In the online workshop for validation of initial improvement recommendations feedback was given on the previously mentioned recommendations. It was

discussed that feedback is essential to get but instead of collecting and storing it should be processed when received. Repetitive feedback is more of a deviation in the ticketing process. Therefore, the recommendation of collecting feedback was not fully approved. However, it is good to be aware of feedback.

Taking and storing notes of deviations is a good recommendation to continuously improve the ticketing process. Deviations are more likely to be noticed and corrected when those are listed in one place. Validating changes with specialists is also a good recommendation to improve the ticketing process. One of the participants of online workshop of validation for initial recommendations stated as follows:

> Absolutely, we have had situations where specialists have suggested improvements which have benefited others as well. (Data 3: Informant A)

In conclusion, to create participation, final improvements were taking notes of deviations and validating changes in the ticketing process with specialists. The recommendation of collecting feedback as such was not fully agreed and therefore not implemented.

6.3 Documentation

In the online workshop for initial improvement recommendations were discussed that the visual appeal and user experience of the process related guidance documentation are needed to be enhanced.

In the aspect of documentation, the online workshop for validation of initial improvement recommendations focused on recommendations considering presenting and building a process document to improve the ticketing process in the case company.

6.3.1 Validation of Presenting a Process Document

In the online workshop for initial improvement recommendations were discussed that presenting a process guidance document could be enhanced. It was recommended that the metrics should be explained more thoroughly and the purpose of each practice area should be more strongly emphasized.

In the online workshop for validation of initial improvement recommendations feedback was given on the previously mentioned recommendations. It was discussed that the metrics are explained at a high level in order to maintain clarity over accuracy. More detailed information could cause confusion and misunderstanding. However, the recommendation was not rejected in the workshop. Due to the lack of exact suggestions for explanation recommendations the recommendation was postponed for consideration in the future.

The recommendation of emphasizing the purpose of the guidance documentation was neither approved or rejected. The purpose of the process guidance document should be obvious at least by the location in the intranet. The recommendation needed reprocessing and improving, and due to that the recommendation was postponed for consideration in the future.

In conclusion, to present a process guidance document, final improvement recommendations explaining the metrics more precisely and emphasizing the purpose were decided to put into consideration for the future.

6.3.2 Validation of Building a Process Document

In the online workshop for initial improvement recommendations were discussed on how to build a process document. It was recommended that the process documents need an automated table of content, the format could include audio, references could be direct links to the source document, and the process guidance documentation needs to be updated regularly.

In the online workshop for validation of initial improvement recommendations feedback was given on the previously mentioned recommendations. It was discussed that an automated table of content is useful in a long document to simplify navigation. One of the participants of online workshop of validation for initial recommendations stated as follows:

> If someone is looking for specific information and if there will be more text in the future it makes searching much easier. (Data 3: Informant B)

It was also recommended to add audio or video format in the process guidance documents. Feedback for this recommendation was that the process guidance documents are based on the written text and audio or video format does not add value, it only makes the maintenance more complicated. Therefore, the improvement recommendation was rejected.

The third initial improvement recommendation to building a process guidance document was to add references as direct links to the source document. This could enable the reader to go deeper into the topic. In the online workshop for validation of initial improvement recommendations it was discussed that there is a reason for not providing the direct links to the source document. Only a few specific roles are responsible for interpreting the source document. The document can be easily misinterpreted if each specialist makes their own interpretations, this could have a negative impact on the ticketing process. One of the participants of online workshop of validation for initial recommendations stated as follows:

> In most cases, the original text in the source document requires interpretation. Then it is better that there are only a few who do it, in order that everyone operates according to the same interpretation. (Data 3: Informant A)

Furthermore, it was recommended that the process guidance documents should be updated regularly. In the online workshop for validation of initial improvement recommendations it was discussed that this was a good recommendation but it is more important to update the document only when needed. As a correction to

this improvement it was suggested to review the process guidance documents regularly. Therefore, the improvement was not implemented immediately. The implementation was postponed to the future.

