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Developing operational support

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This thesis idea was to analyze the state of unit managers' back office support before organization changed in spring 2021 and produce a plan how the new chosen support model can be improved with data-driven management at the thesis employer company. Many organizational changes during the past few years has led to unclear situation with different support channels and support teams. Both unit managers as support seekers and different support teams as support givers are struggling.

By analyzing five different data sources my aim was to indicate what was good and bad with past support model and how could it thus be developed for future purposes. Analysis was performed with both qualitative and quantitative methods in order to gather and process all the material available and increase the validity and reliability of the research. With service design methods personas, user stories and system maps were produced to demonstrate more clearly the findings of the research.

Main outcomes were the speed of answers, easy electric ways to contact, positive feedback on outsourced support services and clear contact points. Support was needed on monthly basis, generally about five main themes: system usage support, new things/tasks/systems, orientation, HR related issues and marketing related issues.

By looking at the service design outcomes, it could be said that the whole organization can be seen as stakeholders to operational support and that there are different types of support seekers that need to be taken into consideration when developing support services. The importance of gathering the data about support tasks can't be highlighted enough. With the help of real data, the model can developed further to right direction and employees can be highly engaged to it.

Keywords
Development, data, operational support model, unit manager.

Contents

Abbreviations

AI Artificial intelligence

Artificial intelligence, AI can be perceived simply as the use of computers to complete things that normally requires human intelligence. More accurately AI is the ability of a machine to use complex algorithms to learn from data and use what has been learned to make decisions like a human. (Rouhiainen 2018, 6-7.)

AIOps Artificial intelligence for IT operations

It is an umbrella term for the use of data analytics, machine learning and other AI technologies in order to automate the identification and resolution of common IT issues. (Rouse 2019.)

BT Business technology

Business technology standard (BT Standard) is a management framework to build and run information technology in today's business world. (Business Technology Forum a.)

DDDM Data-driven decision-making

Data-driven decision-making (DDDM) means the process of using data to inform decision-making process and to validate a course of actions before committing to those. (Stobierski 2021.)

CMS Content management system

In this master thesis CMS system means systems to manage web site content.

EA Enterprise architecture

Enterprise architecture (EA) is a part of BT Standard. It is a well-defined structure of actions, processes, services, data and data systems for successful development and execution of business strategy. (Business Technology Forum b, 20-21.)

ERP Enterprise resource planning systems

In this master thesis ERP systems include only systems used in production planning purposes.

HR Human resources

In this context HR means Human resources related tasks and activities, that include for example recruiting, employee management and benefits.

ICT Information and communication technology

ICT in this master thesis means different kinds of systems and solutions that employer company's units are using. These are for example meeting room booking systems, cash registers and payment terminals, production management systems, website solutions and digital signage systems.

IT Information technology

IT in this master thesis means employer company's internal IT department, which is a part of internal ICT team. IT department's responsibilities are for example IT security, IT system management, support for devices (computers, phones, etc.) and solutions updates.

POS Point of sale systems

In this master thesis POS systems refers to point of sales systems including back office functions.

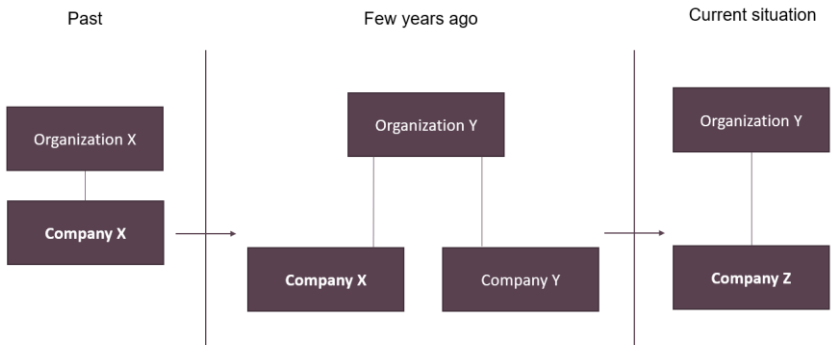
RPA Robotic process automation

Robotic process automation (RPA) relates to a software that can be easily programmed to do simple, repetitive tasks across applications. It is designed to reduce the burden of employees of completing repetitive routine tasks and help primarily with back office functions that often require the ability to do many types of tasks in a certain order. (Frankenfield 2020.)

1 Introduction

Idea of my master thesis is to analyze the state of unit managers back office support before organization changed in spring 2021 and produce a plan how new chosen support model can be further developed with data-driven management at the thesis employer company.

The thesis employer company is a part of global service organization which has gone through big organizational changes in past few years, that have affected the support services. This thesis is concentrating to support services operated in Finland. In past the employer company operated under other organization and during past few years it was sold to another organization. Due to this venture, the new organization had two separate companies in Finland operating in the same business area. At the end, these two companies were merged into one current employer company. Picture 1 below illustrates these changes.



Picture 1: Organizational changes

1.1 Background information

A project for renewing support model was started already in 2017 by management team's decision to do current situation analysis, based on poor feedback from employees about support. Since then, the employer company has been gathering information and trying to remodel the support functions to ease unit managers workload and daily tasks among different software and technical systems.

In 2017 the employer company had a support function called Unit support, which consisted of about 6 specialists who supported all unit systems and ways of working through emails and phone calls. This model was changed during 2018. The employer company outsourced the most burdening support (payment methods and cash register

systems) to one of its vendor company A, discontinued the phone support and downsized the personnel to 4 persons and a superior. The aim was to reform the team so that it would focus on developing the unit ICT systems rather than supporting them. The idea was that system development would lead to better ways of working and ultimately reduce the need of support.

At the same time, also operational organization went through changes. They published a new team model that's purpose was to offer more support for unit managers. A so called Diamond team was built for each account manager which consists of account manager, operational planner and production planner. Idea was that operational planners could support unit managers more than account manager in their daily tasks. These tasks related to for example marketing, shift planning, invoicing, HR and IT. Production planners were responsible of helping units to achieve efficient and safe assortment of products.

These changes, among company's disorganized intranet, outdated habits of working and the need of today's knowledge of different systems and IT skills led to unclear situation with different support channels for Diamond teams, support teams and unit managers.

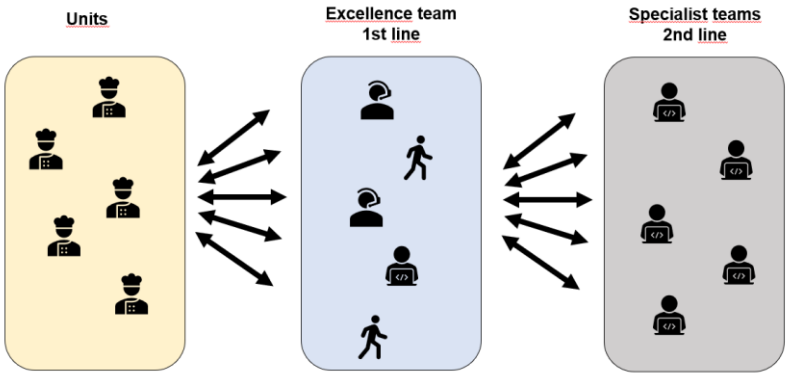
The largest user group for support functions is units' (approximately 500 units) personnel including unit managers. Account managers, operational planners and production planners also used the support functions, approximately 45 account managers, 20 operational planners and 20 production planners. At the existing situation employer company's unit managers struggled with many different systems and ways of working they had in use. They didn't know where to find help. These tasks took too much of their time which was away from their daily job to serve customers face-to-face.

The employer company's support functions were struggling too with the amount of support needed. There were not enough resources, and the specialists wasted their time in answering simple questions that could've been answered by reading the instructions. Table 1: Support services in rough numbers, shows the amount of requests received on monthly basis in 2019. In this table internal ICT team can be found under FINA section as system support.

Table 1. Support services in rough numbers (paraphrase Xxxxxxxx-Xxxxxxxx 5.12.2019)

FUNCTION	tickets/emails month	phone calls / month
OPS	600	180
FINA	1620	760
HR	1200	850
SOURCING	100	50
COMMERCIAL	420	260
	3940	2100

During 2020-2021, as COVID-19 pandemic affected negatively to the employer company's profit and revenue, organization went through two employee co-operation negotiations which changed the organization structure again. Number of employees was reduced and as a result, in spring 2021, the Diamond team that supported the units was ended. Simultaneously new support model for units was launched: Operational support team (later X-team). Team consists of 14 specialists and a superior who will act as first line support for all units in all matters they face, providing support through phone, email, chat and unit visits. Team is also responsible for implementing new working models to units. Idea is that all information for units would go through this team. Team acts as a cross point for the organization. Second line support consists of different specialist teams such as invoicing, IT, HR, marketing and more. Picture 2 describes the new model.



Picture 2. New support model

1.2 Topic definition

Idea of my master thesis is to analyze the state of unit managers' back office support before organization changed in spring 2021 and to produce a plan how new chosen support model can be further developed with data-driven management.

This will offer support and knowledge for the newly launched X-team about how they could develop their working models in the future. It also gives a picture, what was the state of support before, which ways of working were useful and how did the units experience it.

Firstly, the aim is to analyze the past state of unit managers' back office support using the different data sources. Secondly, by using service design methods, I produce personas, user stories and system maps based on the analyzed findings to create more concrete picture about the support needed. Lastly, I focus to the team's chosen tool they are using to track the work. Idea is to look in which ways they could get the most out of the data gathered in the system and how that data could help the team to develop further.

1.3 Objectives

1) To find out, based on the report, which were the issues in past support model and which parts were working well from the unit managers' perspective.

2) Produce personas, user stories and system maps to create more concrete picture about the support needed.

3) Produce a plan how the chosen new support model can be further developed with data-driven management.

1.4 Research questions

1) Which were the issues in the past support model and why?
2) Which parts were working well in the past support model and why?
3) How the chosen new support model can develop their working habits with data?

1.5 Key indicators

Service development is based on measuring the existing services and defining the key indicators and objectives. Regularly performed measurements about service level secure the service management capability to identify and estimate development needs and transform the needed changes to development actions. (Business Technology Forum b, 133-134.) The chosen key indicators for this research are following:

1) Improve company's internal customer support service to unit managers => Increase the unit managers' satisfaction of overall internal customer service after one year by 40%.

2) Unit managers don't know where to find help => 70% of unit managers know where to find help after one year.

3) Reduce the time spent in problem solving => 50% of the unit managers feel that the time spent in problem-solving has decreased after one year.

4) 2nd line support team's amount of tickets has decreased => The amount of tickets has decreased by 20% after one year.

There have not been any indicators beforehand that would have been actively followed. These indicators are chosen based on the theoretical framework and impact to unit managers. Indicators 1-3 are the most important points to follow in order to create a successful support model. Thus those target numbers are larger than in indicator 4. These have more value for the units and for the teams to feel they are succeeding. Before the new model starts to operate successfully and all the requests have found their right place, it will take some time. Thus 20% decrease on the ticket amounts among 2nd line teams is a good number to start working with.

2 Business technology standard

Business technology standard (BT Standard) is a management framework to build and run information technology in today's business world. It is on open-source framework for everyone to use freely. BT Standards' aim is to produce the largest benefit from IT (information technology) to business. It offers the best IT practices and digitalization's possibilities for business. (Business Technology Forum a.)

BT Standard got stated from the need to lead information management with quantitative ways. It is the management framework for IT developed by hundreds of IT professionals. First model was published in 2009, which created huge interest in Nordic countries. At the moment, there is fourth model in use, which includes effects of digitalization. Model is updated and developed by Business Technology Forum Oy. (Business Technology Forum b, 1-2.)

2.1 Management model for business technology

Strategy and governance management aims to optimizing ways of working by defining principles and frameworks for managing and developing information technology. Management's focus areas can be divided into three sections:

- setting up the strategic objectives and guidelines for organization
- implementation and management for the work to create value for business
- ensuring the management of risk, security and compliance. (Business Technology Forum b, 41.)

Setting up the strategic objectives and guidelines for organization is responsible for combining business strategy and business technology strategy together. Business is strongly technology oriented nowadays which cannot be separated from technology plans. Business strategy is primarily focused to market area, trends, competition and offering whereas business technology strategy focuses on producing the needed technology solutions and platforms for business. (Business Technology Forum b, 41.)

The development of business capabilities can be done with enterprise architecture. Business capability consist of people, processes, systems and data. Enterprise architecture focuses to processes, systems and data leaving people related procedures and knowledge to operations. Enterprise architecture offers methods to evaluate

business's present state, defining the target and planning the development path. (Business Technology Forum b, 42.)

Implementation and management for the work to create value for business is in other words creating a functional operating model which ensures the right skills and knowledge and practical organization structure for value creation. The idea of the operating model is to define business's value creation streams and demonstrate the co-operation of different management areas and practices. The principles for creating value for business should be readable from the organization structure at glance and the teams and titles should also refer to operating model and its actions. Business's capabilities for development and change should be improved continuously so it could respond to continuously evolving technology. Organization should be able to do rational decisions about what capabilities they need internally and what can be outsourced. (Business Technology Forum b, 42-43.)

Ensuring the management of risk, security and compliance is about learning, following and executing the existing recommendations. The best influence is gained through nurturing the organizations understanding of how to prevent or solve problems. The purpose of risk, security and compliance management is to secure the organizations work and to prevent loss of reputation. (Business Technology Forum b, 43.)

2.2 Operating model

According to BT Standard (Business Technology Forum 2020b, 47-48) operating model describes the principles for information technology management and actions to create maximum value for business. Operating model is divided in five separate management areas: strategy and governance (1), demand (2), development (3), services (4) and sourcing and optimisation (5). (Business Technology Forum b, 47-48.)

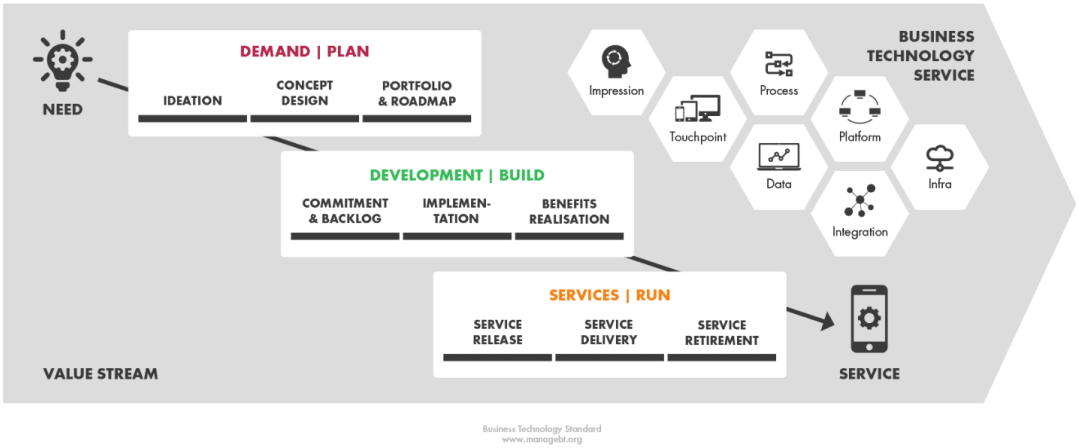
Strategy and governance (1) set the guidelines and directs the whole business technology team. It defines the organizational structure and ensures that strategy and operation model support business needs. Demand (2) transfers needs and demands to executable plans through development initiatives. It produces content to development portfolio and composes roadmaps. Development (3) is responsible for new solutions and developing the existing ones. It includes planning of solutions and development and is responsible for building production-ready services. Services (4) maintain business services and offer support for those. It is responsible for business continuity. Sourcing and optimization (5) ensure the purchase of the most suitable services for business. It optimizes the delivery

ecosystem in order to provide cost-efficient and practical services. (Business Technology Forum b, 48.)

The purpose of these five management areas is to support achieving organizations business goals with ways of multi-speed, clarity with unified ways of working and efficiency. Multi-speed is a model to support reliability and scalability of the agility of digitalization. Clarity with unified ways of working requires that stakeholders from management to business technology vendors understand common way of working and acts to it. Common language, identity, roles, procedures and transparent decisions build shared culture, lowers the risks and increases the efficiency. Efficiency can be achieved by using tools that supports the execution of operating model and enables industrial produced services for example using automation. (Business Technology Forum b, 49.)

2.3 Creating value for business

Business technology operating model divide value creation in three phases: Demand & Plan, Development & Build and Services & Run (picture 3). *Demand* | *Plan* phase is for defining and concepting development entities that follows business requirements. Those entities are then moved to either development portfolio or as a part of development roadmap. In *Development* | *Build* phase the services, solutions or products are developed and build by the requirements of business. Idea is to secure business to these chosen development projects. The las phase *Services* | *Run* ensures that the chosen solutions or products are delivered, and that delivery or retirement does not compromise business. (Business Technology Forum b, 49-50.)



Picture 3. Value creating phases (Business Technology Forum c)

For value creating there are two different approaches: sequential and incremental. Sequential approach is suitable for development initiatives based on a business case. Decisions of prioritisation and optimisation are made based on the business case model which ensures practical allocating of resources. This enables better guidance and control of risks especially when transferring from demand to development and further to running services. Sequential approach fits well for developing services that supports organization's activities. (Business Technology Forum b, 50.)

Incremental approach aims to ensure faster development for services. Decisions of prioritisation and optimisation are made based on the chosen focus areas. This fits well for developing digital services and products where the speed and agile working are more important than coordinating the resources. (Business Technology Forum b, 50.)

2.4 Enterprise architecture

Enterprise architecture (EA) is part of BT Standard. It is a well-defined structure of actions, processes and services and data and data systems for successful development and execution of business strategy. In EA is defined the business capabilities that are required to achieve organization's long-term strategic objectives. The aim is to answer business requirements by defining processes, data solution layers and the necessary actions in continuously evolving market. (Business Technology Forum b, 20-21.)

The purpose of EA is to care for actions listed below (Business Technology Forum b, 20-21):

- define business capabilities with processes, data, information technology solutions and ecosystems.
- plan development plans by business units in order to get from current state to goal state.
- execute plans by taking roadmap-based development initiatives into portfolio steering.
- support projects and programmes in implementing the development plans.
- adopt architectural principles by recommending platform solutions and giving other recommendations to estimating the development initiatives.
- to ensure process and data consistency with demanded governance practices.

3 Service management

According to Sansbury (2016) we need to define a service first in order to understand what service management means. Sansbury (2016) says that: *"*Service is essentially a means of delivering value to the customers. This is done by facilitating outcomes that customers want to achieve without the ownership of specific costs and risks*."* Outcomes are the reason why customers use the services. These are typically presented as specific business objectives. The service's value for the customer is directly dependent on how well these outcomes are facilitated by the service. (Sansbury 2016.)

Service management is seen as a set of specialized organizational capabilities that provide value to the customers in the form of services. Those capabilities include processes, activities, functions and roles that the service provider uses when delivering services to their customers. As Sansbury (2016) points out service management enables service providers to

- understand the services they are providing from customer and provider perspective.
- ensure that the services generate the outcomes that customers want to achieve.
- understand the value for customers of those service they provide.
- manage and understand all the risks and costs that may come when providing those services.