In conclusion, to build a process document, the final improvement was to automate the table of contents. The corrected improvement, reviewing the documents regularly, were decided to put into consideration for the future. Initial improvement recommendations to add direct links from the process guidance documents to the source document, and adding audio or video format on process guidance documents were rejected.

6.4 Training

In the online workshop for initial improvement recommendations were discussed that training should be customized for small audiences to preserve interactive communication. Receiving comments and feedback during interactive communication is valuable and beneficial for each party.

In the aspect of training, the online workshop for validation of initial improvement recommendations focused on recommendations considering training sessions and building training material to improve the ticketing process in the case company.

6.4.1 Validation of Training Sessions

In the online workshop for initial improvement recommendations were discussed on how to organize training sessions. It was recommended that the live training sessions should be customized for small audiences. Big open-to-all live events should be discontinued and changed to asynchronous format. Keeping the audience awake and focused was important. Maintaining focus by asking topic related questions once in a while during the training session. Advertising occasionally training sessions in various channels to raise the awareness of the available support. Separating theoretical and practical training

sessions. And finally taking care of the distractions in the background during the training session.

In the online workshop for validation of initial improvement recommendations feedback was given on the previously mentioned recommendations. It was discussed that small audiences definitely consist of more valuable dialogue than big audiences. In a big open-to-all event people might not be daring to talk as much as they would like to. When the audience is smaller and it consists only of familiar people, it is very likely that there will be more discussion. This improvement was implemented immediately to the ticketing process.

The initial improvement recommendation concerning discontinuing big open-to-all live events was rejected in the online workshop for validation of initial improvement recommendations. The decision was made because there is still a demand for big open-to-all live events. One of the participants of online workshop of validation for initial recommendations stated as follows:

> People learn in different ways, there must be different opportunities for different people. (Data 3: Informant A)

The initial improvement recommendations concerning keeping the audience awake and asking topic related questions during a training session were not implemented immediately. This decision was made due to a lack of a more detailed plan on how to implement. The valuable intention was understood and these recommendations were postponed in consideration for the future when potential opportunities are more precisely identified.

According to the online workshop for validation of initial improvement recommendations it was considered as a good idea to advertise training sessions. Advertising training sessions would most likely raise awareness of the support that the process management team can offer. When gathering strengths and weaknesses of the ticketing process, it was revealed that some weaknesses could have been avoided if proper support were requested from

the process management team. When searching strengths and weaknesses of the ticketing process one of the service managers pointed out as follows:

> Some tickets are maintained in two different places for no reason. This can be partly due to the fact that the terminology is not completely clear for specialists. (Data 1: Informant H)

There is a lot of know-how available in the process management team that specialists may not know they can ask for. To spread awareness of the training available by advertising is highly valuable. This improvement was implemented immediately to the ticketing process.

It was also recommended to separate theoretical and practical training. This initial improvement recommendation was not implemented immediately due to lack of fully understanding the line between theory and practice in the ticketing process. The recommendation needed to be improved and therefore it was postponed for later consideration.

Minimizing notifications and distractions in the background of a training session was a valuable recommendation. The value of the guarantee of non-disruption to keep the focus on the training was fully understood and agreed in the online workshop for validation of initial improvement recommendations. The recommendation was approved and implemented immediately.

In conclusion, to organize training sessions, the final improvements were to train small audiences, advertise training sessions and minimize notifications in the background. For later consideration were postponed the following three recommendations: Keep the audience awake, ask topic related questions and separate theoretical and practical training. Recommendation to discontinue big open-to-all live events was rejected.

6.4.2 Validation of Building a Training Material

In the online workshop for initial improvement recommendations were discussed on how to build a training material. It was recommended that the

material should be simpler rather than strictly accurate. Too detailed information should be avoided. The audience must be in the center of the focus. The format of the training material could be changed. The reason for the training material must be emphasized.

In the online workshop for validation of initial improvement recommendations it was discussed that keeping the training material simple and avoiding too detailed information were overall good recommendations. Although, it was not clear on how to implement these recommendations when there is a lot of variation on the training demand. These recommendations needed to be improved and therefore these were postponed for later consideration.

The recommendation of focusing on the audience was fully agreed in the online workshop for validation of initial improvement recommendations. It was agreed that the same material and the same talk will not necessarily fit for every audience. It is better to concentrate on what the audience really needs and build the material accordingly. The improvement recommendation was implemented immediately.

The recommendation of changing the format of the training material was also considered valuable in the online workshop for validation of initial improvement recommendations. For example, a recorded training material will let the audience attend to the training at their own pace. When discussing possibility of using ticket template as a training material in a training session, one participant of the workshop stated as follows:

> I can imagine that there are items on the template that inspire valuable conversation (Data 3: Informant A)

One correction was made before approving the recommendation. It must be considered that also parties that do not directly use the ticketing tool must be able to understand the content of training. After correction was made the recommendation of changing the format of a training material was approved and implemented immediately.

The final initial improvement recommendation concerning building the training material was to emphasize the reason for the material. When sharing a training material, it must be clear for the recipient why the training material is worth the effort to go through. In the online workshop for validation of initial improvement recommendations that was fully agreed. The improvement was implemented immediately.

In conclusion, to build a training material, the final improvements were to focus on the audience, change the format of the training material and emphasize the reason for the training material. For later consideration were postponed following recommendations: keep the training material simple and avoid too detailed information.

6.5 Channel

In the online workshop for initial improvement recommendations were discussed that process related documents and training materials should be easily accessible. Having an intuitive and easy access to all materials is a valuable way to maintain good communication.

In the aspect of channel, the online workshop for validation of initial improvement recommendations focused on recommendations considering choosing a channel and avoiding communication barriers to improve the ticketing process in the case company.

6.5.1 Validation of Choosing a Channel

In the online workshop for initial improvement recommendations it was discussed that links to the process guidance documents should be as close to the specialists as possible. It was also suggested to publish small announcements in Teams regularly.

In the online workshop for validation of initial improvement recommendations it was discussed that linking the process guidance documents to the ticketing tool

was not a good idea. This conclusion was due to access related difficulties. Not everyone with access to the ticketing tool, has access to the process guidance document location. Therefore, the recommendation was rejected.

Publishing small announcements has been a good way to share information. Using a more structured template will make it more intuitive for everyone to read. Small announcements will increase awareness and the process management team is giving a more approachable image. This recommendation was approved and implemented immediately.

In conclusion, to choose a channel, the final improvement was to publish small announcements in Teams regularly. Linking documents to the ticketing tool was rejected due to accessibility issues.

6.5.2 Validation of Avoiding Communication Barriers

In the online workshop for initial improvement recommendations it was discussed that the intranet should be made more intuitive to use, and the ticketing process related documents should be maintained, archived and removed as needed. Also, when using channels use of notifications should be avoided.

It was recommended to make the intranet more intuitive. However, in the online workshop for validation of initial improvement recommendations it was discussed that the structure of the intranet has been developed over years and to change the structure would be a huge operation. In addition to that people are using direct links to the document locations. Therefore, it would be a dramatic change. It would be better to concentrate on lightening the intranet from the ticketing process related documents. The recommendation to make the intranet more intuitive was rejected.

Maintaining significant materials, archiving history and removing insignificant materials from the intranet is definitely important. But due to lack of precise details on how to proceed with the implementation, it was decided in the online

workshop for validation of initial improvement recommendations, that these recommendations were postponed for later consideration.

Use of notifications were discussed in the online workshop for initial improvement recommendations. It was suggested that notifications should be avoided when publishing any announcements. In the online workshop for validation of initial improvement recommendations it was agreed that people will mute the channel and therefore are not able to get even important information from the communication tool. The recommendation was approved and implemented immediately.

In conclusion, to avoid communication barriers, the final improvement was to avoid using notifications if not necessary. Maintaining significant materials, archiving history and removing insignificant materials from the intranet were postponed for later consideration. Recommendation concerning making the intranet more intuitive was rejected.