Service management is responsible for releasing tested and ready services for users. It ensures operational readiness of the services and that service support is ready to take these new releases under support and maintenance. From business perspective service management has three main objectives: business continuity (aim to minimize major incidents and service breaks), improved user experience (by collecting and analyzing feedback & executing small improvements) and cost efficiency (optimizing and unifying services). (Business Technology Forum b, 117.)

Users of business technology services are offered accessibility to processes, solutions and data. Behind these experiences are platforms, integrations and infrastructure. If one of these fails will it cause a failure of the entire service. This way of operating services as a whole is very important. For organizations' internal profitability and success in digital business it is important to ensure integrated and harmonised service experience despite of the vendors, structure and elements behind the service. (Business Technology Forum b, 118.)

Service management core elements consist of service-related management and delivery activities. Service portfolio steering, service catalogue and service Integration are management activities. Service portfolio steering consist of strategic decisions and actions that ensure the right and functional service for business. Service catalogue visualizes available services with general view, service booklets and service order requests. Service Integration focuses optimizing, harmonizing and integrating service production when services are provided by multiple (internal and external) vendors. Idea is to unify service processes and quality to enable better service experience and lower operational costs. (Business Technology Forum b, 119.)

Business Technology Forum (b, 119-120) states that delivery activities are service release, operational readiness, service operations, service support, service management and operations platform and service automation:

- service release ensures that the business processes stay solid when a new service is released to production.
- operational readiness verifies that services fulfil predefined operational readiness criteria.
- service operations ensures the efficient delivery of services without interruptions.
- service support is responsible for daily guidance and answering & solving the service-related requests from users.
- service management and operations platform has essential role to enable unify, efficiency and automation. It ties up all the elements of service management, development and release.
- service automation increases the productivity and lowers the costs of production.

3.1 Service strategy

Service strategy aims to offer better services than the competition does. It ensures that IT investments address the issues that are important for the business and that those investments are reasonable and take proper account of costs, benefits and risks too. Although to survive, organizations need to beat the opposition. At the same time, the industrial landscape adjusts to the economics and social, technological and political changes so that originations need to think the long-term plans too. Thus, service strategy focuses not just to the strategy for individual services on today but also to positioning the IT service providers for the long haul. (Sansbury 2016.)

There are two elements of the service strategy: first is developing strategies for the delivery of services and the other is development of the service management as a competence which can be seen as a strategic asset (assets that provide the basis for core competence). Service management provides the framework in which value is delivered to the customer as a set of specific services that are represented in the service catalogue. (Sansbury 2016.)

Key input in developing service strategy is value. There is no point with services that do not provide value to its users. Value can be measured not only with revenues but also trough service quality. When pondering services quality, we need to take into consideration that they are often depended on the observation of the service users. This leads to conclusion where effective service strategy needs a way of marketing-mindset thinking that captures the service user's perspective. This allows organizations to understand both the customer and the outcomes that the customer really values. (Sansbury 2016.)

One other thing to think as a part of service strategy is automation. Automated business processes deliver higher utility and warranty thereby offering better performance and value. This applies for both service strategy and management. There are many areas where automation can be identified for improvement. Here is a list of few meaningful areas by Sansbury (2016):

- automated alerts help to respond more quickly for events and thus helps us to maintain service availability easier.
- artificial intelligence can offer a range of different capabilities from analysis to complex time and resource management .
- workflow management systems improve customer service and efficiency across multiple processes.

Automation increases productivity and enables organizations to do more for less effort. Especially for IT service management, it allows integrations across different service management processes and functions (for example shared alarms and alerts through systems). This improves effectivity, helps to reduce errors and duplication of effort and delivers better services and value to customers. (Sansbury 2016.)

3.2 Service development

Designing innovative services requires effort. Also, the most effective and important services need to be developed continuously because the environment is under change and user's needs are too changing. Constant development's main idea is to secure the suitability of services for operations changing requirements. (Business Technology Forum b, 133-134.)

Service development is based on measuring the existing services and defining the key indicators and objectives. Regularly performed measurements about service level secure service management capability to identify and estimate development needs and transform needed changes to development actions. (Business Technology Forum b, 133-134.)

In addition to measuring and monitoring services constant development needs other information sources too. For example, continuously dialog with operation's stakeholders supports understanding of development plans and macro environment. Also, users should be encouraged to give development proposals for example for user experience in self-service portal. Regularly done user inquiries are also a good way to collet feedback for development purposes. (Business Technology Forum b, 133-134.)

Constant development for services requires maturity form service management, such as clear roles and responsibilities, constant updating for team members skills, well defined tools and a working management structure. It also requires organizations to be proactive and will to develop and reach better results. In every sector of constant development should also have an owner how has rights to execute tasks. Pieces of constant development should be a part of management structure and its results should be examined regularly. (Business Technology Forum b, 133-134.)

3.3 Service automation

According to Middelburg (2017, 21) "Service Automation is the practice of an industry that enables their autonomous users to procure, manage and adjust services through self-service technology and concepts in order to systematically exceed user expectations"

Service automation is the key to success in internal and external customer service. In today's world people and especially the upcoming 'self-service' generation are used to get service fast and freely both in professional environment and personal lives. Why nobody informs me about the status of my request in my company while if my Amazon package is

delayed, I receive notification right away? Service automation offers answers and solutions to that question. (Middelburg 2017, 3-5.)

Middelburg (2017, 3-4) has developed the Service Automation Framework (picture 4) which idea is to offer a model for designing and delivering automated services in order to increase customer satisfaction. It consists of six distinctive building blocks that can still be divided in two main focus areas: design (first three blocks) and automation & delivery (last three blocks). (Middelburg 2017, 3-4; 23-25.)

Picture 4. Service Automation Framework (Service Automation Framework Alliance)

The first three blocks, that can be found in the middle circle are user, service design and technology. User refers to the key characteristics of the groups of people that a service provider aims to serve. Service design is the business function that is responsible for designing and defining the service offering of a service provider including support structures and digital interfaces. Technology defines the setup and usability of the digital interface, connecting users with service providers. (Middelburg 2017, 23.)

These three blocks mentioned above creates the core of any service provider's business model. Organizations deliver their predefined services (service design) for customers (users) using some tools (technology). These blocks give answers to the organization about to whom are they delivering services to, what those services are, and which tools are needed to deliver the service. (Middelburg 2017, 23-24.)

Automation and delivery blocks are the ones around the circle (picture 4). They form the processes and methods that make the service fit for automated delivery and enables the

service to interact with users without human intervention. These blocks that can be hold as the brains of service automation are automated deployment, service delivery automation and serendipity management. Automated deployment includes the processes that enables users to start using the service based on his own actions. Service delivery automation means the processes that enables users to change or resolve any aspect of the service based on his own actions. Serendipity management are the processes that facilitate the planned and continuous approach in order to exceed the user expectations. (Middelburg 2017, 25.)

In simple manners automated deployment are all the steps that user needs to do before he or she can start using the service. For example, if one wants to use Facebook, it is needed to create an account in order to log in and share content. Service delivery automation happens when the user is starting to use the service. Imagine a hotel experience: after user is checked-in, he or she wants to know where additional services can be found, such as restaurant extra towels or the gym. All elements that are supporting the user while using the service are part of service delivery automation. Lastly, serendipity management covers all the actions that aims to exceed users' expectations. For example, in the hotel when user is checking out, he receives a 5% extra discount from the stay, or the users' car have been washed during the stay. These actions often lead to very loyal service users. (Middelburg 2017, 25-26.)

4 Automation and digitalization in today's world

As Schwab (2017, 1) states we are at the beginning of a revolution that will change our lives fundamentally. New emerging technologies such as artificial intelligence (AI), robotics, the internet of things or nanotechnology are adopted in organizations. In other words, we are entering the fourth industrial revolution. (Schwab 2017, 1-2.)

To underpin that statement Schwab (2017, 3) declaims three reasons: velocity, breadth and depth and systems impact. Velocity is emerging by the multifaceted and deeply connected world we live in. New developed technology is delivering yet more capable technology. Breadth and depth builds on the digital revolution and it combines multiple technologies that are leading to unprecedented paradigm shifts in the economy. It changes the "what" and "how" of doing things and also "who" we are. Systems impact involves the transformation or entire systems across the whole world with countries, companies, industries and society. (Schwab 2017, 3.)

This revolution will generate great benefits but also big challenges that needs to be considered. For benefits it seems that consumers will gain the most. Many products and services are now available remotely and often with very little cost too. For example, smartphones allow consumers to upload software, many of them with zero cost, to ease our life software such as ordering a cab, booking a flight or train tickets or making a payment. (Schwab 2017, 11-13.)

The most significant challenges are related to work and production and to rising inequality. Work related challenge can be divided in two main effects. Firstly, disruption and automation that are fuelled by technology are replacing the capital for labour, forcing them to either become unemployed or reallocate their skills elsewhere. Secondly, the rapid demand for new services and products increases causing creation of new occupations, businesses and industries. (Schwab 2017, 12-13; 35-36.)

The inequality emerged well in business and industries. While robots and algorithms are increasingly substituting capital for labour, building a digital economy business becomes less capital intensive. Winners are those who can fully participate in innovation driven ecosystems by providing new business models, ideas and services rather than those who offers only low-skilled labour or ordinary capital. (Schwab 2017, 92.)

4.1 The importance of data

When talking about data you often hear term big data coming up. What is big data and how it affects today's business? According to Segal big data is large and diverse sets of information that continues to grow. It is often stored in computer databases and analyzed with specific software. (Segal 2021.)

Data can be divided in two main categories: structured and unstructured data. Structured data includes simple data inputs like numeric values where unstructured data includes complicated data types to analyze, like text, image or video. It has been estimated that 80-90 percent of business data available is unstructured. Analyzing this kind of data would be extremely valuable by leading to advantages for modern society like better health care options or increased access to education. (Rouhiainen 2018, 17-18.)

Business data can be collected from variety of places like freely available online data sources, publicly shared material on social media and website, through questionnaires or product purchases. (Segal 2021; AZ Big Media 2020) The more useful data organizations can have the more effective predictions and decisions can be made. From the gathered data, different analytics powered by machine learning algorithms can pick out patterns that would be impossible for humans to detect. This allows organizations to gather data which can improve their internal and external processes and operations. (AZ Big Media 2020.)

The data can benefits organizations on numerous ways such as make predictions about future market behaviours or helping to shape strategies. The most important point to think is what kind of information you need to gather based on what you want to achieve with it. For example, if you want to understand the market you are operating the focus should be in the market. Instead if you wish to gain more insight about how your business is doing, the internal data is crucial. (AZ Big Media 2020.)

As Rouhiainen (2018, 16-17) states one of the most common saying in today's world is 'data is new oil' and maybe even more significant. When oil was one of the most valuable resources, only few companies were able to use the benefits of it. Today, any company can access the data, learn new skills and gain benefit from it. (Rouhiainen 2018, 16-17.)

4.2 Robotic process automation

Robotic process automation (RPA) relates to a software that can be easily programmed to do simple, repetitive tasks across applications. It is designed to reduce the burden for employees of completing repetitive routine tasks and help primarily with office type functions that often require the ability to do many types of tasks in a certain order. (Frankenfield 2020.)

Unlike AI, the software doesn't learn on its own or seek new insights from the data. RPA's work can be seen as a digital assistant for employees by clearing the simple tasks that take time of every office worker's day. Thus, RPA is simpler product than AI and is also cheaper to use. (Frankenfield 2020.)

RPA can be adapted in many different processes such as call centre, data migration and forms processing and help desk. In call centres RPA can combine all the data about the customer on a single page or screen, so that the agents do not need to find the needed data from multiple systems and solutions. Instead they can focus on solving the case. In the change of systems, RPA can collect the data available from old systems for the newer ones without the fear of human error during the process. Also, when processing different forms, RPA can pull out the data form forms to systems and free humans to do other tasks. For help desks, RPA can do the most simple and repetitive tasks or tickets in order to save time for employees for more complex tickets. RPA can also perform regular diagnostic tests of organizations computer systems and produce report for employees to check. (Marr 2020.)

4.3 Artificial intelligence

Artificial intelligence, AI is found as a complex concept and can be explained in many ways. In common words AI can be perceive as simply as the use of computers to complete things that normally requires human intelligence. More accurately AI is the ability of machines to use complex algorithms to learn from data and use what has been learned to make decisions like a human. AI powered machines do not need any breaks, they can analyze massive volumes of information simultaneously. It is also noticed that the range or errors has decreased significantly for the same tasks as their human counterparts. (Rouhiainen 2018, 6-7.)

Machine learning is one approach to AI. It is an aspect of computer science in which machines has an ability to learn without being programmed to do so. Good example of

this is social media sites that offers content for users based on what they have looked earlier. Machine learning uses algorithms to learn from data. For example, email spam filters, they detect from data which email are spam and separates them into different box by using the learned data to do decisions. (Rouhiainen 2018, 11-12.)

Machine learning has three subsets that can be used: supervised learning, unsupervised learning and reinforcement learning. Supervised learning means algorithms that uses already labelled or organized data. Human input is required in order to deliver feedback. In unsupervised learning the data that algorithms are using are unorganized. Relationships must be discovered without human intervention. Thirdly, in reinforcement learning, algorithms are capable to learn from experience. (Rouhiainen 2018, 12.)

Machine learning's sub-field and one of the most fastest evolving applications of artificial intelligence is deep learning. It is used to solve problems which were previously too complicated and involve huge amounts of data. Deep learning occurs through the use of layered, neutral networks and its purpose is to recognize complex relationships and patterns in data. Powerful computational power and huge data set is required for deep learning to work. Applications that uses deep learning are for example speech recognition, natural language processing and computer vision. (Rouhiainen 2018, 11-13.)

According to Rouhiainen (2018, 120-121) one of the most significant change and disadvantage is the number of workers who will lose jobs for AI and automation. This needs to be taken into consideration when using AI especially by large organizations and governments. Solution to this problem would be re-education of the working population, so that the job lost could be controlled. Couple other notable disadvantages are the ethics and fear of AI. (Rouhiainen 2018, 120-121.)

Concerning ethics, High-Level Expert Group on AI (set up by the European Commission) published Assessment List for Trustworthy AI (ALTAI) in July 2020. This publication offers ethic guidelines to follow when developing or deploying AI. It includes 7 key requirements that artificial intelligence systems should meet in order to be hold trustworthy. As European Commission states (2020) those requirements are:

- human agency and oversight
- technical Robustness and safety
- privacy and data governance
- transparency
- diversity, non-discrimination and fairness
- societal and environmental well-being

- accountability.

The fear of AI is powered by many different factors, such as using AI for weaponization or the mainstream media stories. Media is powerful way to affect people's thoughts and since sensational news or fear tend to garner more covered some of the news may create unnecessary panic about AI. Some other disadvantages to mention are also loneliness and isolation when machines surrounding users, geopolitical inequality or political propaganda. (Rouhiainen 2018, 27-28.)

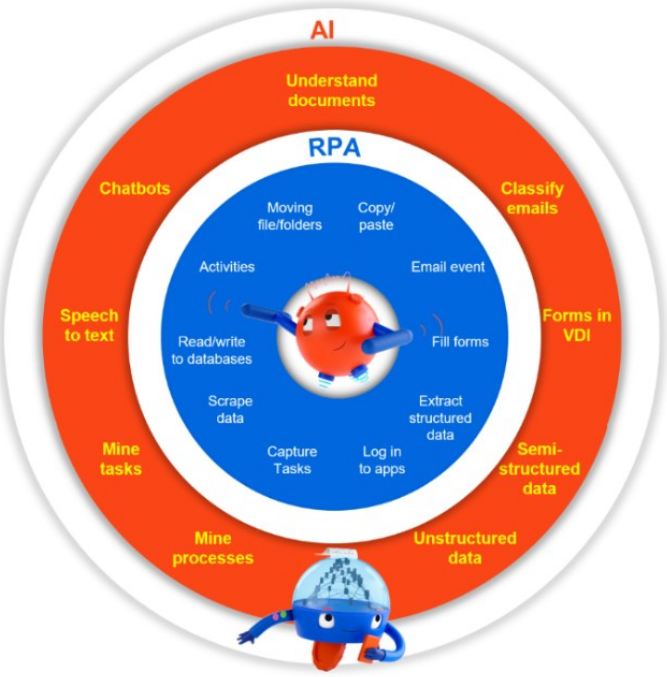
At the same time the advantages of using AI are too very significant. For example, AI and healthcare industries create huge advantages by finding ways to improve our health, cure serious diseases and thus even to save lives. In business the processes and productivity will increase with help of AI. Less resources are needed, less time is spent for accomplishing things and new opportunities for entrepreneurs will arise. Other advantages would too be safer and cheaper traveling, highly effective educational systems and solutions and even fight against extreme poverty. (Rouhiainen 2018, 26-29.)

According to HCL Technologies Limited two of the primary advantages of AI are the operation time and its capability to multi-tasking. AI is able to operate 24/7 without any interruptions or breaks and it can do many simultaneous tasks. AI can also facilitate decision-making and by that make the processes faster and smarter. (HCL Technologies Limited.)

The list of disadvantages and advantages continues to grow as the development goes forward. Most important thing is to remember think both sides of AI when deploying it. (Rouhiainen 2018, 26-29.)

5 Adapting automation in different business functions

According to Singh (2020) robotic process automation and artificial intelligence have gained a lot of hype around them in the recent years. Both on these technologies enable more efficient productivity and increase customer satisfaction. How do these then differ from each other and how to choose which technology to adapt for business purposes?



Picture 5. Differences among RPA and AI (Singh 2020)

In picture 5 is well illustrated the differences of RPA and AI. RPA focuses to simple tasks such as filling forms and logging in to apps where AI instead handles more complex activities like speech to text and understanding documents. The rule of thumb which helps organization to decide whether use RPA or AI is to create a process map that you can build easily and what points out the most repetitive processes. Those processes can then be tackled with RPA. AI is for more complex workflows where the outcome cannot be predicted 100%, processes highly vary, or processes rely on unstructured data. (Singh 2020.)

RPA and AI can too be used together in order to create more powerful automation. Good example is from healthcare industry concerning covid-19: by RPA hospitals are able to build software robots that look at a set of covid-19 symptoms like high fever. This data can then be combined with AI to perform more advanced analysis like interpreting x-rays for indicators related to pneumonia and give treatment recommendations. (Singh 2020.)

5.1 Human resources

RPA (robotic process automation) for human resources (HR) is often a software bot that automates rule-based, highly transactional processes that require little or no human intervention. Those processes are often repetitive tasks that HR employees do, such as onboarding of new hires or processing payroll. Onboarding procedure can be automated with RPA by automatically activating a template for the onboarding workflow of a user account. Software robots are then able to make rule-based decisions like what credentials to assign with the new employee. For payroll RPA can simplify the process by collecting data between many systems like employee management, time tracking and accounts payable. RPA can also verify for example the employee's hours that haven been recorded and produce reports to ease HR specialists work. (Maruti Techlabs.)

AI applications can help for example in hiring. Imagine how efficient it would be to use AI powered assistant that could gather information from potential candidates from LinkedIn, resumes etc. and provide hiring recommendations based on that data. This would save time and resources from the managers of HR allowing them to focus on the hiring process itself. AI could also be used as chatbots among organizations internal customers. It could give answers for example about how many vacation days the employee has left for this year. (Rouhiainen 2018, 86-87.)

5.2 Marketing & Communication

RPA can also help marketing and communication, as stated before, in repetitive tasks, such as social media monitoring or keep an eye on competitor pricing. For social media RPA can identify the reason why a particular post is getting more likes than others. Additionally, it can help to analyze company's performance and introduce modification for the existing profiles and posts if needed. In pricing, RPA can be set up to tracking competitor's prices and websites in order to offer information for marketing to adjust, if needed, company's strategies and content among prices. (ProV 2020.)

AI can be used in many ways within marketing and communication. Few examples to point out could be the use of chatbots or email marketing. Chatbots can be used to help customers to make purchase decisions by providing information about services or products. The data from these conversations can then be used for creating powerful personalized marketing. In email marketing AI could help in optimization of results. It could analyze the sent emails and based on that give recommendations to improve the email

posts. AI could also be used to create customer profiles to help organizations to succeed in personalized marketing. (Rouhiainen 2018, 79-80.)

5.3 Information technology

RPA's common implementations in IT are password resets, user management and network support to name a few. Request for password resets are quite similar among each other's and therefore suitable for RPA to handle. RPA can handle the requests and mark them as solved if it is integrated with the company's IT service management tools, such as active directory and ticketing system. As a support for HR, RPA can help IT department to create new accounts for users with filling predefined forms and actions according to the process or to collect their data and identify them in ticketing system. RPA can also manage the network performance by running instant updates whenever needed. (CiGen 2020.)

When talking about using artificial intelligence for IT (information technology) term AIOps rises. It is an umbrella term for the use of data analytics, machine learning and other AI technologies in order to automate the identification and resolution of common IT issues. The systems and services produce large volumes of log and performance data. This data is used by AIOps to monitor assets and gain visibility into dependencies without and outside of IT systems. (Rouse 2019.)

AIOps aims to bring three capabilities for organizations: automating routine practices, recognizing serious issues faster and with greater accuracy than humans and also streamlining the interactions between data center groups and teams. Routine practices are like user request or system alerts which with the help of AIOps can be processed automatically. In recognizing issues AIOps follows all the out of the norm actions and reports them as possible attacks by helping IT professional to easily manage threats and react to them in time. In streamlining AIOps can collect data from each IT function and share it without any Teams meetings among different team members. It also helps to analyze the data and offers metrics to follow. (Rouse 2019.)

5.4 Management

As it begins to be quite clear, RPA is a solution for repeatable, more simple tasks than complicated procedures. Therefore, for management function, I will be focusing only to AI

based solutions which can cover complex tasks. RPA's benefits for management can be seen as lowering the costs of labour and freeing time for specialist to concentrate on more complex matters.

To help management, assistants powered by artificial intelligence can offer different data analysis and recommendations to ease decision making. As an example, IBM's Watson can analyze complex data from various sources, analyze their trends against company's internal metrics and business objectives and provide suggestions upon its findings. This kind of help could be extremely valuable when considering new market areas for example. Additionally, these applications will become increasingly indispensable partners because of their ability to learn more along the way from the data they have collected. (Rouhiainen 2018, 82-83.)

5.5 Customer service

With the help of RPA operational efficiency can be widely improved by automating rule-based, repetitive tasks. Implementing RPA solutions to customer service will reduce the time spent on identifying customers and deliver better customer support. RPA can be used in various tasks such as manage sign-in process by allowing RPA to access encrypted credentials or to create simple chatbot to serve customers by answering simple questions. RPA benefits most when applied in service centers like IT or consumer services. (Vyas 2019.)

It is estimated that customer service is the most affected business by AI. There is identified two main reasons for this to happen: firstly, modern consumers expect businesses to provide fast response times and qualified solutions to their problems, secondly many customer support tasks are repetitive in nature which fits perfectly for AI purposes. One already common AI tool for customer service is chatbot. Use of these kinds of solutions will lead to decreased labour costs, faster response times and ability to personalize and scale responses. (Rouhiainen 2018, 83-84.)

6 Service center best practices

Already in 2019 Peter Bendor-Samuel stated that shared service centers or Global in-house Centers (GICs) are rapidly growing among organizations. The biggest driver to growth was then mentioned to be the digital transformation that enables service centers to deliver new impact on business. (Bendor-Samuel 2019.)

In 2020 service centers started to expand and new ones are built. Drivers that keep this up are the DIY movement and impact of digital model. The DIY (do-it-your-self) movement motivates organization to take control of their own GICs instead of outsourcing the services. Today companies can easily hire competent personnel and leaders and thus avoid the high-profit margins of the third-party service providers. The former advantage of a third-party service providers has dropped dramatically because of easy access and low prices of services and technology. (Bendor-Samuel 2020.)

Digital model is under change, automation is rapidly evolving and making things easier. Third-party service no longer aligns well with automation that organization are doing in their service centers. Automation reduces third-party revenues thus they are not so eager to favour it. It makes organization even more eager to take control of the service center into their own hands. By that and with automation they can speed up their processes and lower about 30-90 percent of the workload. (Bendor-Samuel 2020.)

6.1 Service support center

According to BT-standard, service support center or help desk in other words is responsible for answering and processing daily questions from users and take care that all the issues will be resolved. Service support center often serves both internal and external customers. (Business Technology Forum 2020b, 130.)

As Business Technology Forum says (2020b, 131-132) the request that are arriving from the users can be categorized roughly in four categories: How to use? (1), Not working! (2), I need something (3) and I would like to improve (4).

How to use?

This category refers to situations where the user does not know how to use some application or equipment. In these cases, the user is guided to self-service portal where all the basic instructions are available for all. Of the user still needs some help, she or he is

guided to take contact again to service centre. (Business Technology Forum 2020b, 131-132.)

Not working!

Category holds cases where the user has a problem because of some service or equipment is not working as it should be. Problem could have been caused from faulty device, application failure or user just don't know how to use the product in a correct way. Most of these problems are solved as above, guiding the user to self-service portal. Sometimes the solutions might also be ordering a new equipment. (Business Technology Forum 2020b, 131-132.)

I need something

Here are the cases where user need to order new services, access rights or for example products. Users are provided a list which includes the pre-defined services or devices one can order. From that list is planned a detailed service path for each order which includes request for approval among other steps. (Business Technology Forum 2020b, 131-132.)

I would like to improve

This category refers to service improvement ideas. Ideas are valuated and useful suggestions are brought to development. (Business Technology Forum 2020b ,131-132.)

Self-service portals include pre-defined service request and a data bank where users can find articles and instructions about offered services and equipment. Idea is to offer instant help and answers to the users for most asked questions 24 hours a day, 7 days a week. Using of this kind of portals enables support services independent of time and place which increases user satisfaction and sometimes also decreases operational expenses. Term "portal" is a bit old fashioned and even misleading because nowadays these services are more like interactive webpages or applications with search functions and forms. (Business Technology Forum 2020b, 132.)

Reaching high utilization rate among users is possible when giving extra focus on developing the service's user experience. This means using targeted content, intuitive language, icons and terms and by sharing content related material and information. One example is that users should only see the materials that are relevant to them / systems they are using, no other. They should also be able to create tickets without understanding the structure or processes of the service organization. Additionally, important notifications

such as acceptance for something or some system is under maintenance for while should be highlighted. (Business Technology Forum 2020b, 132.)

6.2 Automation in support services

As Edlich, Ip & Whiteman (2018) points out support functions are under growing pressure to deliver value, manage complexity and reduce costs as organizations are increasing. Outsourcing, offshoring or centralization isn't enough anymore to survive in competition. Digitalization and automation are the ways to improve performance and lower costs across different support functions in organizations. Resources that are freed when deploying AI or RPA can be transferred to more important tasks such as scenario analysis. (Edlich, Ip & Whiteman 2018.)

For example, analysis by McKinsey shows that 40 to 80 percent of the basic activities required to solve by human supplied service desks can be handled through automation and RPA related technologies. A company analyzed their incident tickets and found that 25-35 percent of them were requests for 'password reset' or 'access to certain systems'. For resolving these tickets, they deployed RPA bots that had integrations with multiple applications. By adopting this solutions company freed employee capacity and reduced outsourcing contract costs for helpdesk support. Also, they could reduce resolution times and improved thus performance. (Edlich etc. 2018.)

Alike use cases exist also in areas like application testing, data migration or network administration. By automating this kind of activities can enable IT to free up capital and resources to focus on organizations strategic activities. (Edlich etc. 2018.)

Of course, in every new development organization faces some challenges. For that Edlich, Ip & Whiteman (2018) has made a list of key points to success:

- make automation a strategic priority
- deploy automation technologies systematically
- decentralize governance
- ensure IT is involved
- internalize costs and benefits
- prioritize workforce management.

6.3 Digital service point

Many organizations are constantly trying to find better ways to serve users and lower expenses. One way to achieve this is to automate service support routine tasks and deploy an artificial intelligence service bot or chatbot to help employees in support function. AI chatbot is directly interacting with the users and performs easy service routines based on the conversation with user. AI chatbot's advantage is its capability to learn and offer services independent of time and place. (Business Technology Forum 2020b, 133.)

As Drift states, chatbots are software applications that uses artificial intelligence together with natural language processing (NLP) to understand what human wants and then guides them to their desired outcome by minimizing end users work. They can be hold as virtual assistant for customer touchpoints. A well designed and build chatbot will use the existing conversation's data to understand questions people asks (1), analyze correct answers to those questions during training period (2) and use machine learning and NLP to learn context and eventually get better at answering questions in the future (3). (Drift.)

It is estimated that using AI bot decreases the need of first line support roles by 50%. Assuming that the bot can understand 90% of the cases it is handling and can perform automated routines for 60% of the cases. This will the decrease the expenses and changes the first line support roles so that the specialist has more time to support operations and develop procedures rather that focus to routine tasks. (Business Technology Forum 2020b, 133.)

7 Data-driven decision-making

According to Stobierski (2021) data-driven decision-making (DDDM) means the process of using data to inform decision-making process and to validate a course of actions before committing to those. At the same time as Anderson (2015) states, data-driven business means building tools, abilities and a culture that acts on data. The organization will use the data as critical evidence to help inform and influence strategy. There are few typical activities from at least one can be found in data-driven organizations:

- continuously testing. An organization might be testing continuously different issues, like email subject lines in marketing campaigns or new ways of contacting support teams. Idea is to test and collect data about it to develop actions further.
- improvement mindset. Often data-driven organization are more willing and actively looking new improvement for their actions.
- prediction. Organizations are involved with many different types on predicting or forecasting, for example sales or revenues. Most importantly, they are feeding the prediction errors and learning back from them.
- choose among future options. These organization will gather data for each of the options that are of concern and determine weights among those to generate a final decision. (Anderson 2015.)

These actions alone won't guarantee data-driven decisions. The data and activities around it must also be adopted a part of organizations decision making processes. The heaviest weight is upon creating the culture. Collection of data can be arranged with quite little effort and analysists can be hired but it is the culture that needs to be built together in order to bring the data in centre of the decision making. (Anderson 2015.)

According to Sedkaoui (27-31, 2018) correct usage of big data in decision-making process in not easy because of the challenge of which data should be sought and how to make sense of it. The actual decision-making process starts when the manager needs to decide which data to look for and this needs to be done before the data collection can even start. In order to improve this process organizations should use a structured view of their data. To achieve this they must collect and store the data, perform analysis and transform the data into understandable form. Idea is that data brings knowledge for the company that leads to value creation. It allows managers to capitalize the resulting opportunities. (Sedkaoui 2018, 27-31.)

When decision process incorporates an analytic dimension it becomes data-driven. It includes two technical entities: big data for massive amounts of data and advanced analytics which means a collection of different tools for producing analyzes. Each organization can choose the most efficient tools to process the data depending on their objectives. The aim of data-driven decision-making is to reduce problems to a scale that can be comprehended. (Sedkaoui 2018, 27-31.)

In order to create value with the data it needs to be transformed from big data to smart data. The amount of data itself won't be enough and it cannot be trusted. It needs to be transformed to intelligent form by combining both organizations' internal and external data. (Sedkaoui 2018, 32-33.)

7.1 Benefits of data-driven decision-making

As data-driven decision-making takes its place into action, some common benefits will arise. Firstly the decisions will be more confident than before. This is because data performs multiple roles. It offers benchmark about what currently exists, which allows organizations to better understand the impact of any decision made on its business. Additionally, data is logical and concrete unlike instinct and intuition. Removing subjective elements from decision-making will instil confidence in the company and managers. (Stobierski 2019.)

Proactivity will more likely to grow within the company. Data is telling stories that the company needs to react. After adopting the data-driven decision-making in company's processes, after a while companies are able to see new possible business opportunities among the data and also to identify possible threats before they grow too serious. (Stobierski 2019.)

It also leads to transparency and accountability which affects positively on the teamwork and employee engagement. Organization is not driven by whims or fads but with data and transparent decision that can be justified. This enables clear goals that are also measured which also encourages employees because they can see the goal posts clearly. Lastly, data-driven decision-making can lead to cost savings and higher revenue. (Weller 2019.)

7.2 Mistakes that should be avoided in data-driven decision-making

Some well-known threats need to be taken into consideration too, when processing the data. By avoiding these mistakes, organizations can be sure that their data is correct and can be trusted as a part of decision. Quality of the data, over-reliance on past experiences, going with your gut and cooking the data and cognitive biases are the ones. (Durcevic 2019.)

Quality of the data means the condition of a set of qualitative or quantitative variables that should be fit for its intended use. It is important to focus on collecting and processing the data carefully so it can be used afterwards. Over-reliance on past experience can also be harmful for any business. In today's world environment and markets are constantly under change and old models may not work. The key is to be able to combine both previous experiences with current data. (Durcevic 2019.)

According to Durcevic (2019) there is still a significant number on decision makers who trust on their instinct firstly before the data. Then the data is only used to back up their ready-made decision based on gut. Instincts can be used too when making decision but it should not be the first step in that process. (Durcevic 2019.)

It has been recognized that cognitive biases have tendencies to make decisions based on limited information, or on lessons from past experiences that may not be relevant to the current situation. These biases occur every day in every decision made, in some way and can influence business leaders to ignore solid data over their own assumptions. The key point is to be able to recognize these biases in order to overcome them in decision making. Some common biases as Durcevic (2019) states, are listed below:

- confirmation: Managers tend to favor information that confirms the beliefs they already had, right or wrong.
- cognitive inertia: Inability to adapt to new environmental conditions and stick to old beliefs despite the data is proving otherwise.
- group think: Desire to be part of the group by agreeing with the majority, despite of the evidence to support.
- optimism: Making decisions based on the belief that the future will be better than the past has been. (Durcevic 2019.)

8 Measurement and metrics

Improvement cannot be done or at least showed without measuring and verifying it somehow. That's why it is often said that measurement is required for improvement to happen. Organizations need to be able to it identify that something has gone wrong or right and understand why it has happened. Only then they can diagnose the root causes and apply changes to it in order improving performance. (Sansbury 2016.)

For continual service improvement there are three types of metric that have been recognized by Sansbury (2016):

- technology metrics
    - These are often associated with components like 'meant time between failures. They are used internally to understand the capability of the technology components that are required for services to remain in service.
- process metrics
    - With these are measured the quality, performance, value and compliance of a service management process in order to identify opportunities for improvement. For example, a meter called 'percentage of failed changes.
- service metrics
    - These measure an end-to-end service, for example 'percentage of availability of web services in last month'. These can used in performance reports for customers.

The chosen measures should always encourage the correct behaviour and thus they should include also steps to measure quality. Measuring productivity without quality does not give the right picture of the situation. (Sansbury 2016.)

9 Methodology

Approach to research can be divided in two main streams: deductive and inductive. Deductive approach is from general to specific and inductive approach is from specific to general. In deductive researcher develops first a theory out of data (for example previous findings, literature or experience). Based on that theory hypothesis are derived. Hypothesis are then put in use and observed. Based on observations hypothesis is then confirmed or rejected. (Hinkelmann & Witschel 2013, 13.)

In inductive approach the process is reversed. First observations are collected and from those researcher forms patterns. Patterns are then used to create hypothesis. Hypothesis are put in use and then validated or rejected. Based on results theory is created. (Hinkelmann & Witschel 2013, 13.)

My master thesis approach is more inductive than deductive. I have many different data sources from which I try to find repetitive patterns. From those patterns I will form few hypothesis.

9.1 Management strategy for development

Case study research is empirical investigation of a contemporary phenomenon and it is linked with real life context. Purpose is to gain a rich understanding of the chosen context of the research and the processes. To ensure reliability it is suggested to use multiple data sources. Case study is seen as a qualitative strategy. (Hinkelmann & Witschel 2013, 30-31.)

Qualitative research focuses on understanding the important characteristics from small pieces of data where quantative research focuses on verifying hypotheses from large amounts of data. (Hinkelmann & Witschel 2013, 15.)

Action research is mostly a qualitative research, where focus is in developing the chosen organization by influencing to its procedures. At first current status is analyzed, then actions are planned based on analysis. Those actions are then implemented and tracked & evaluated. These four steps are then repeated few times to see the effects happening and to get new data about if the planned actions were right or not and should they be adjusted somehow. This process should be continuous for the organization to learn and develop further. (Hinkelmann & Witschel 2013, 34-35.)

My master thesis is focusing more on action research than case study research. First the aim is to analyze the past state of unit managers' back office support using the different data sources. Secondly, using service design methods, personas, user stories and maps are produced based on the analyze findings to create more concrete picture about the support needers. And lastly, I focus on team's chosen tool they are using to track the work. Idea is to look in which ways they could get the most out of the data gathered in the system and how that data could help the team to develop further.

9.2 Research strategy

Research strategy means the way research's objectives and procedures are processed and what methods are being used. (Hinkelmann & Witschel 2013, 19.) Two of the five presented strategies (Survey studies, Experiments, Case studies, Action research and Design research) in Hinkelmann & Witschel (2013, 20) material fits to my master thesis idea: Survey studies and Case studies.

Survey studies' idea is to find patterns from a large amount of data. First collecting data is needed from large number of objects in systematic way. Then data is evaluated by using statistical methods. From that analyze purpose is to find patterns, especially those which were not expected. Lastly results will be interpreted. (Hinkelmann & Witschel 2013, 21.)

Case studies' goal is to study the characteristics of a real-life instance. First an instance is selected. Then data is collected, analyzed and interpreted in a systematic way. Idea is to understand the reasons for the characteristics of the chosen instance. (Hinkelmann & Witschel 2013, 30.)