6.6 Summary of the Final Improvements

Validation of initial recommendations were produced based on Data 3. All three invited participants heard about the improvement recommendations for the first time intentionally. The idea of the workshop was to ensure that the initial recommendations provided were appropriate for their intended purpose to improve the ticketing process. The participants approved, postponed, corrected or rejected the recommendations. All final improvement recommendations were implemented immediately in the production to improve the ticketing process. The figure below (Figure 15) presents the result of the validation.
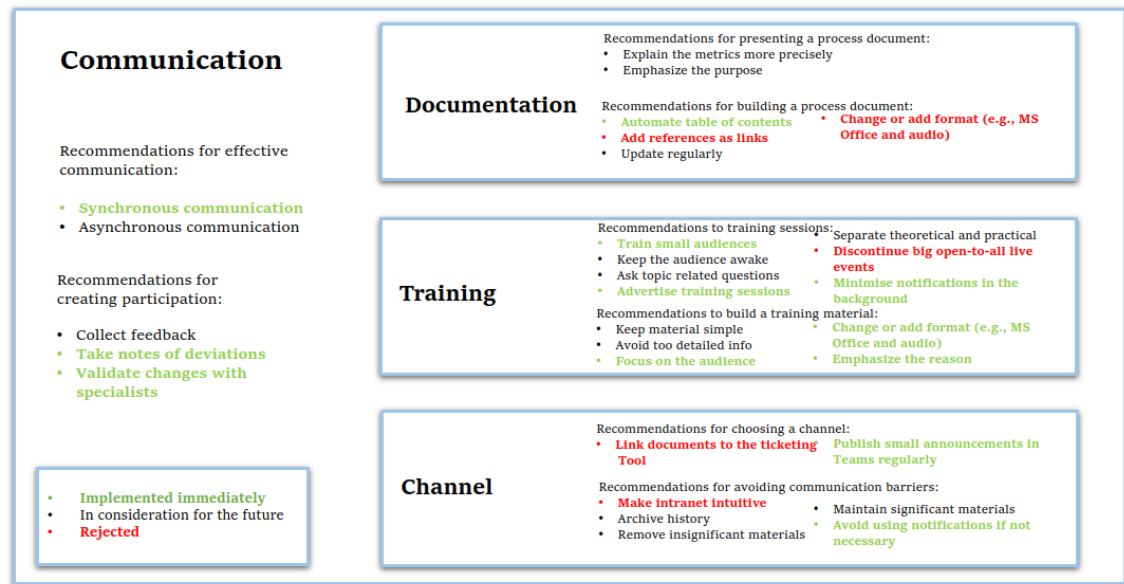
Figure 15. The Final improvement recommendations of this study.

As Figure 15 shows, the improvement recommendations in green means that they were implemented immediately, in black means that they are in consideration for the future and in red means that they were rejected.

In the aspect of communication, final improvements were to focus more on synchronous communication, taking notes of deviations and validating changes in the ticketing process with specialists. Opportunities for synchronous communication should be better identified therefore the recommendation was postponed for consideration in the future. And also, the recommendation of collecting feedback was postponed for the future.

In the aspect of documentation, the final improvement was to automate the table of contents. The corrected improvement, reviewing the documents regularly, was decided to put into consideration for the future. As well explaining the metrics more precisely and emphasizing the purpose were decided to put into consideration for the future. Adding direct links from the process guidance documents to the source document and adding audio or video format on process guidance documents were both rejected.

In the aspect of training, the final improvements were to train small audiences, advertise training sessions and minimize notifications in the background. As well focusing on the audience, changing the format of the training material and emphasizing the reason for the training material were all approved. Keeping the audience awake, asking topic related questions and separating theoretical and practical training were postponed. As well keeping the training material simple and avoiding too detailed information were postponed. Recommendation to discontinue big open-to-all live events was rejected.

In the aspect of the channel, the final improvements were to publish small announcements in Teams regularly and to avoid using notifications if not necessary. Maintaining significant materials, archiving history and removing insignificant materials from the intranet were postponed for later consideration. Linking documents to the ticketing tool was rejected due to accessibility issues and also recommendation to make the intranet more intuitive was rejected.

These implemented improvements have a positive effect on the ticketing process. The figure below (Figure 16) presents the improved ticketing process.
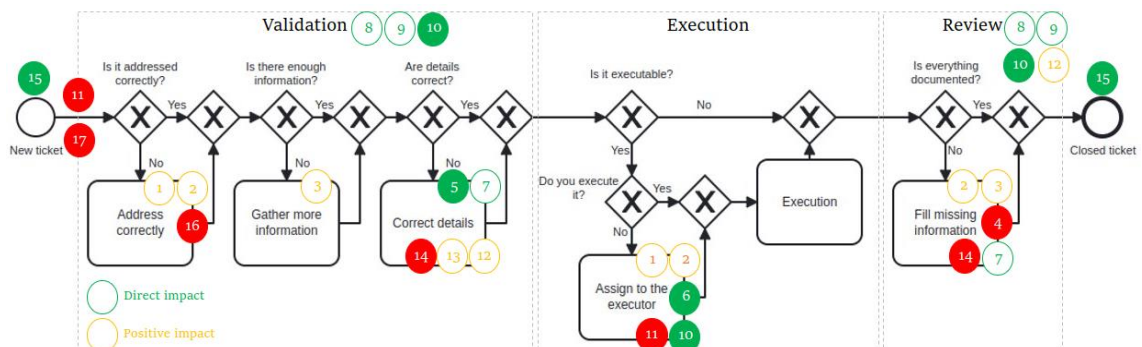

Figure 16. The improved ticketing process.

As Figure 16 shows, in full green are the strengths and in red are the weaknesses of the ticketing process which are not impacted by the improvements. Circles with a green border are past weaknesses that have

directly impacted on the improvements. Circles with a yellow border are past weaknesses that have positively impacted on the improvements.

Communication related weaknesses were improved by creating participation, for example validating changes with specialists. More audience focused training and bringing process guidance documents closer to the specialists will have a direct impact on the weaknesses.

Management and tool related weaknesses were positively impacted by making the process management team more familiar and more approachable. The nature of weaknesses that were not impacted was not able to be influenced by communication improvements.

The final improvements were implemented immediately in the production. Implementation means that the final improvements have been delivered to the process management team for them to use when there is an opportunity. The following chapter consists of the main points of this study focusing on the relevance for the case company and recommended next steps. As well as self-evaluation of this study and closing words.

7 Discussion and Conclusions

Previous chapter covered validation, feedback and corrections of initial improvements. This chapter covers executive summary, practical next step recommendations, self-evaluation of this study and closing words.

7.1 Executive Summary

The business problem that triggered this study was that the ticketing process of the case company did not provide entirely desirable and accurate data to produce valuable analysis directly. The objective of this study was targeted to find flaws in the ticketing process and then improve the ticketing process. The outcome of this study is the improved ticketing process.

The research approach of this study was applied research. The research design of this study consisted of four stages. The first stage covered the current state analysis, the second stage covered conceptual framework, the third stage covered initial improvement recommendations and the final stage covered the validation of the initial improvement recommendations.

The choices of this study are grounded on the data collection and analysis plan. The data collection of this study was conducted in three stages of this study in qualitative methods. The first stage included Data 1 which was collected in January from related documentation, observation, interviews with ITSM process managers and other stakeholders and email inquiry for other stakeholders. The third stage included Data 2 which was collected in March from a workshop with key stakeholders. The final stage included Data 3 which was collected in April from a workshop with ITSM process managers.

The first stage, Data 1 and the current state analysis, was conducted to find strengths and weaknesses of the ticketing process. The ticketing process was mapped in a high-level with strengths and weaknesses using mapping protocols. Strengths and weaknesses were divided into four categories:

management, communication, tool and content. The key weaknesses were selected from the communication category. Data 1 was captured in writing.

The second stage, the conceptual framework, was conducted to find ideas from literature. The framework of this study concentrated on selecting ideas from literature related to communication and more precisely on documentation, training and channel.

The third stage, Data 2 and the initial improvement recommendations, was conducted in a workshop based on the current state analysis and the conceptual framework. The workshop conducted ideas and suggestions on how to improve the ticketing process in the aspect of communication. Data 2 was captured in recording.

The final stage, Data 3 and the validation of the initial improvement recommendations, was conducted in a workshop. The workshop conducted approval, postponement, correction or rejection of the initial improvement recommendations. Data 3 was captured in recording.