My master thesis mostly concentrates on case study side by collecting and analyzing the data from the past state in qualitative and quantitative methods to understand the reasons behind the results. But at the same time, I am using survey studies to try to find the patterns from the collected data. Patterns that are obvious and patterns that are not so easy to see or expected. These methods together give more reliable and bigger picture of the past state's analyzed results.

9.3 Data collection methods

Survey and case studies both include some common data collecting methods that I used in my master thesis: questionnaires and interviews. According to Free Management

Library (2018) questionnaires overall purpose is to easily get lots of information from people with a non-threatening way. Those can be completed anonymously and are often inexpensive to administer. Interviews are used when want to fully understand someone's impressions and experiences or learn deeply about their answers to questionnaire. They often provide full range and depth of wanted information even though time is spent more than with questionnaires. (Free Management Library 2018.)

For questionnaires, I already had some ready-made material to use as data source. I had made a quantitative questionnaire (appendix 1) during autumn 2018 to our unit managers about their satisfaction to support services and what do they expect from it. The employer company has also made a new questionnaire (appendix 2) for unit managers during spring 2021 that can be used. These questionnaires results can then be compared to see if anything has changed.

Additionally, I had reports from ticket amounts and themes from different support teams to analyze and go through. I also interviewed few of employer company's unit managers to find out how they saw the past situation as support receivers.

9.3.1 Quantitative research process

Quantitative research process consists of 10 steps which are illustrated in table 2 below. First the problem needs to be identified and justified: what is the problem and why should it be studied, what will be achieved and who will it benefit? Then the phenomena needs to be studied from literature in order to create the framework for the research. After this the main question and sub questions related to topic are formulated. Researcher also needs to ponder appropriate target group for the topic: from which unit will the information be collected, from people or organizations for example. Next step is to find out whether the data collection is possible from each member of the group or just some. If some, sampling method needs to be chosen. After these preparation steps the questionnaire itself needs to be designed: what kind of questions need to be asked, how they are created, and do they fit in line with the theory framework? Overlay matrix (table 3) is one tool to ensure that the questions relate to the theory and are relevant for the topic. Then the questionnaire can be pre-tested in order to ensure that the questions are understood in the same way. Lastly the data can be collected with the questionnaire in a pre-decided timeframe, then analyzed and formulate the final report of the research. (Saaranen 2021, 1.)

Table 2. Quantitative research process (paraphrase Saaranen 2021, 1)

	What is the problem & why it should be studied?
Problem identification and justification	Who will it benefit?
	What is hoped to achieve?
	What information is available?
Literature review	What is the framework for the phenomena?
	Is there any common concepts?
	What is the main recearch questions?
Formulation of research problem	What are the sub questions?
	Does these correlate with the theory?
	From which units the information will be collected?
Formulation of population	People or organizations?
	Can data be collected from every member?
Data collection techniques	Yes -> Census study / No -> Sampling methods
	What to ask?
Questionnaire design	How to design the questions?
	Do they correlate with the framework?
Pre-test the questionnaire	Do all understand the questions in the same way?
	What is the response time?
Data collection	Do reminders need to be sent?
Data analysis and interpretation	What are the answers to the research questions?
	How the data can be analysed?
Presentation and reporting of the findings	Are the results relevant, did the reseach succeed?
	What is the state of research's validity & reliability?

Table 3. Example of overlay matrix (Saaranen 2021, 10)

Investigative question	**Theoretical connection**	**Connection with the questionnaire**	**Results**
1. What are the main cultural differences in negotiation preparations?	Chapters: 2.1, 2.3,	Q1 – Q3, Q4 – Q9, Q11, Q13, Q15a and Q16a	Chapters: 3.1.1 and 4.1.1
2. Are there behavioral differences during the negotiations?	Chapters: 2.1, 2.3, 2.4	Q1, Q2, Q12, Q14, Q15, Q18 – Q20	Chapters: 3.3.2 and 4.1.2
3. What are main cultural differences in follow up activities?	Chapters: 2.1, 2.5.1, 2.5.2 and 2.6	Q1, Q9, Q14, Q16b, Q16c, Q17	Chapters: 3.3.3 and 4.1.3

In order to define target group for the research, it is important to understand the differences between population and sample. Population is the entire group of things (people, animals, etc.) you're interested in researching and want to draw conclusions about. Sample is the specific group of things that that data will be collected from. (McCombes 2019, Bhandari 2020a.)

If the data can be collected only from some of the chosen target population, then sampling is needed. There are two types of sampling methods: probability sampling and non-probability sampling. Probability sampling means random selection of the target population, allowing to make statistical inferences about the whole population. Non-probability sampling instead means non-random selection of the target population. The selection is based on some criteria chosen by the researcher and which can clearly be justified in the study. Method allows easier data collection, but it has higher risk for sampling bias. According to McCombes (2019) "sampling bias occurs when some members of a population are systematically more likely to be selected in a sample than others". This means that the findings from the research can only be generalized to populations that share the same characteristics with the sampled target group. (McCombes 2019, Bhandari 2020a.)

Both probability sampling and non-probability sampling include different sampling methods. For probability sampling there are four methods: simple random sampling, systematic sampling, stratified sampling and cluster sampling. And for non-probability sampling there are four methods too which are convenience sampling, voluntary response sampling, purposive sampling and snowball sampling. In the list below all the methods are explained in short. (McCombes 2019.)

Probability sampling

1. Simple random sampling
    - Every member of the target population has an equal chance of being selected.

2. Systematic sampling
    - Every member of the target population is listed with a number then individuals are chosen at regular intervals.

3. Stratified sampling
    - Divide the target population into subgroups based on the relevant characteristic (e.g. gender, age range, job role). Based on the overall

proportions of the target population, researcher calculates how many people should be sampled from each subgroup. Then they use random or systematic sampling to select a sample from each subgroup.

4. Cluster sampling

- Divide the target population into subgroups that have similar characteristics to the whole group. Then randomly select entire subgroup for the research. (McCombes 2019.)

Non-probability sampling

1. Convenience sampling

- Individuals who happen to be the most accessible for the researcher

2. Voluntary response sampling

- Instead of the researcher choosing some participants and directly contacting them, people volunteer themselves for the research.

3. Purposive sampling

- The researcher uses his / hers expertise to select a sample that is most useful for the purposes of the research.

4. Snowball sampling

- Recruiting participants via other participants. Researcher contacts one participant who contacts other participants and so on. (McCombes 2019.)

9.3.2 Interview as a qualitative research method

Interviews can be divided to three types: structured interview, themed interview and open interview. Structured interviews are often like questionnaires that are transformed to interviews. The questions are very simple to answer. This is used in situations that the interview is easier to complete than questionnaire. For example, for little children or elderly. In themed interviews the questions are ready made, represents the chosen theme and the answers are more complicated then yes or no. Open interviews often takes time to complete. They can go on for several days and the questions are only partly pre-built. The idea is to go under the surface of the chosen topic and gain deep understanding. (Lindstedt 2021.)

Carrying out the interviews can be done as personal, couple, group or focus group interviews. In personal interviews there are only the interviewer and the answerer as in couple interviews there are two answerers in addition to the interviewer. In group interviews there are often three or more answerers and the size is same in focus group interviews but the group members are selected with certain characteristics. (Lindstedt 2021.)

Compared to quantitative questionnaire the number of interview answerers is smaller. 6-12 answerers is seen as a good amount to gain sufficient sampling. One good measurement for sufficient number of answers is also saturation which means data collection continuation until the used method produces no more new information. (Lindstedt 2021.)

For interviews the questions can be categorized in four main categories: exact information, information based on estimate, reasons for behaviour and attitude – value – opinions. Exact information questions receive answers that are easy to understand are univocal. For example, a question “how you came to work today” receives answers like by car, by bus, by bicycle”. Questions that include answers based on estimation are like “how much you earned money last year”. Often answers are more directional, based on the answerer’s estimate, than accurate. Reasons for behaviour category contains questions for answers that are explanations and what cannot be necessarily held as the whole truth. For example, reasons why someone crossed the road on red light may vary highly. Answers are more often largely accepted reasons (like I was in a hurry) than the real reasons (like I didn’t ‘t want to wait). Attitude – value – opinions include answers that are depending on the answerer itself. Attitudes can be changed in time with work but often values are not easily changed. Opinions instead can vary largely because of the mood, the weather, the energy level etc. These categories help the researcher to ponder what kind of questions to build and to keep in mind the validity and reliability of the research. (Lindstedt 2021.)

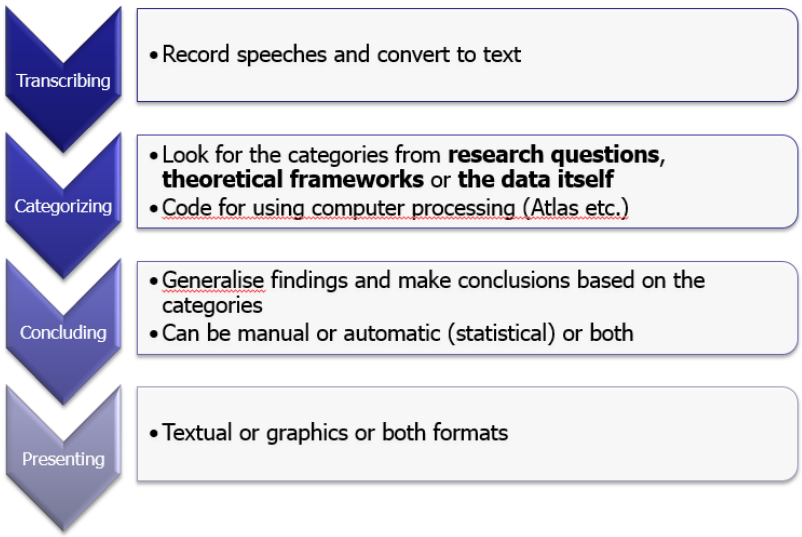
Good questions have also some common features that help to make the questions effective and understandable. The following list includes some excerpts that Heikkilä (2014) has listed:

- one question includes only one point
- the question is relevant for the research (check framework, research questions etc.)
- the question is not too long or un-understandable
- the question is not leading to some wanted answer
- the language in the question is flawless.

9.4 Data analyzing methods

All the questionnaires and ticketing reports are analyzed with quantitative methods. According to Taanila (2018) quantitative means that research abstracts are presented as numeral factors that can be measured and compared. Observation group needs to be large in order to differences, correlations, exceptions and development ways to be found. Analyzing the data is done by statistical methods, which will uncover the differences, correlations, exceptions and development ways. (Taanila 11.9.2018.)

Interviews are analyzed using qualitative methods. Interviews are pre-planned based to theoretical framework and they repeat the same structured pattern so that answers are comparable among each other. Interview results are analyzed with categorizing methods (picture 6). From final results common answers are tried to be found and those will lead to conclusions about the subject in hand.



Picture 6. Categorizing answers (Soitinaho 7.11.2016)

When analyzing interviews I need to consider the facts that gathered data is affected with opinions, surroundings, concepts, state of mind and more. These influencers need to be taken into consideration and I need to try to find the root idea from the data.

Lastly, with ways of service design, personas, user stories and system maps are produced based on the analyzed data to create more concrete picture about the support needers.

9.4.1 Quantitative methods

Quantitative data analysis means analyzing data that is number-based. All or most of the data in hand can be converted to numerical data in order to create statistical analyses. For example, in single-choice or multiple-choice question the answer choices can be given numerical values instead or words so that they can by analyzed. This kind of data analysis is often used to measure differences between target groups, relationships between variables or to test hypotheses with high accuracy. (Jansen & Warren 2020.)

Statistical methods vary from measuring the averages and medians to correlations. They are mathematical ways of analyzing and handling the data. Descriptive statistics and inferential statistics are the two main lines of statistical methods. Descriptive statistics is for describing the data set in order to understand the details of your sample. Inferential statistics aim to make predictions about what has been found in the full population allowing to predict what will happen in the real world, based on what is observed in the sample data. With the predictions, researcher must always take into consideration the sample under research. For example, if the population of interest is 50% male and 50% female and the sample of the research is 80% male and 20% female inferences about the population cannot be done accurately because the sample is not representative. (Jansen & Warren 2020.)

Both descriptive and inferential statistics include many typical techniques for the line. For descriptive statistical common ones are mean, median, standard deviation and variance and skewness. In the list below these methods are described according to Jansen & Warren (2020):

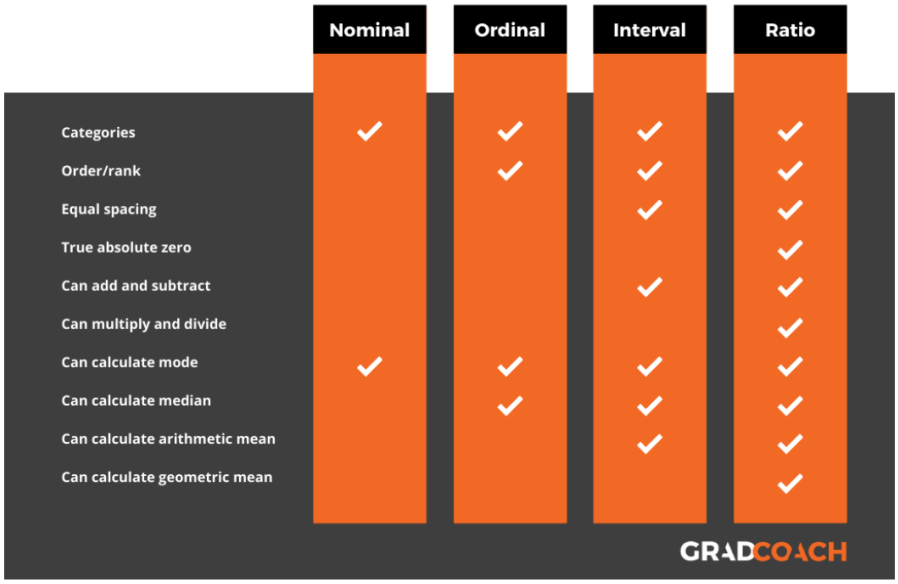
- mean
  - this is the mathematical average of a range of numbers.
- median
  - this is the middle point of a range of numbers (only if those numbers were arranged from low to high).
- standard deviation and variance
  - these indicate how scattered a range of numbers are from the average.
- skewness
  - this indicates how symmetrical a range of numbers is. Based on that researcher is able to decide what inferential statistic techniques to use.

Some common techniques for inferential statistics are t-tests, correlations and regressions. T-test compares the averages of two groups of data to assess whether they are significantly different. If the research would include more groups, then ANOVA would be the method. It allows to compare the averages of multiple groups of data. Correlation defines the relationship between two variables. So to say, if one variable goes up, does the other variable also go up or down or stay the same. Regression is for understanding the cause and effect between variables. For example, does one variable actually cause the other one to move, or do they just happen to move together naturally thanks to another force. (Jansen & Warren 2020.)

Both of these lines matter when analyzing the data. Descriptive statistics help to understand the big picture and finer details, spot potential errors in the data and inform which inferential statistical techniques can be used as they depend on the skewness of the data. Inferential statistics in turn helps to form the predictions about what has been found in the full population. (Jansen & Warren 2020.)

As there are multiple techniques for each line researcher needs to ponder which specific techniques to use for data analysis. The type of quantitative data available and research questions and hypotheses help to decide the right techniques. As mentioned earlier, one step in choosing the right methods is the skewness – how symmetrical or un-symmetrical the range of numbers is. The data in hand can also be divided on four different types, of which each enables different techniques to be used: nominal, ordinal, interval and ratio. (Jansen & Warren 2020.)

Nominal data means data that has no ranking or natural order and it is categorized. They all have the same value; in other words, one is not ranked above another. This type data is for example, gender, blood type, shampoo preference or favourite meal. Ordinal data has the categories as nominal, but there is also a meaningful order or rank between the options. Such data would be income level or political orientation, for example. Interval data represents numerical data. It has an order (like ordinal data) but the spaces between measurement points are equal (unlike in ordinal data) and it doesn't have a meaningful zero point. For example, the temperature in Celsius where the zero represents no temperature (not warm or cold). Finally, ratio data is ordered/ranked and the numerical distance between points is consistent like in interval data. The exception is that the zero point reflects an absolute zero. The measurement of zero means that there is nothing of that variable. Examples of this kind of data could be weight or length of time (duration). To demonstrate the differences between these data types there is a picture 7 below. (Jansen 2020.)



Picture 7. Differences among four data types (Jansen 2020)

Also, the nature of research questions and research hypotheses will heavily influence which statistical methods and techniques should be used. If the interest is just in understanding attributes of the sample, descriptive statistics are all that is needed. On the other hand, if the purpose is to investigate an entire population, understand differences between groups or relationships between variables then both descriptive statistics and inferential statistics are needed. (Jansen & Warren 2020.)

9.4.2 Typical methods for different data types

As Jansen & Warren (2020) stated, each data type holds different inferential methods to analyze the data in hand. Below is a table 4 to describe different methods with different data types. All of the data types include possibilities to use all or some of the descriptive statistical methods. Inferential methods on the hand vary. Ratio and interval data both include possibilities to use parametric tests. Interval data also includes some possibilities for using non-parametric tests where nominal and ordinal data includes only possibility to use non-parametric tests. The chosen methods are also pending much about the research questions, what kind of data and information is needed? (Bhandari 2020b; Bhandari 2020c; Bhandari 2020d; Bhandari 2020e.)

Table 4. Typical methods for different data types (paraphrase Bhandari 2020b; Bhandari 2020c; Bhandari 2020d; Bhandari 2020e)

Data type	Test type	Test	Aim	Samples or variables	Example
Nominal	Nonparametric	Chi-square test	Frequency distribution	1-2 variables	Tells how different what you observe is from what you would expect by chance from the data
Ordinal	Nonparametric	Mood's median test	Compare the medians	2 or more samples	How different are the median income levels of people in 2 neighbouring cities?
Ordinal	Nonparametric	Mann-Whitney U test (Wilcoxon rank sum test)	Compare sum of rankings of scores	2 independent samples	How does perceived social status in one city differ from that in another?
Ordinal	Nonparametric	Wilcoxon matched-pairs signed-rank test	Compare magnitude and direction of difference between distributions of scores	2 dependent samples	How similar are the distributions of income levels of Democrats and Republicans in the same city?
Ordinal	Nonparametric	Kruskal–Wallis H test	Compare mean rankings of scores	3 or more samples	How does perceived social status differ between Democrats, Republicans and Independents?
Ordinal	Nonparametric	Spearman's rho or rank correlation coefficient	Correlate 2 variables	2 ordinal variables	Does income level correlate with perceived social status?
Interval & Ratio	Parametric	T-test	Comparison of means	2 samples	Is there a difference in the average commute time of employees in Boston and Los Angeles?
Interval & Ratio	Parametric	ANOVA	Comparison of means	3 or more samples	Is there a difference in the average commute times of employees in North America, Asia and Europe?
Interval & Ratio	Parametric	Pearson's r	Correlation	2 variables	How are commute times and income levels related?
Interval & Ratio	Parametric	Simple linear regression	Regression	2 variables	Does income predict average commute time?

9.4.3 Qualitative methods

According to Bhandari (2020f) there are four types of approaches to analyze qualitative data: content analysis, thematic analysis, textual analysis and discourse analysis. Content analysis is used to describe and categorize common words, phrases, and ideas in the data. Thematic analysis aims to identify and interpret patterns and themes in the data. Textual analysis examines the content, structure, and design of texts in the data. And discourse analysis study communication and how language is used to achieve effect in specific context. (Bhandari 2020f.)

Qualitative data analysis approaches mentioned above share same steps when handling the data. First the data is prepared and organised, for example transcribing interviews. Then the data is reviewed and explored for specific data patterns or repeated ideas that emerge. After this it is time to develop a data coding system that best suits for the data in hand. This helps to categorize data and highlight the similarities and differences. After this the data is assigned with the codes just developed. If needed some new codes can also

be created. Lastly the idea is to identify recurring themes to create the big picture about the data. (Bhandari 2020f.)

Content analysis aims to categorize the material in compressed and clear form without losing the essential data from it. Analyzing is started by reviewing the material through many times so that the researcher gets familiar with the content. After that the material is split into sections for more accurate examination. Typical start point is to simplify the material. (Puusa 2020.)

One way to go forward with the analyze is to simplify the issues and sentences that concern the research subject and then grouping these together with similar and unsimilar expressions. Easy way to start with this is to code the material: issues that share the same meaning are marked with different codes, for example colors. Also using the quantitative analyze could benefit the researcher. Idea is to calculate the occurrence of different words or codes from the text. (Puusa 2020.)

By highlighting the issues that opens up the research questions it is possible to compare the existing of specific themes or categories. Similar expressions are grouped together in one category and then named by either the feature of the researched phenomenon or what is the phenomenon relationship to other phenomenon. (Puusa 2020.)

Next similar themes or categories are grouped together and formed new upper level category which is named by the concept that describes the content. Building up new categories by grouping similar themes together is continued as long as it is possible. At the end researcher combines all the upper level categories into one representative category. Every phase of the analyze helps the researcher to answer the research questions. (Puusa 2020.)

After analyzation the results need to be interpret and explained. By the help of simplifying, analyses and summaries synthesis are created based on which conclusions are made. (Puusa 2020.)

9.4.4 Service design

Service design means developing, planning and innovating services with ways of design. The main idea of service design is to design the user-driven service experience in ways that the service itself corresponds both service users' needs and service providers' business objectives. (Lawrence, Hormess, Schneider & Stickdorn 2019.)

According to Lawrence etc. (2019) service design has many different data visualization and analyzing methods. I have chosen three methods to represent and analyze the gathered data: Creating Personas (1), User stories (2) and System maps (3).

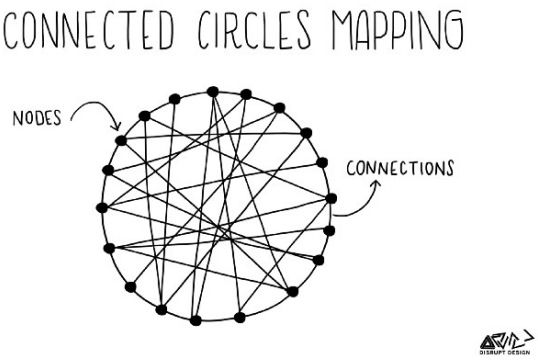
Creating Personas means creating a rich description of a specific fictional person who represents a group of people with shared interests and common behavioural patterns. Demographic information, such as age or gender, is in most cases unnecessary information. In creation phase the aim is to create 3-7 personas, no more, because people will not remember too many different personas. (Stickdorn 2018.)

User stories summarize what customers or users want to be able to do. User stories are often used in IT and software development. These stories can also be created for the personas created before to form more complete visualization of the data in use. Stories should be created without any IT-specific language so that everyone can understand them. (Stickdorn 2018.)

System maps is a visualization of all the different factors that affect to the chosen topic. They can be for example stakeholder maps, ecosystem maps or maps that visualizes business connections. The focus can be user related, customer related, or action related, for example. “System maps” is a good way to show all the relations between topic and actions and also to synthesize research data. (Stickdorn 2018.)

More accurately, stakeholder maps are for visualising stakeholders in a system according to a specific prioritization. Prioritizing can be done by rating how important each stakeholder is from the chosen point of view. (Stickdorn 2018.)

One form of system maps is also interconnected circles maps (picture 8). It allows deep explorations of relationships and cause effects in system dynamics. Idea is to see the parts and the whole along with the relationships. Via this kind of map viewers can easily see the synthesized key flows of the system. Idea is to draw a large circle that is framed with all the parts of the system. Then the connection lines are drawn from one part to another with the idea that which of those are related to each other. (Acaroglu 2017.)

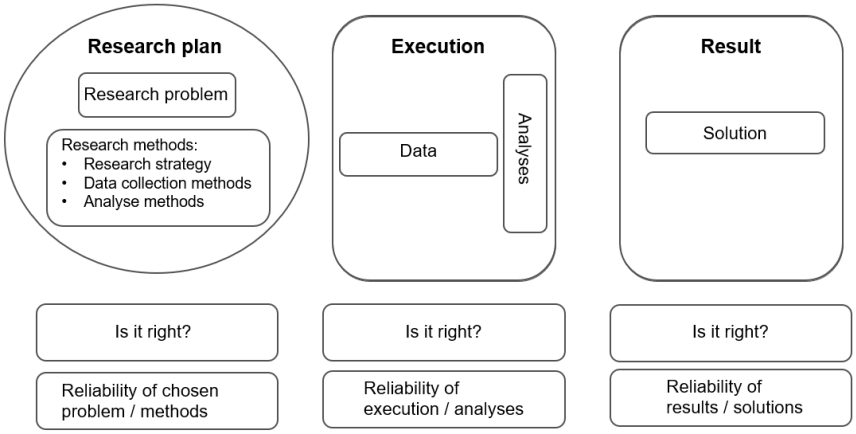


Picture 8. Interconnected circles map. (Acaroglu 2017)

9.5 Reliability and validity of the research

When pondering the success of qualitative research terms reliability and validity are important. Reliability means the logicality of analyze and repeatability of measuring results. Validity means that the used measurements in data analyze are valid: they measure what they are supposed to measure. (Jyväskylän yliopisto 2010.)

As my master thesis is more qualitative research, there are no ready-made measurements to validate research reliability. Thus, I need to take the reliability of the research into consideration in every step of the process. Below is figure (picture 9) that represent the steps during the research and how reliability is pondered in every step. The most important part in reliability of qualitative research is the researcher herself and her honesty because the results, actions and choices made by researcher are subjects of valuation. The evaluation of reliability is made continuously based on theoretical framework and methodology. Researcher must be able to justify her decisions along the material. She needs to be able to tell where among the choices the choice has been made, what these solutions were and how she ended up to these results. She also needs to be able to judge practicality or functionality of her solutions based on objectives. (Vilkka 2015.)



Picture 9. Research steps relations to reliability (paraphrase Kananen 2014, 145-146)

Qualitative research outcomes can also be judged by generalizability or transferability. Are the outcomes of the research generalizable or are they transferable to other targets or circumstances? (Jyväskylän yliopisto 2010.)

According to Vilkka (2015) any qualitative research cannot be repeated as it is done because every research made with qualitative methods are unique. Other researchers may end up with different results because they might not have the same theoretical familiarity than the researcher who made the research. However, other researchers should be able to find, among other interpretations, at least the interpretation that the researcher who made the research has presented based on her research. Otherwise there is a reason to doubt the categorization and interpretation rules made by the researcher or her ability to present the research practice so that other researchers could understand the mind of the research. (Vilkka 2015.)

One other point of view that researcher should take into consideration is the neutrality perspective. This is important because the researcher is in many cases part of the community that is under research. Researcher may examine for example her role's meaning as part of the community. Even though the research should always be value-free researcher's own values will impact on the research. Researcher can make the research value-free by uncovering her values that impact to the research. This way the research is transparent to all it's readers. (Vilkka 2015.)

10 Research's implementation

To have reliable results I have gathered few different data sources where to collect the data. As new material I made unit managers' interviews for 11 persons in order to understand their perspective about support. Additionally, there were following existing materials to use: questionnaire for unit managers that I made in 2018 as part of my studies (1), questionnaire for unit managers that was made by employer company in spring 2021 (2), different support teams ticketing data including company A's data (3) and customer satisfaction survey made by employer company from support offered by company A in 2019 (4).

10.1 Interviews for unit managers

By interviewing employer company's unit managers aim was to gain more deep understanding about how they use and think about past support model. It is interesting to compare these results to the questionnaire results whether they are in line or not.

The target group for this interview was all company's unit managers. According to Lindstedt (2021) amount for interviews should be in the range of 6-12 in order to get enough material for analyzing and forming conclusions. To choose those 6-12 persons for the interview I chose to use non-probability sampling, to be precise purposive sampling. Probability sampling could not be considered as a method because of covid-19 virus. Due to the virus, some of company's units and thus unit managers were not working. That's why the method was non-probability sampling. By using the purposive sampling, I was able to choose the most complex and largest units that were open, in order to get contact whit people who most probably would need support of some kind in their work. Larger the unit is the more amount of different solutions and variable work tasks there are and the more probably they would need support.

10.1.1 Data collection techniques

As Lindstedt (2021) points out the three types of interviews, the themed interview is the one most suitable for this research. Idea is to gain more deep understanding about the topic than the questionnaire represents. Thus, the structured interview would not give any more than the questionnaire. On the other hand, the open interview would be time taking and need deep level of conversation. Themed interview gives possibility to prepare the

questions beforehand for the chosen topic and discuss a bit more than just yes or no by not demanding hours of analyze around the topic.

I decided to execute these unit managers' interviews as personal interviews in order to get honest answers and allowing each answerer to point out their opinions and experience. It is noticed that in many occasions where there are a group of unit managers, few of them easily dominates the conversation by leaving others to not have a word. Also, some opinions might be unsaid because of that dominating situation. Couple interviews I left out because two persons previously unknown to each other might not be brave enough to tell their opinions, especially if those would be opposite. On the other hand, if the two persons would already have known each other, they could have discussed the matter in hand before the interview and the results would not then necessarily be the whole truth either. Reasons mentioned above I felt that the personal interviews would bring the most honest answers as could and thus be the method for these interviews.

10.1.2 Designing the interview

According to Lindstedt (2021) interview's questions can be divided in to four main categories. My interview focused mostly to attitude – value – opinions -category. That is because the idea was to get the understanding about how unit managers feel about the past support model. Thus, the interview's questions (appendix 3) have many correlations to attitude and opinions, even to values. Things what people values are more important to them and creates more intensive opinions too. By asking what kind of tasks they need help with, answers provide exact information of the need. With overlay matrix (table 5) I verified that my questions were in line with the framework and more importantly with the research's objectives.

Table 5. Overlaymatrix of unit managers interview's questions

Investigative question	Theoretical connection	Connection with the interview's questions	Results
What are the pain points in current support model and why?	Chapters 7, 7.1	3, 4, 5	
What points are working well in current support model and why?	Chapters 7, 7.1	2, 4, 5	
How to develop support model from unit managers point of view?	Chapters 4.2, 6-6.5, 7-7.3	1, 6, 7, 8	

10.1.3 The collection phase

I chose 15 unit managers for the interviews and contacted them via email. Idea was to get 10 answers among those 15 persons. There were few extra contacts in case of they wouldn't want to be interviewed, they wouldn't have time or there would be some other obstacles. At the end, I executed 11 interviews and each of the answerers were interviewed voluntarily. Interview's questions were sent to answerers beforehand so that would have an opportunity to ponder the answers and gather up all to information they would like to say about the topic. Interviews were hold as Teams meetings where the meeting was recorded for post-processing the gathered material. For each interview a 40-minute slot was booked.

10.1.4 Analyzing process of the collected data

The interview recordings were transcribed by using Microsoft Word's feature "speech to text". I doublechecked them to ensure that all of the material was transcribed. Additionally, during the interview, I made my own notes, which I then compared against the transcribes to identify if there were something else I felt that was something else that was not said out loud.

Next I divided all the transcribes into sections according to interview questions and then re-organized them together according to the specific interview questions. After this I created the coloured coding system for each question to mark similar and unsimilar phrases from the text and calculated them together. Then I gathered the categorized answers on separate rows in order to simplify the text and meanings of the answers. After this the simplified answers were re-categorized in order to find upper level common ideas and themes behind the answers. These steps gave the answers for the interview questions.

10.2 Quantitative process for ticketing systems data analyzation

Before the organization change in 2021 spring, employer company offered support from multiple functions like internal ICT, IT, HR, Marketing, Invoicing & finance, Product development and Safety. Additionally, there was the outsourced phone support from company A to unit managers which focuses on payment systems, printers, unit computers and network issues.

Ticketing systems for tracking the issues teams receives were only used in internal ICT and IT support and at company A. Other teams handle the requests with phones or emails and those aren't systematically tracked. Thus, all the support requests cannot be analyzed, and this must be taken into consideration when forming the results of ticketing systems data analyzation.

IT and ICT teams changed their ticketing system in 2020-2021. Unfortunately, during the change, the data from old system where not collected and thus it is partly insufficient. There are some older data sets to analyze but there is no overall data from old system available. This, as well, needs to be taken into consideration when forming the results of ticketing systems data analyzation. The data from systems is collected in excel format from ticketing systems. Some older reporting from HR issues was done manually in excel that were used.

Tickets were also categorised by using qualitative categorization method. Some tickets had already chosen category based on their ready-made categorization in ticketing system and the rest I categorised based on the ticket's content. IT have four main categories: office 365 (meaning office 365 software related issues), active directory (meaning user identifier related issues), end user (meaning issues related to persons like ending email accounts for leaving personnel) and other for the rest of varied content. ICT have five main categories: CMS system (meaning unit web pages related issues), ERP system (meaning production planning software related issues), ordering solutions (meaning different ordering solutions used in units for booking meetings), POS systems (meaning checkout and payment related issues) and other for all other varied content.

10.2.1 Material from ticketing systems

According to Jansen & Warren (2020) the data can be divided in four types: nominal, ordinal, interval and ratio. In this case with the ticketing data, data type is ratio. This is based on the fact that these ticketing numbers are compared and calculated based on equal time periods as months or years. Also, if the value of ticket amount is zero, it really means that there is no data to use. Nothing has been produced.

To analyze the material, it needs to be processed with quantitative methods. Firstly, all the data is transformed into numerical form. With ticketing data this means calculating the amount of tickets with different ways: all together and by different categories and time lines so that those numbers can then be compared.

At the same time, I used categorization as a qualitative method to re-categorize company A's tickets from category "other". This way I got the information about how much company A's support received requests that did not actually belong to their services and what topics those tickets comprised of.

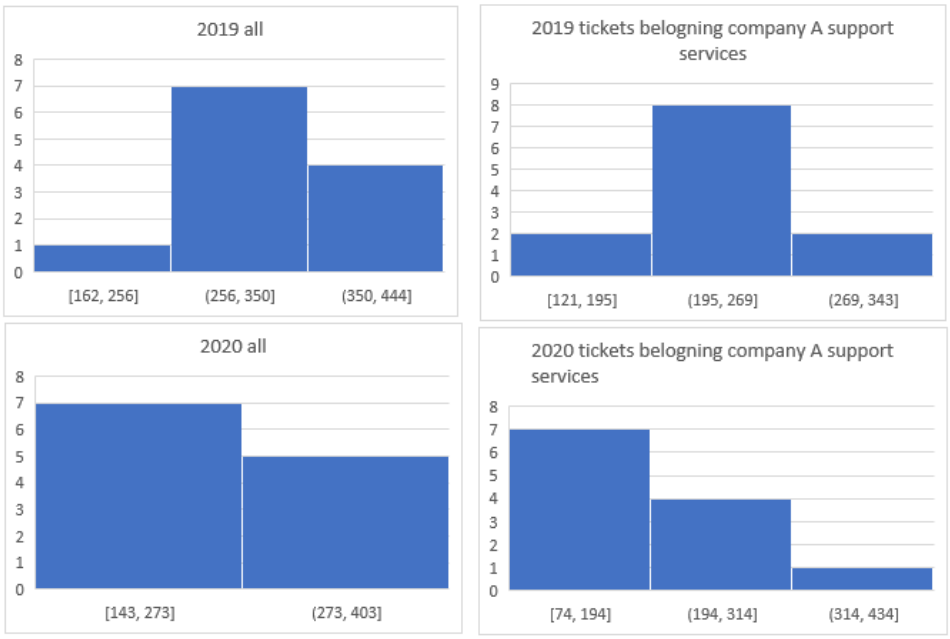
After this, statistical methods couldn't be used. As stated by Jansen & Warren (2020) there are two types of statistical methods: descriptive and inferential which I used. In descriptive method common values were calculated: mean, median, standard deviation and variance. In some cases also range were calculated. As inferential methods I used two-tailed Wilcoxon Signed-Ranks Test for Paired Samples to compare if there were statistically meaningful difference between company A's all tickets 2019 & 2020 and tickets that belong under company A's support services 2019 & 2020. The Wilcoxon Signed-Ranks Test for Paired Samples was made with excel according to Charles Zaiontzs (2021) instructions. T-test is also a method for comparing differences, but according to Taanila (2020) it cannot be used, if the sample is smaller than 30 and if there is no certainty whether the data is normally distributed or not.

When using inferential methods to figure out the meaningfulness of different samples it is important to ponder whether the samples are related or not. Related or paired samples means two or more samples that are somehow related. For example if testing the sample of persons before and after seeing a marketing campaign the samples are related, because it is the exact same group of persons in question. Unrelated samples are two or more samples that have nothing to do with each other. For example two samples of public transportation users: one sample is from Helsinki and other is from Turku. These samples has no relations between them. (Taanila 2013.)

In this case, the sample was company A's ticket amounts from years 2019 and 2020. One sample was all the tickets that company A has received during the year and the other sample was all the tickets minus the re-categorized tickets that were not a part of company A's support services. Thus these samples can be held as related or paired, because it is the exactly same group of tickets. The other sample is just missing some of the tickets.

The sample amount was 12 and by looking at the histograms (table 6), data did not seem to be normally distributed in all the cases. As picture 10 shows normally distributed data would look symmetrical in histogram and accurately it means that most of the values would be located near the mean, symmetrically (Taanila 2020b). That is way I could not use t-test as an inferential method.

Table 6. Company A's ticket amount histograms 2019 & 2020



Picture 10. Normally distributed values. (Taanila 2020b)

10.2.2 Unit managers questionnaires

As mentioned before the questionnaire for unit managers done 2018 is already analyzed because it was part of my studies. Thus this analyze and it's methods can be found from appendix 1. With this new questionnaire that was made in March 2021 by employer company I used statistical methods.