The outcome of this study was the improved ticketing process which was achieved when the final improvements were implemented. Implementing means that the final improvements were delivered to the process management team for them to use when there is an opportunity. The final improvements have direct impact on communication related weaknesses and positive impact on management and tool related weaknesses. The impact on the business problem could not be confirmed during this study. However, the implementation improved effective communication and created participation.

7.2 Practical Next Step Recommendations

The impact of the outcome is not immediately apparent to the business problem. In order to detect the impact to the business problem these following three steps are recommended.

The first step is to measure the numbers of the outcome. Training sessions are now more focused on the demand of the audience. The outcome of this study can be measured with the number of training attendance. Process guidance documents and other ticketing process related materials are more achievable. The outcome of this study can be measured with the number of document downloads. Ticketing process related video materials are available. The outcome of this study can be measured with the number of video views.

The second step is to follow the behavior change. Effective communication and created participation should have an impact on communication behavior. The amount of feedback and new improvement suggestions indicates increased participation. As well, the increased amount of process support requests is a good indicator of effective communication and created participation.

The third step is to compare the data quality. The purpose of this step is to measure the outcome of this study to the business problem. This can be achieved by comparing the data quality before and after this study.

These three steps are recommended to be reviewed as a whole or in each practice area separately at service management office meetings.

7.3 Self-Evaluation of Thesis Project Credibility

As a strength of this study, Data 1 consisted of many revealing findings not only already known strengths and weaknesses. These revealing findings directed this study to an unbiased solution that may have a greater impact on weaknesses in the ticketing process. Data 2 and Data 3 informants were intentionally different persons to avoid biases in decision making. This study benefited from having a fresh perspective that was not affected by the previous conversation.

As a weakness of this study, the current state analysis consisted of one email inquiry (Appendix 2). The reason for the inquiry was to allow recipients to answer at their own pace. The ticketing process of the case company was a

wide concept in order to build comprehensive inquiry. Building a valuable inquiry demands strong professional skills. There are risks when collecting data with inquiries, for example, responses can be misunderstood, inaccurate or incomplete. Hence, Data 2 and Data 3 were both collected from recorded live sessions. In this way, the conversation flowed freely without interruptions and the data was completely comprehensive and valuable when analyzing it. In addition to the inquiry, literature references were not all completely research based however references were chosen to be accurate for this study.

Validity means that the collected data corresponds to the core of the study. Validity is harder to be measured when data is collected with qualitative methods than quantitative methods. In this study, validity was ensured by collecting data from multiple sources using different qualitative methods such as interviews, inquiry, literature, workshops and observation.

Reliability means the consistency of the study. In this study, reliability was ensured by using systematically progressive design research methods. The objective was to improve the business problem. The objective was carefully considered at every stage of this study, and after the last stage, the objective was achieved.

Credibility means the honesty of the study. In this study credibility was ensured by sharing the interview framework and email inquiry in the appendices, using direct citations from informants, and being honest of the weaknesses of the study.

7.4 Closing Words

The study was helpful for the case company to create participation and effective communication. The study may have a greater impact on the ticketing process when more parties are invited to find improvement opportunities. In the best scenario, this study will enable a more communicative culture in the case company. The IT business is changing and developing rapidly. Therefore, it is important to use suitable methods to keep up with the development. This study

taught the value of the design research methods to improve business problems in the case company.

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ITSM process manager interview

Discussion framework

- What kind of things do you have to point out to the specialists?

- What kind of things do you not have to point out to the specialists?

- What kind of things do you have to explain or sharpen when analyzing the ticketing data? Is there, for example, something flagrant?

- How have the specialists commented on the ticketing process?

- Is there something else regarding this topic?

The email inquiry for service managers

1. Do you think the purpose of the tickets is understandable?

2. In your opinion, in which matters are tickets an absolutely good tool?

3. In which matters do you feel that tickets are more of a disadvantage than a benefit?

4. Where can you find help if you have forgotten how a certain ticket type was processed?

5. What would make your job easier when it comes to processing tickets?

6. Have you ever used another ticketing tool for a certain ticket type? Was it better or worse?

7. Did any other thoughts come to mind?