This questionnaire's data consists of two different data types: the choice of sector is nominal data. The answers are at the same level among each other, no value is ranged higher than other. When looking the results of "how often the support is needed" the data can be categorized as ordinal data. There can be found a meaningful order among the choices how often help is needed. Then again, with open questions, where the answerer

can write their own answers freely the data can be hold as nominal data. All the answers are equivalent.

All the needed yes and no answers and single choice questions were transformed in numerical values as yes=1 and no=0. After this the values were calculated in order to form a table about the values. As descriptive method was too used, all the common values were calculated: mean, median and standard deviation and variance. Also the values were presented as percentual numbers in order to get better understanding about the amounts of that sample.

10.2.3 Company A’s customer satisfaction survey

The survey about company A’s services was executed in 2019 and unfortunately the original data from answers in excel format has not been saved. Thus for this I had only power point presentation to work with (appendix 4). Presentation includes ready-made tables about the questions. Luckily some descriptive calculations has been saved to those tables to work with for analyze.

The questionnaire included questions about company A’s services onsite and also in general level. The onsite service questions were not analyzed in this thesis because the data is irrelevant in research questions point of view. Only the questions about general quality of service were analyzed.

11 Outcomes of the research

The idea of my master thesis was to analyze the state of unit managers' back office support before organization changed in spring 2021 and to produce a plan how the new chosen support model can be further developed with data-driven management. In order to be able to produce the analyze, I analyzed all the four data sources one by one to get most out of each. Firstly the interviews were analyzed, then ticketing data, customer satisfaction survey about company A and lastly the unit managers questionnaire from 2021. Research questions one (which were the issues in the past support model and why?) and two (which parts were working well in the past support model and why?) are also answered through this data sources analyze. Question 3 (how the chosen new support model can develop their working habits with data?) will be answered in separate chapter based on analyze findings and theoretical framework.

11.1 Unit managers interviews

Interview included nine pre-send questions and one bonus question that was asked during the interview. During interviews and later on I noticed similarities between some of the answers, meaning that some of the questions could've been combined into one. The interview questions could thus be pre-tested in order to notice this kind of faults. Results are introduced below in sub-chapters.

11.1.1 For what issues the support is needed?

Interview started with question about what are the issues or tasks you need support for? For this I ended up with five main categories: system usage support, new things/tasks/systems, orientation, HR related issues and marketing related issues. They all cover the main ideas from the answers about where the unit managers need help with. Each category and the content is listed below to give picture about the issues. As I also calculated the answers, it is good to point out that 9 answerers of 11 listed different HR related issues that they need help with and in most cases, those were related to unusual or surprisingly cases. They stated that normal HR related issues like shift planning is well known. Also all the answerers pointed out somehow the need of help with using different systems (whether it was related to teaching system usage to employees, using the system by self or some problem at the system itself). It too highlighted that four of the answerers

pointed out the need of help and education when facing new thigs / systems or working habits.

System usage support

- Financial system support
- ERP system support
- Safety system support
- When system is not working correctly
- The actual problem in this case is that there is not time to solve the problem
- IT related devices not working or don’t know how to use
- HR management system support

New things/tasks/systems

- New systems – how to use those
    - Too long user guides – need for quick help where to find the solution

Orientation

- Educating system usage to new employees / new users
- Personal survey about working skills with different systems – not just assuming that you already know everything
    - More training to daily workings systems like Teams
    - Hope to get online trainings back
        - Systems could be used much more efficiently if known how to use them
- No knowledge about where to ask help or training
- No knowledge about where to search information

HR

- Help to understand collective labour agreement
- Surprisingly / unusual situations, e.g. long sick leave against laid off or part time retirement
- Personnel’s’ questions e.g. about salary
- Recruiting process
    - information about available employees from nearby units before recruiting

- Tripartite discussions, work well-being and working ability related issues

Marketing

- Different campaigns starting and there is no related material available / it's with wrong price / not available from the vendor
    - Need to ensure many times where to find the right material
    - Operational planner pre-made all the Facebook campaigns ready to use
    - There is no time to look out all the possibilities with marketing

11.1.2 Good and bad issues in the past support model

Secondly and thirdly it was asked that: What was good and bad with the past support model and why? I analyzed these together because during the interview I noticed that the answers where said simultaneously. There were no single topics that highlighted more than others on neither side. Both sides included same topics (e.g. operative planner, production planner, service portal), other felt them as good things and others not. When calculating the opinions 6 of 11 answerers felt that there were both good and bad elements with the diamond model support. One stated that the whole model was bad and 4 that is was good. Also the service times, remote control and knowing / not knowing where to get help got few mentions. The upper level categories and their detailed content is listed below.

Diamond team

- Good
    - Operative planner was good "filter": you could give the task to him/her to solve and carry on your own work in the mean time
    - Diamond team knows the units as their own
    - Diamond team was quick to respond
    - Lots of expertise
    - Tips and advices on how to use systems, quick teams to show "how to"
    - Production planner helping with units' visual appearance and high level catering
    - Great that help was offered to people from different backgrounds
    - Nothing bad to say
- Bad

- No need for operative planner, more disadvantage than advantage
- Nothing good to say
- Diamond team was not helpful, mainly they just call to ask “how are you?”
- Operative planner act as account managers secretary, no use for that
- Unclear roles between the team and unclear structure or information (same information comes multiple times to units)
- Production planners role was not understood, own personnel was skilled
- Production planners time did not meet the requirements needed for a large unit
- Operative planner was more skilled than production planner
- People won’t learn to do things by themselves if everything is done for them by the diamond team
- Actions are too controlled – first you do something, then someone from the diamond team checks your actions -> unit managers are capable persons to do their own decisions
- Unclear roles between the diamond team and unit manager

Support related services

- Good
  - When in need of help, it is easy to find clear contact information (each team has its’ own contact information)
  - Could leave your computer for IT through remote control and continue own tasks at the unit
  - Using remote control when needing quick helps or advices how to do something
  - Easy to use service portal’s ready-made forms in order to get for example new user ID’s

- Bad
  - Not knowing where to get help
  - Unclear communication between different support functions
  - Are not allowed to contact HR support directly, has to circulate the topic through operative planner
  - Support teams don’t speak “unit language” and vice versa
  - Support teams do not understand the unit surrounds and actions hecticness – for example disfunctional network difficults the unit’s daily operation a lot

- Tightly restricted service hours are bad – mostly the help occurs outside a few hour slot, that has been in use during this year
- Service portals' ready-made forms are useless – usually not finding the right form to contact -> can't contact at all then
- Answers were not received through service portal – not knowing whether the request went through or not
- Threshold to contact when knowing that everybody is busy or you don't know where to contact

11.1.3 Opinions about outsourced support

The fourth question asked about support services that are served from outside vendors. The question included two examples of the vendors: company A and company B. Company B offers support for reservation system. These examples took the focus from this question and the answerers gave answers more to judge the vendors actions than generally think about the outsourced support. 10 of 11 answerers stated that services offered from company A are very good and 6 of 11 answerers also rated company B as a good partner. One of the answerers also stated that outsourcing is not a good thing; that it would be better that IT related support would come from inside the company, because own IT would already know the common working methods and surroundings. One of the answerers also said that the support from company A has not been good. Below is listed the simplified content from answerers opinions.

Outsourced support offered from companies A and B

- Grade 10+ for all the services
- Company A support services is working well, they always help
- Fast support, excellent and friendly service, unlike from company's' own IT services (unpleased service and weeks to wait for response)
- Professional help
- Company A is acting better than company's own supports ever
- Clever answers with screenshots
- If the solution needs more sorting out, they inform status updates frequently
- Even calling with questions that don't belong to them, they forward those on
- Possibility to have minor development/fixing done by next day
- Don't want to give up their support services by any means

11.1.4 The usefulness of intranet

This question was about current intranet, how it is felt and does it offer the needed help. From the answers highlighted the fact that if you are an experienced employee at the employer company, you know how to use the intranet, but for new employees it surely can be difficult and disorganized. It needs time to figure out how the data is spread and what words to use when searching. When looking at the calculated original categories in table 7, it can be seen that three of the most common topics are related to negative feelings about intranet: need to know the right word when searching, information is spread and information is incorrect or old. Positive comments were received from 4 of 11 answerers about the content and use of front page. Few of the answerers also commented that search function is a good thing.

Table 7. Comments about intranet

Topic	Color	Amount
Need to know the right word when searching		8
Information is spread		5
Old / incorrect data		5
Front page is good		4
Searching is good		3
Difficult to use		2
Favorite functionality is good		2

Below can be found the new upper level categories and the related content.

Good things

- Searching is good, with keywords everything can be found
- Front page news are good, topical information and info about system errors is updated frequently
- Favourites functionality is good, can save the most used pages easily

Bad things

- Information is spread
    - Instructions can be found from multiple pages
    - Needed materials are often behind many different clicks
    - Need to examine many times in order to find something

- You need to know the exact right word or wording in order to find something when using the search functionality
- Old / incorrect data and instructions – how to secure updated information?
- Difficult and mixed platform to use

11.1.5 How the support can be given?

Questions 6-8 were following: How would you like to receive support? What kind of support would you like to have? and What kind of instructions would be useful? Already during the interviews and more during the analyzes I recognized that these questions did not really differ from each other and that the answers were very similar. That is why I decided to analyze all these questions as a one. The upper level categories and content can be found below.

Contact channels & accessibility

- Chat functionality, quick & easy way to contact
    - Can leave a comment and continue own tasks while waiting for a response
    - Automated chat outside the service hours?
- Phone service, one number to contact
    - Quickest way, because unit manager has always a phone with him/her
    - For acute questions or problems
    - Long enough service hours are important
- Email service, traditional way to contact
    - Screenshots help to understand the topic in question
- Teams or some other remote control system
    - Remotely advising
    - Trainings
- One and single person to deal with the problem all the way. No need to explain the same situation to different persons many times
- Automated replies from your contact, that you know the messages has been received

Instructions

- Important to have material where you can access later
- Ready-made examples – can look those up at the time when dealing the issue
- Skype or teams trainings for new and existing systems, short and long ones needed
    - Trainings need to be recorded so you can access them also later

    - Training for smaller groups lowers the threshold to ask questions
- One place for all the instructions (videos, manuals, etc.)
    - Now those can be found from teams, sharepoint, intranet and so on
- Instructions' language – need to be understandable for unit users
    - To test the instructions with "stupid user" – if she/he understands then others will too
        - Instructions are as strong as the weakest user
- Quick / simplified guides needed additionally to system manuals – easy way to quickly check something
- Written, video and screenshot instructions
    - Short and long ones, both needed
- Clear and simple instructions to understand
- One place for training to do independently – online training platform needed

Additional comments

- The most important thing is to receive help quickly
- Short and clear paths where the information can be found
- Personal surveys about your skills and know-how -> plan how to increase the needed skills and what trainings attend to
- Clear list of contacts how to contact support services
- Quick notifications about larger system errors in intranet and /or to phone numbers

11.1.6 Support services in future

Last question was about the future: What kind of support service would be good and functional from unit managers perspective? Afterwards I noticed that these questions from 6 to 9 where too similar and did not necessary brought any new information. These could have been covered with just one question. Never the less, below can be found the comments given under question number 9.

Support model should include the following features:

- Electric channels for contacting and training (chat, teams, email)
- Search function to work as Google-search
- One clear place for all the instructions
    - Written manual, videos, FAQ (frequently asked questions) -section
- Experts from different areas of skills

- Phone service
- At all times open channel for questions and information change
- More responsibility to unit managers to use and contact with colleagues
- Quick and easy connection is the most important
- Long enough service hours
- No queuing
- Noticing different units – not every location needs the same type of help
- Precative information and examples
- Sharing new ideas and working-ways, not just support
- One place to contact
- Calendar tool that gathers all the meaningful days in place, e.g. dates for vacation lists and informing profit numbers

11.1.7 Bonus question about chat services & additional comments

Additionally I asked a bonus question about how would the unit managers feel about if support services were offered with chat services. Some of the respondents mentioned chat services already during the question about how would you like to receive support and some just when I asked about it as a bonus question. Table 8 shows the opinion about chat services and whether the comment came during the interview or with the bonus question.

Table 8. Opinions about chat service.

	Bonus question	During the interview
Good thing	5	4
Bad thing	2	0

Only two of the respondents didn't appreciate the possible chat service so much. They rationalized the answers with comments like: "personally I don't like to use chat service" and " It's a bit 50-50 situation: is the chat automated with robot or is there actual human being behind it. Others, 9 of the 11 respondents thought that chat service would definitely be a good thing. It would be a fast way to contact support service and might even be better than phone because of the ability to add pictures to clarify the issue in hand.

Answerers had also had an opportunity to say extra comments if they had something on their mind. These comments are gathered below as a list. Many comments already exist in the earlier questions, which points out they indeed are important to notice. Participants

were excited but a little bit worried about how the new launched support model would work.

What else would you like to tell?

- Now we are moving to the right direction
- Good that there is one team to contact
- Pre-active information about system problems
- Everyday ways of working is in good condition, the unusual and surprising issues are the problem
- The problems are same regardless of the area
- Waiting to see what the future brings, feeling excited and slightly worried.
- Inform more about what this new team is doing, responsible for and how to contact them
- Do not equalize the units too much
- Training needed for different systems
- Trainings and meetings would be held after 2 p.m. when the lunch time is over
- Support is given when needed but not forced all the time – the need of working in peace
- When you need the support, you know where to ask for it

11.2 Ticketing systems data

Data about the tickets or contacts were able to gather from 4 different teams: IT, ICT, HR and company A. These are analyzed each under their own subheadings below.

11.2.1 IT-team

From IT department the company had ticketing material only from the beginning of the year 2021. They changed their ticketing system in 2020-2021 and data from older system was saved in separate repository which is unavailable for research use. Materials were gathered and analyzed during 12/2020 – 03/2021. When analyzing I needed to take into consideration that this small sample wouldn't give the real picture about the yearly ticket numbers. This gives approximate information about the tickets but no larger conclusions can be made.

Table 9 shows all the tickets during that time range by categories and amounts. It can be seen that ticket amounts per month are quite equal because the range between them is 97, median 274, standard deviation 44,96, skewness 0,40 and average 279,25. With average there is also a need to consider the possible margin of error. Averages' 95% confidence interval is 208-351. It is quite large, which is direct result of the small sample. If the sample was bigger, the confidence interval would also be more accurate.

Biggest category is other with 35,18% of all tickets, which tells that these tickets could be categorized more accurately that the employer company would get more information about the real incidents behind requests. End user and Office365 related tickets are also majority in incident topics with 28,47% and 20,95% of all tickets.

Table 9. IT team tickets 12/20 - 30/21

Year/Month / Category	All	Office365	Active Directory	End User	Other
12/20	236	45	47	61	83
01/21	333	104	42	88	99
02/21	299	42	46	82	129
03/21	249	43	37	87	82
All	1117	234	172	318	393
% of all tickets		20,95 %	15,40 %	28,47 %	35,18 %

11.2.2 ICT-team

ICT team also changed their ticketing system during the end of 2020. Newest ticket numbers were available from 11/2020 to 03/2021 (table 10). There were ticket numbers counted also from the 2018 autumn (table 11), because of the New support model project needed those then. Unfortunately no older data was available from this team. This amount gives more of a solid foundation for conclusions than IT, but keeping in mind that these were just few samples from the entire data set, as reported earlier. Thus, no larger conclusions could be made.

When looking at the percentual numbers on different categories at both timelines (table 10, table 11), it can be seen that categories POS systems and Other are the biggest ones. Then, as third, is CMS system, and two last are ERP system and Ordering solutions. During 2018 TCPOS and other related ticket numbers can also be easily explained: it was the end of summer when current 1st line support was transferred to company A from the employer company. This change took some time before units learned that they were

supposed to contact company A instead of ICT team. On the other hand, this tells that POS systems is too the most commonly needed issue for help.

Table 10. ICT team tickets 11/20 - 03/21

Year/Month / Category	All	CMS	ERP	Ordering solutions	POS	Other
11/20	115	11	27	18	35	24
12/20	49	6	2	11	0	30
01/21	75	10	3	9	37	16
02/21	28	13	2	5	2	6
03/21	18	7	1	1	0	9
All	285	47	35	44	74	85
% share of all		16,49 %	12,28 %	15,44 %	25,96 %	29,82 %

Table 11. ICT team tickets 08/18 - 11/18

Year/Month / Category	All	CMS	ERP	Ordering solutions	POS	Other
08/18	451	40	17	11	206	177
09/18	362	44	16	9	163	130
10/18	392	36	67	13	154	122
11/18	205	27	33	5	67	73
All	1410	147	133	38	590	502
% of all tickets		10,43 %	9,43 %	2,70 %	41,84 %	35,60 %

If looking at the actual ticket amounts, it can be seen that amounts from 2018 are greater than 2021 spring time. During 2020-2021 COVID-19 virus affected to the employer company's business by closing units and temporarily laying off employees, which made the number of requests to decrease. Also, the change in 1st line support model at 2018 can now be seen as a part of daily operations: tickets are going to company A, instead to ICT team.

Ticket amounts during 2018 also vary a lot, considering their range is 246. As skewness (-1,26) and table 11 shows, the larger number on monthly tickets is focused to 08-10 months. Especially Augusts' number is large. That can be explained by the fact, that after summer, many of the employer company's units are opening again and they need more help with tasks. Then, during the autumn, support need is stabilized.

Key figures can be found from table 12. As 2018 standard deviation is quite large, the median does not give real picture about the numbers. Average and 95% confidence interval describes the numbers better in one view. 2020-2021 the median is considerable number, as standard deviation is 39 and skewness 0,81. This indicates that numbers are not as much spread out as numbers in 2018.

Table 12. Key figures

	2018	2020-2021
Median	4,00	49,00
Average / month	51,07	57,00
95% Confidence interval	15 - 88	8 - 106
Standard deviation	94,11	39,10
Skewness	2,54	0,81

11.2.3 HR team

HR team reported their contact amounts during 2017-2019 with excel. They have calculated contacts based on way of contacting: phone or email, not by categories. This sample of data is large enough to do some conclusions about contact amounts. As it can be seen from the table 13, yearly contact amounts are quite large. Average monthly amount is larger than it was with IT or ICT team; instead of talking about tens or hundreds, HR team's monthly average is about thousands. Also, if calculating average from yearly numbers it is 22 149 contact / each year. Standard deviation varies from 130,79 (2019) to 305,46 (2018), when 2017 number is 260,78.

Contact amounts in 2017-2018 were greater than during 2019. This can be explained with the diamond model that was launched at the end of 2018. After this diamond model took in place, HR stated that all HR questions should go through operational planner and no straight unit contacts were allowed. Operational planners were taught how to resolve simple HR problems by themselves, and so they needed less help from the actual HR team than units did before.

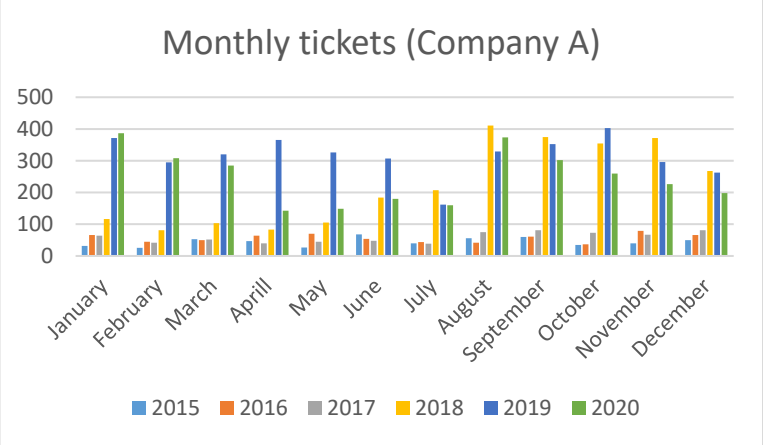
Table 13. HR team contact amounts 2017-2019

Tickets all together	2017			2018			2019		
	Phones	Mails	All	Phones	Mails	All	Phones	Mails	All
	7264	19807	27071	4719	16485	21204	3609	14563	18172
% of all	26,83 %	73,17 %		22,26 %	77,74 %		19,86 %	80,14 %	
Median	595,50	1707,00	2314,00	382,50	1329,50	1710,50	292,00	1169,50	1462,00
Average / month	605,33	1650,58	2255,92	393,25	1373,75	1767,00	300,75	1213,58	1514,33
95% Confidence interval			2090 - 2422			1573 - 1961			1431 - 1597

When looking at the percentages, it can be seen that email contacts are more common than phone contacts with 73-80%. As analyzing HR ticket numbers, it needs to be taken into consideration that these amounts may include same topic. In other words, one incident or request might have caused multiple contacts with phone and email. Thus,

these are not directly proportional to IT or ICT ticket numbers as they are reported with ticketing systems that gathers multiple contact around one ticket under one ticket.

11.2.4 Company A - outsourced support team



Picture 11. Company A ticket reporting 2015-2020

Company A has been reporting ticketing data systematically. In picture 11 is illustrated ticketing amounts on monthly basis. As it can be seen, years 2015-2017 have much lower ticketing amount than 2018-2020. The monthly average has increased 275,93% from 2017 to 2018 (table 14).In 2018 summer time the current 1st line support was transferred to company A from the employer company, which explains the increase in ticket amounts. 2019 can be seen as normal year when all the units were operating. In 2020 march due to COVID-19 virus many of the employer company's units were temporarily closed that affected decreasingly to ticket amounts.

Table 14. Company A's ticket reporting – key numbers

Year / Month	2015	2016	2017	2018	2019	2020
Tickets all together	534	678	707	2658	3789	2972
Average/ month	44,50	56,50	58,92	221,50	315,75	247,67
95% Confidence interval	36 - 53	48 - 65	49 - 69	140 - 303	276 - 355	194 - 302
Median	43,50	57,50	58,00	195,50	323,00	243,00
Standard deviation	13,38	13,05	16,31	128,21	61,81	84,96

I had the possibility to look company A's ticket reporting on monthly basis from years 2019 and 2020. All the tickets were categorized during each month. They had a category called *Crew room PC* which included also requests that didn't belong under company A's support services. I went through these tickets and re-categorized those to be able to calculate and identify how much they had received request that didn't belong to their

support services and what those request concerned about. Table 15 shows these tickets and new categories on yearly basis.

Table 15. Company A's re-categorized tickets

Year/Category	ERP	WEB pages	FINA	Other	Missing files / links /desktop icons	Email problems	ID problems	Inventory	MN	All
2019	224	103	39	204	186	65	143	17	43	1024
Average / Month										85,33
2020	109	63	37	189	74	127	175	6	53	833
Average / Month										69,42

When comparing the average / month numbers from all the tickets and from out-of-support-services-scope tickets, it can be seen that these out-of-scope tickets forms 27-28% of all the tickets on monthly basis (table 16). If these tickets could be routed to right support instead of company A, the employer company might be able to lower the costs of company A's ticketing services. At this point, company A charges from ticketing services based on monthly contacts. This could also lead to conclusion that informing about right support functions has been unclear, if around every fourth call to company A was unrelated to their services.

The most repeated topic in out-of-scope tickets 2019 was ERP. Also categories MN and inventory are closely related to production planning topic. Only by routing these three categories tickets' to correct support the monthly tickets could be decreased by 7,50%. By doing this the out-of-scope tickets would be 19,53% of all the tickets, instead of being 27,03%.

Table 16. Averages of monthly tickets

	2019	2020
Out-of-scope	85,33	69,42
All	315,75	247,67
% of all tickets	27,03 %	28,03 %

By using two-tailed Wilcoxon Signed-Ranks Test for Paired Samples I was also able to identify whether there were statistically meaningful deferens between the amounts of company A's all tickets 2019 & 2020 and tickets that belong under company A's support services 2019 & 2020. Two-tailed Wilcoxon Signed-Ranks Test for Paired Samples numbers and hypotheses can be found from the table 17 and 18. In the tables alfa is the significance level and n is sample size.

As in both cases Test statistic = 0 < Critical value = 13, the zero hypotheses is rejected. Also when p-value = 0,002218 < α=0,05, the zero hypotheses is rejected. This means that

there is statistically meaningful difference between the amounts of company A's all tickets 2019 & 2020 and tickets that belong under company A's support services 2019 & 2020.

Table 17. two-tailed Wilcoxon Signed-Ranks Test for Paired Samples for 2019 tickets

2019									
All	Only tickets that belong under company A's support services	Difference	Abs diff	Rank of Abs diff	Positive ranks	Negative ranks			
371	296	75	75	5	5			α	0,05
295	222	73	73	4	4			N	12
320	268	52	52	2	2			Test Statistic	0
365	293	72	72	3	3			Critical value	13
326	223	103	103	10	10			mean	39
307	215	92	92	9	9			variance	162,5
162	121	41	41	1	1			std dev	12,74755
329	246	83	83	8	8			z-score	3,059412
352	210	142	142	12	12			T-crit	13,96526
403	263	140	140	11	11			p-value	0,002218
296	220	76	76	7	7			sig	yes
263	188	75	75	5	5				
					77	0			
H0: There is no difference among the averages									
H1: There is a difference									

Table 18. two-tailed Wilcoxon Signed-Ranks Test for Paired Samples for 2020 tickets

2020									
All	Only tickets that belong under company A's support services	Difference	Abs diff	Rank of Abs diff	Positive ranks	Negative ranks			
387	323	64	64	5	5				
308	236	72	72	7	7			α	0,05
285	206	79	79	8	8			N	12
143	102	41	41	2	2			Test Statistic	0
149	117	32	32	1	1			Critical value	13
180	138	42	42	3	3			mean	39
160	74	86	86	9	9			variance	162,5
374	287	87	87	11	11			std dev	12,74755
302	241	61	61	4	4			z-score	3,059412
260	174	86	86	9	9			T-crit	13,96526
226	107	119	119	12	12			p-value	0,002218
198	134	64	64	5	5			sig	yes
					76	0			
H0: There is no difference among the averages									
H1: There is a difference									

During 2020 the employer company was disengaging from former organization's systems, after the sales process. This generated more tickets concerning about ID problems, than formerly because for example all the emails that were used as usernames in many systems, were changed. The re-categorized class "other" includes a large variety of different support requests like fixing the dishwasher, logging in to marketing systems or browser looking weird. Because of this the category holds a large amount of tickets in it, that can't be categorized more accurately.

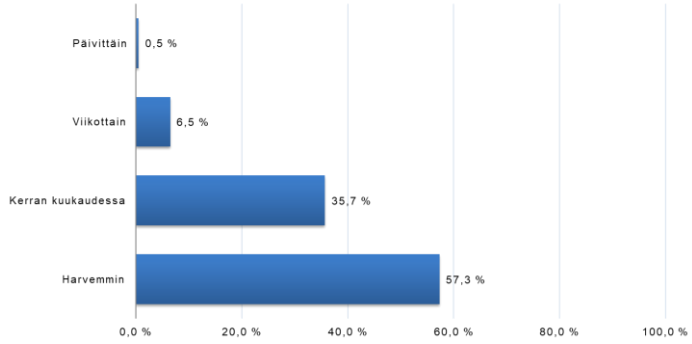
11.3 Company A's customer satisfaction survey

At the end of 2019 the employer company made satisfaction survey about company A's support. Survey was divided in two sections: one was about company A's services in onsite actions and the other was concerning general opinions about company A's support services. Opinions about onsite services are not relevant for my research questions so that part were not analyzed. I concentrated to the general opinions. Questions, that were answered by survey respondents were:

- How often I use company A's phone services?
    - Daily
    - Weekly
    - Once a month
    - Rarely
- My call was answered quickly
    - Yes / No
- I received help by calling
    - Yes / No
- What is your overall opinion about company A's phone service?
    - Use scale from 1-5 (1= poor and 5= excellent)
- Anything else you wish to say? (open commenting).

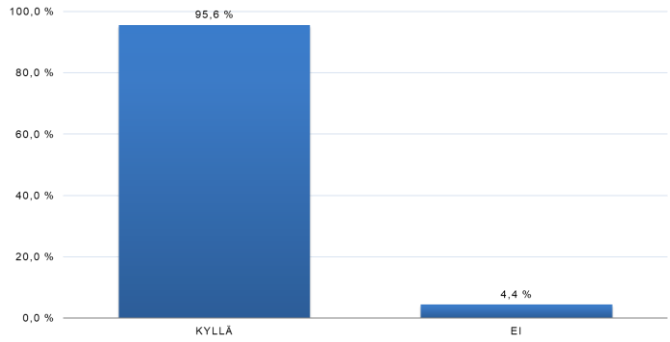
Questionnaire were sent to unit managers, so the target group amount was around 350 persons. The employer company operates about 500 units but not all of those have unit managers. Some of the unit managers oversee multiple places at the same time. Responses were gathered from 185 respondents, in other words 52,86% of the target group answered to the questionnaire. This means that the results can be generalized concerning the whole target group.

In picture 12 is described the range between respondents about how often is the phone service used. 57,3% of all the respondents use the service more rarely than once a month and 35,7% uses it once a month. Only 6,5% uses the service weekly and 0,5% on daily basis. Conclusion is that phone service is needed more on monthly basis than in weekly or daily life. There were no answer options "Never" or "Few times a year" so no conclusions can be made about the topic, how many of the respondents wouldn't need the phone service at all.

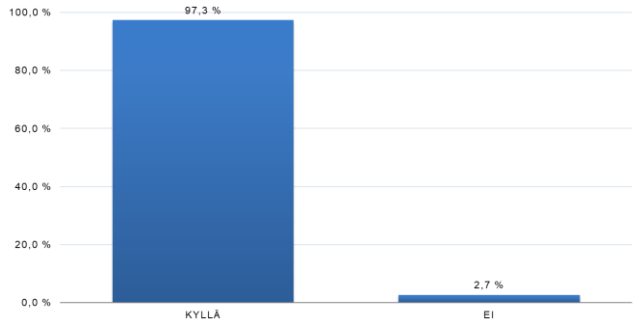


Picture 12. How often I use company A's phone services?

Pictures 13 and 14 shows opinions about was the call answered quickly and did they get help by calling. 95,6% said that the answer came quickly and 97,3% taught that they received help by calling, in other words the call was worth to make. It can be then said that company A answers the calls quickly and they can offer help on most of the cases too.



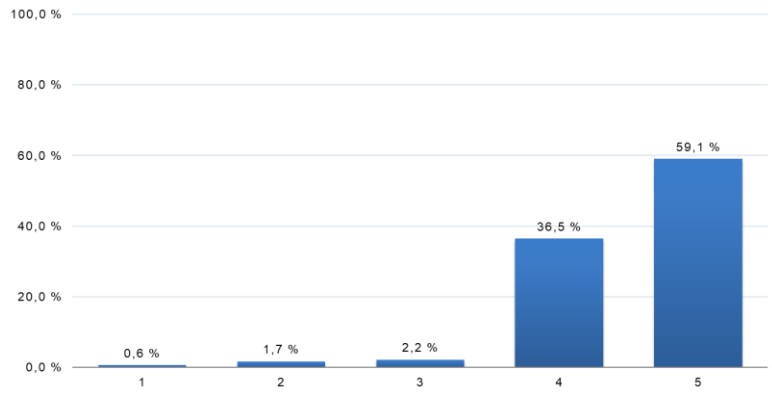
Picture 13. My call was answered quickly



Picture 14. I received help by calling

When asking opinion about the overall quality of company A's phone service (picture 15), 59,1% rated it to be 5 = excellent and 36,5% it to be 4 = good. Only 2,3% of all respondents rated the service quality to 1 or 2 meaning poor. 2,2% of the respondents didn't know whether the service was bad or good. In overall, unit managers feel that the

phone support that company A offers is good or excellent, in addition to earlier statements that they also answer quickly and know how to help. This shows that company A's support services are well appreciated and used.



Picture 15. What is your overall opinion about company A's phone service?

Open comments repeatedly showed that the service was always good, decent and friendly. Some also thanked the approach and patience to listen when the situation was on and help needed. Overall opinion in open commenting were grateful and positive.

11.4 Unit managers questionnaires

There are two questionnaires for unit managers about support services in general that were made by the employer company. The other one was made in 2018 by me as part of my studies at Haaga-Helia. This questionnaire and its' results can be found from appendix 1. The other one was made in spring 2021 by the employer company's managers. The questionnaire was sent to all unit managers so the target group was about 350 persons. 140 unit managers responded which means 40% of target group. Answers can be interpreted somewhat reliable but it needs to be taken into consideration that 60% of the target group did not answer and their answers could have changed the outcome.

Questions included in this questionnaire were as follows:

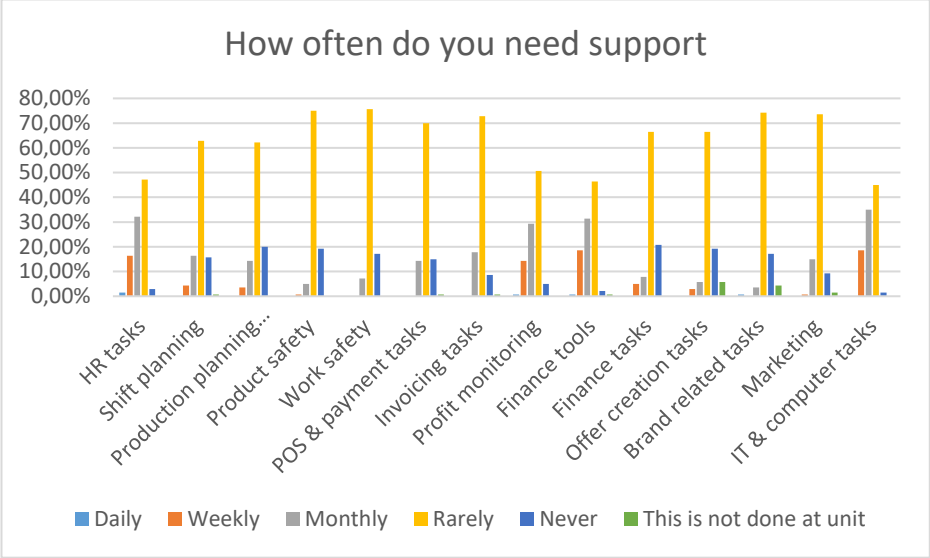
- In which account group do you operate?
- How often do you need support in following themes: HR, sift planning, production planning, POS and payment, invoicing, profit monitoring, financial tools, financial tasks, product safety, brand related tasks, offer creation, work safety, unit marketing and computers & IT related tasks.
    - Daily

    - Weekly
    - Monthly
    - Rarely
    - Never
    - This is not done at my unit
- Additionally to previous, where do you need support at? (open commenting)
- Which of the following tasks could be divided with in the team: shift planning, production planning, purchase, product safety, work safety, invoicing, financial tools, offer creation, webpages, system A and system B?
    - Someone else in my team does this
    - I could transfer this task to someone else from me
    - This cannot be done by anyone else than unit manager
    - This is not done at my unit
- Which tasks could be stopped completely? (open commenting)
- Anything else on your mind? (open commenting)

The question about which account group do you operate is not analyzed in here, because it is not relevant anymore due to organization change in spring 2021. At the time one account group was merged with the remaining ones and all of its units were incorporated to the remaining account groups. Thus all these answers are analyzed without the account group allocation and they are generalized to concern all the unit managers and account groups.

Table 19. How often the support is needed?

	Daily	Weekly	Monthly	Rarely	Never	This is not done at unit
HR tasks	1,43 %	16,43 %	32,14 %	47,14 %	2,86 %	0,00 %
Shift planning	0,00 %	4,29 %	16,43 %	62,86 %	15,71 %	0,71 %
Production planning & purchase	0,00 %	3,57 %	14,29 %	62,14 %	20,00 %	0,00 %
Product safety	0,00 %	0,71 %	5,00 %	75,00 %	19,29 %	0,00 %
Work safety	0,00 %	0,00 %	7,14 %	75,71 %	17,14 %	0,00 %
POS & payment tasks	0,00 %	0,00 %	14,29 %	70,00 %	15,00 %	0,71 %
Invoicing tasks	0,00 %	0,00 %	17,86 %	72,86 %	8,57 %	0,71 %
Profit monitoring	0,71 %	14,29 %	29,29 %	50,71 %	5,00 %	0,00 %
Finance tools	0,71 %	18,57 %	31,43 %	46,43 %	2,14 %	0,71 %
Finance tasks	0,00 %	5,00 %	7,86 %	66,43 %	20,71 %	0,00 %
Offer creation tasks	0,00 %	2,86 %	5,71 %	66,43 %	19,29 %	5,71 %
Brand related tasks	0,71 %	0,00 %	3,57 %	74,29 %	17,14 %	4,29 %
Marketing	0,00 %	0,71 %	15,00 %	73,57 %	9,29 %	1,43 %
IT & computer tasks	0,00 %	18,57 %	35,00 %	45,00 %	1,43 %	0,00 %



Picture 16. How often the support is needed?

Table 19 and picture 16 are demonstrating how often the support is needed in the specified categories. Largest % can be found under rarely choice. This indicates that many of the support cases arise less than once a month basis. In monthly basis four categories highlights: HR, profit monitoring, finance tools and IT & computer. Based on this, these types of questions are in bigger role than others. Infact, same four categories are highlighted too in weekly support needs. If weekly and monthly needs are calculated together with these four categories, their %- share is quite same or even a bit more, than rarely sections' percentages (table 20). All this justifies that these type of questions and activities need most supporting.

Table 20. Mostly needed support themes

	Weekly + Monthly	**Rarely**
HR tasks	48,57 %	47,14 %
Profit monitoring	43,57 %	50,71 %
Finance tools	50,00 %	46,43 %
IT & computer tasks	53,57 %	45,00 %

19,29-20,71% of the respondents said that production planning, product safety, finance tasks and offer creation tasks do not require any help. When comparing choices never and monthly, it can be noticed that sift planning and POS & payment tasks are divided equally: on average ~15% of respondents taught that help is needed monthly and the other 15% taught that help is not needed at all.

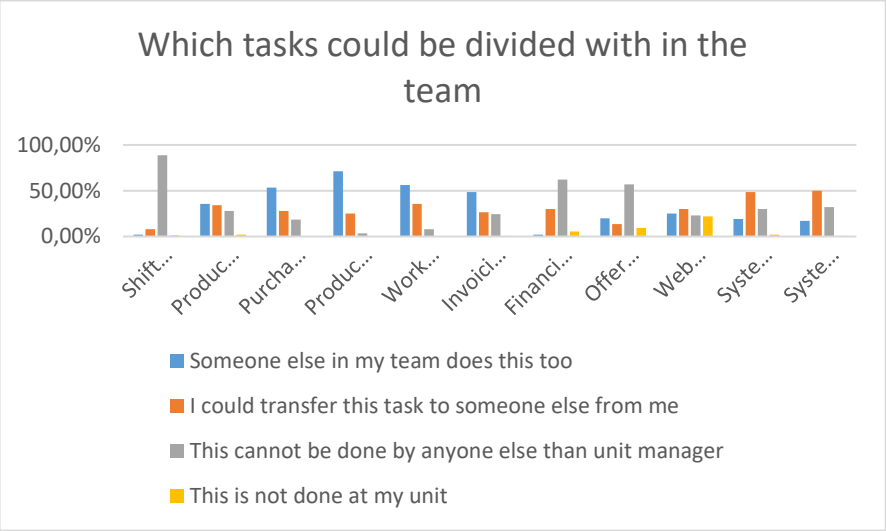
When looking at the section "this is not done at unit" most of the low numbers identificate that these types of actions are done at the unit. Only offer creation and brand related

tasks highlights a bit. This can be explained by the fact, that some of the employer company's units are quite small and no offer creation is needed because these types of situations can be dealed with conversations. Also, some of units are categorized as "white label" which indicates that the brand cannot be seen at the unit itself. Instead, often the brand of the host companies is shown and the operating company can be seen only in emails or receipts.

Additionally 33 open comments concerning the previous topic were given. 30,30% of them concerned about IT problems and help needed for those, 15,15% was about invoicing or financial task related and 12,12% about HR related tasks that needed help. Same themes repeated in the open comments as they were already noticed in the previous question. Other remaining 42,42% of the comments concerned about mental support, contacting operational planner or production planners or which for trainings for systems like Teams.

Table 21. Which tasks could be divided within the team

	Someone else in my team does this too	I could transfer this task to someone else from me	This cannot be done by anyone else than unit manager	This is not done at my unit
Shift planning	2,10 %	7,90 %	88,60 %	1,40 %
Production planning	35,70 %	34,30 %	27,90 %	2,10 %
Purchase	53,60 %	27,90 %	18,60 %	0,00 %
Product safety	71,40 %	25,00 %	3,60 %	0,00 %
Work safety	56,40 %	35,70 %	7,90 %	0,00 %
Invoicing	48,60 %	26,40 %	24,30 %	0,70 %
Financial tools	2,10 %	30,00 %	62,10 %	5,70 %
Offer creation	20,00 %	13,60 %	57,10 %	9,30 %
Web pages	25,00 %	30,00 %	22,90 %	22,10 %
System A	19,30 %	48,60 %	30,00 %	2,10 %
System B	17,10 %	50,00 %	32,10 %	0,70 %



Picture 17. Which tasks could be divided within the team

When looking at the answers about which tasks could be divided within the team (table 21), they are spread mostly between choices “someone else in my team does this too - this cannot be done by anyone else than unit manager”. Percentages in “this is not done at unit” are small. Only one theme rises a bit in there: webpages. This can be explained through the fact that not all the employer company’s units have their own webpages at all, so this is then not needed to do. If we look at the choice “this cannot be done by anyone else than unit manager”, we can see that shift planning stand out the most (picture 17). 88,60% of the respondents felt that this is a task that cannot be transferred to anyone else. Also, financial tools and offer creation stands out with 62,10% and 57,10%. Other tasks are then divided to choices “someone else in my team does this too” and “I could transfer this task to someone else from me”. If these two choices’ percentages are calculated together (table 22), it leads to a conclusion that quite many tasks could actually be transferred to someone else than the manager itself. This could then ease the workload on managers behalf and at the same time offer new challenges and increase commitment among employees.

Table 22. Tasks, that could be transferred.

	Already does & could be transferred
Shift planning	10,00 %
Production planning	70,00 %
Purchase	81,50 %
Product safety	96,40 %
Work safety	92,10 %
Invoicing	75,00 %
Financial tools	32,10 %
Offer creation	33,60 %
Web pages	55,00 %
System A	67,90 %
System B	67,10 %

Number of open comments that could be stopped completely was 52. 44,23% of those comments concerned reporting in general way: many different reports are now needed to fill in many different places. Some things are even needed to report multiple times in different ways. This could definitely be stopped or rationalized somehow, according to respondents. Also inventory theme gathered 13,46% of the comments and forecasting the profit 7,69% of the comments. Forecasting comments were more about how often the issue is needed to do and could it be done more rarely like once a month instead of doing it weekly basis. In inventory related comments raised up the idea of doing it more automatized than it is now and also doing it once a quartal, not once a month. Other

comments (34,62%) included variety of different topics like creating marketing material, using system B and reporting the amount of product waste.

Additional open comments included 56 answers. 39,29% of those answers concerned about the current situation under COVID-19 virus that has forced the number of employees to be decreased radically. This naturally complicates transferring task to anyone when there is only few (in some places only 1 or 2) people working part-time. 8,93% of the comments included problems with IT related issues and other 8,93% with marketing related issues. Rest 42,86% of the comments included mostly different stories about how tasks are divided in unit. Someone also commented that current intranet is not useful, because it holds a lot outdated information and the search is not working well.

12 Conclusions about support state

One of the objectives was to find out, based on the report, which were the issues in past support model and which parts were working well from unit manager's perspective. This was divided in two research questions: Which were the issues in past support model and why? and Which points were working well in past support model and why? With these conclusions I give answers to these questions. Conclusions are made based on all the analyzed materials.

Firstly I concentrated to finding out the issues of the past support model. Based on the interview answers the diamond team had some issues: The team itself was not helpful, the roles and responsibilities were not clear to unit managers, actions were felt too controlled as diamond team checking those, operative planner was felt useless and production planners' role were not understood at all. Additionally, it was said that people won't learn new things if everything is done for them. These comments would give the image that the teams' purpose and roles was not clear to all and that unit managers did not need controlling, instead they could to the decision by themselves. It also highlighted that production planners were not helpful, because own personnel were really talented.

Generally about support services it can be said that unit managers did not know where to get help. The service portal was felt un-useful and there were some problems to find common language or words between the support functions and units in order to fully understand the problem or solutions. Additionally, the prohibition to contact HR support were not felt as a good thing, instead it took more time to solve the issues because you had to circle the issues through operational planners. Also service hours got few mentioning, that it would need to be longer than it was now.

If looking at the unit managers questionnaire made in 2018, it can also be seen that service hours is a topic that has strong opinions. Already then it was hoped from ~25% of the respondents that service could be received before 8 o'clock (appendix 1 – table 14).

Intranet was generally felt as not a really working platform for all users. From the interviews it was highlighted that if you are an experienced employee at the employer company, you know how to use the intranet, but for new employees it surely can be difficult and disorganized. Also points that information spread and behind many steps, data is old and incorrect and the search only works if you happen to know the exact right word stood out as negative themes.

Intranet was also felt poor in unit managers questionnaires at 2021 and 2018. 2021 one comment told that intranet is un-useful because of old data and poorly working search functionality. In 2018 questionary intranet was too felt as bad way to find information. According to table 8 59,1% of respondents gave score from 1-5 when asking about how easily instructions could be found from intranet and 40,8% scored 6-10 where 1=completely disagree and 10= completely agree (appendix 1). As a conclusion to these, current intranet would definitely need some changes, if not even rebuilding it.

Few comments raised form the interview also about different instructions. They need to be written in language and words that units are using in order to be understood. Instructions should be tested before publishing with the “stupidest” user to see, if it can be understood.

Secondly I formed conclusions about which parts were working well from unit manager’s perspective. One noticeable thing was the outsourced support. It was generally felt as a good thing. During the interviews only two mentioned that they were not happy with current services while 10 of 11 respondents said that support offered from company A and 6 of 11 respondents said that support offered from company B were good or excellent. Also, if looking at the company A’s survey done at 2019, it can be seen that only 2,3% of respondents felt the service they offered as poor and 2,2% didn’t know whether it was good or bad. while 95,6% rated the service being excellent or good. Thus it can be said, that outsourced support services are felt mostly as a very good thing. Reason for rating the services as good was fast replies, friendly and professional help, quick minor developments and understandable answers with screenshots.

As the diamond team got some bad comments about it, it also received some good comments. It was said that the team knew the units like their own pockets and thus were fast when help was needed. It also lowered the threshold to contact them, because not everything needed to be explained from the start. It had lots of expertise and it was good that help was offered for those who really needed it. Few comments also stated that operative planners were useful to help with HR and marketing related tasks.

From intranet there were also few positive comments: the favorites functionality was felt good and needed. With it user could save the most used pages to own front page for easy access later. The front page was seen as a good information channel with different system alarms and topical data.

Remote control was also pointed out as a good thing. It was said that it easy to just leave the computer under remote-control while you are able to do something else, like being at

the cash register. Remote control was also mentioned when demonstrating some functionalities from different systems in order to carry out needed tasks.

Additionally, based on the analyzed material, conclusions about needed support topics and how often support is needed and future hopes could be made. Based on the interview results support is needed to five main themes: system usage, for new things and systems, HR related issues, orientation and also marketing. HR related tasks was the most commonly said issues as 9 of 11 respondents brought that up and more accurately, the help is needed with surprisingly and unusual situations. If looking at the ticket numbers, it could be said that support is also needed for IT related tasks and for POS and payments. HR ticket amounts are too very high, which support the conclusions from interviews that help is needed with HR related tasks.

If looking at the results from 2018 unit managers questionnaire (appendix 1 – table 10) it can be seen that the topics that need most help are quite same as interview results: POS and payments, IT & computers and invoicing & finance. Only the invoicing & finance did not rise up from the interviews. Thus it could be said, that tasks that need support stay quite same year after year.

Also, if you look at the table 19 about how often support is needed from the 2021 questionary, it can be seen that HR, IT & computer tasks, profit monitoring and finance tools are the topics that need support at least as much on weekly and monthly basis than rarely. This too supports the conclusion made in the last two paragraphs.

How often is support needed were asked in both unit managers questionnaires. In 2018 the idea was to get the overall picture about how of the help is needed and in 2021 questionnaire the idea was survey more accurately by different themes how often the help is needed. According to table 11 (appendix 1) it can be said that the support is mostly needed on monthly basis (little under 50% of the respondents). The need for support on weekly and rarely is quite near each other, around 20%. In order to compare these numbers, I calculated the presential values based on the fact how of the support is needed from 2021 results (table 23).

Table 23. Presential values of how often support is needed from 2021 questionary

Daily	0,26 %
Weekly	6,28 %
Monthly	17,19 %
Rarely	68,21 %
Never	13,78 %
This is not done at the unit	1,43 %

The questions selection of choice was not exactly same during 2018 and 2021, so the results can't be directly compared. Though they point some direction about the topic. Thus it can be said that the frequency for support need has changed. During 2018 the support was needed most at weekly basis and now the support is needed most at rarely than monthly basis.

When pondering the issue about what kind of support in future would be good, conclusions can be made based on the interviews, company A customer satisfaction survey and year 2018 questionary results. As stated before company A customer satisfaction survey verifies the opinion highlighted from the interviews: outsourced supports are a good thing that should not be discontinued. Thus, in future, one thing is definitely to continue with current outsourced support services and possibly even to expand those for other topics too.

In 2018 it was asked that with what channels would the support be received (appendix 1 – table 7). From the answers it could be concluded that phone and email channels were the most popular and part of normal daily tasks, thus easy to use. Also, when comparing the results about how intranet is felt in the interviews, it could be said that it is easier to ask help than try to find out information by self. Also, already in 2018 chat service raised positive interest and this was again highlighted with interviews. One comment was there to say that chat service might even replace the phone, because of its ability to add pictures unlike with phone. Thus it can be claimed that chat service should indeed be taken in use.

Additionally to phone, email and chat channels, support could be offered through different electric channels and teams or some other remote control system. Also the information that support request is received would increase the reliability of the support functions. It was also hoped that one person would then deal the issue to its end, so that the backgrounds wouldn't need to be explained to many persons.

In 2018 questionnaire it was also asked in what ways would the respondents like to receive support. Based on table 9 in appendix 1 it can be said that support would like to be received by short skype or teams information announcements, written and video instructions and also one point of contact got some endorsements. Interview results also supported these comments that were given already at 2018. Video material, written instructions with screenshots, recorded trainings and online training platform would definitely support for finding help without asking it first. In written instructions it was highlighted that in addition to large system manuals quick guides would be highly appreciated. Also the importance of instructions that would be made with unit language can't be forgotten. Last but not least, all these instructions should be found in one place with as few clicks as possible. They need to be easily accessed.

The most important thing that raised multiples times was the speed of answers and easy way to contact. Responses are needed fast, even though it wouldn't be the solutions, just an update that the issues is under work. Service hours were also mentioned couple of times, that those need to be long enough so that units can have help. Proactive information about system problems should be continued and a bit improved too.

Few completely new ideas also raised from the interviews: sharing new ideas and working-ways, not just support and a calendar tool that gathers all the meaningful days in place, e.g. dates for vacation lists and informing profit numbers.

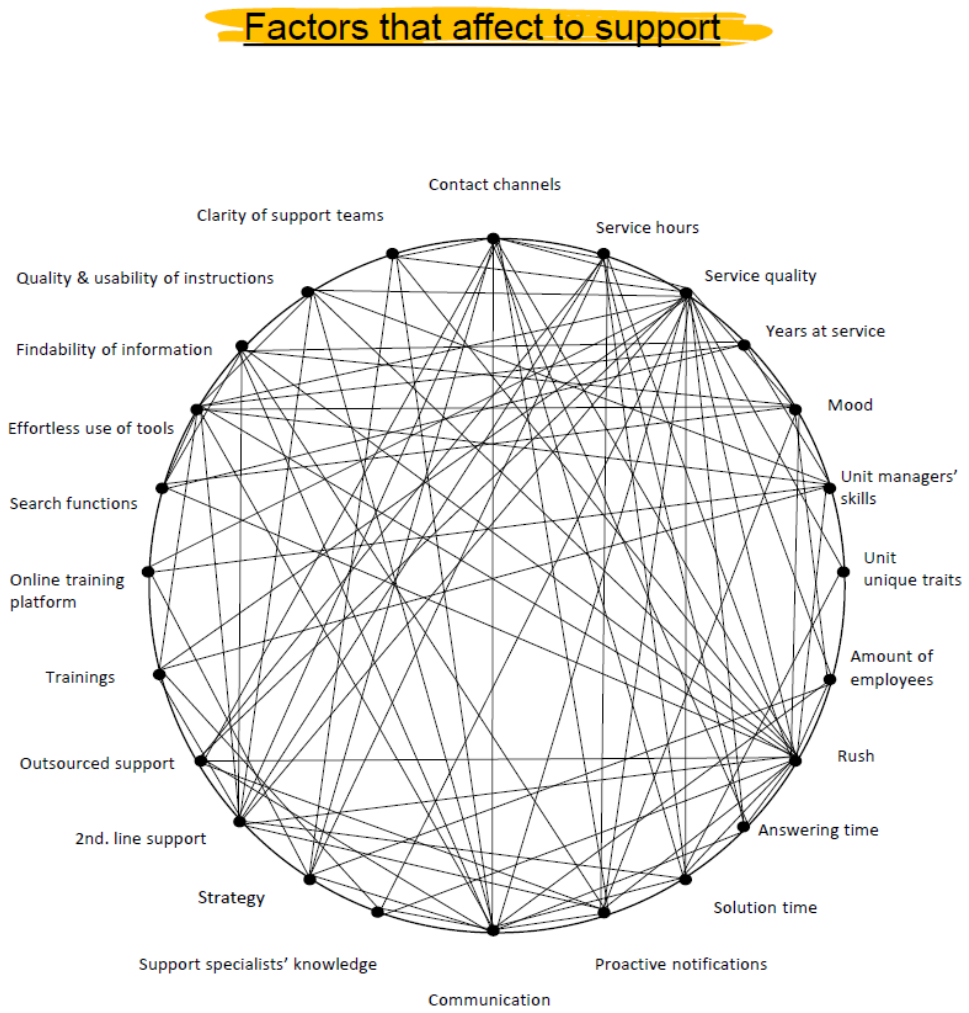
13 Creating personas, user stories and system maps with service design methods

The data raised two larger themes for creating the personas: employees' time of experience and ways to get help. Actual personas and user stories can be found from appendix 5. User stories were created for each persona to give more rich perspective of the personas. The created personas were: "experienced employee", "less experienced employee", "the caller" and "the searcher". Based on the interviews it is clear, that people who have long career paths at the employer company, are familiar to company's ways-of-working, tools and communication. Thus these will easily find the needed information and do not need that much support. These persons are also great information sources by themselves and can share that knowledge among colleagues. On the other hand, persons who are less experienced at working for the employer company, need more help and do not necessarily know how to use the tools in hand or even from where to search the information at first place.

The overall conclusions and the interviews, on the other hand, supports the other two personas: "the caller" and "the searcher". There are people, who like to search information firstly be themselves and ask help if then needed. At the same time, there are personas, who likes to call rather than spending time to search. "The callers" justify their choice by saying that information is outdated, information is hard to find or cannot be found at all and that the searching takes way too much time because of divided information and un-user friendly systems. Also, at some cases, calling might be formed as a learned habit to do so – "I receive help by calling so why to bother to do it by myself". "The searchers" on the other hand are more eager to search and find information and solutions be themselves in order to learn more and also, for the next time, to know from where the information should be searched for. Some of them even might say that while the first search takes time, afterwards it is even faster than asking and waiting the help to be received. Sometimes the answers are needed to wait days or weeks, even though the answer would be needed quicker. Calling does not secure the fast answers, because the one who answers might not know the answer and thus forward the question onwards.

These personas and user stories were created to be sharpen examples of the different support needers. With these the company can become aware of the support seeker types, their needs and behaviors and use this data to develop the ways of offering support further.

Additionally I created two different system maps to describe all the related issues from the chosen topics. The topics that I chose for these maps were: factors that affects to support and a stakeholder map. These two topics highlighted from the analyzed material and they support the objectives and research questions I had.



Picture 18. Interconnected circles map about factors that affect to support

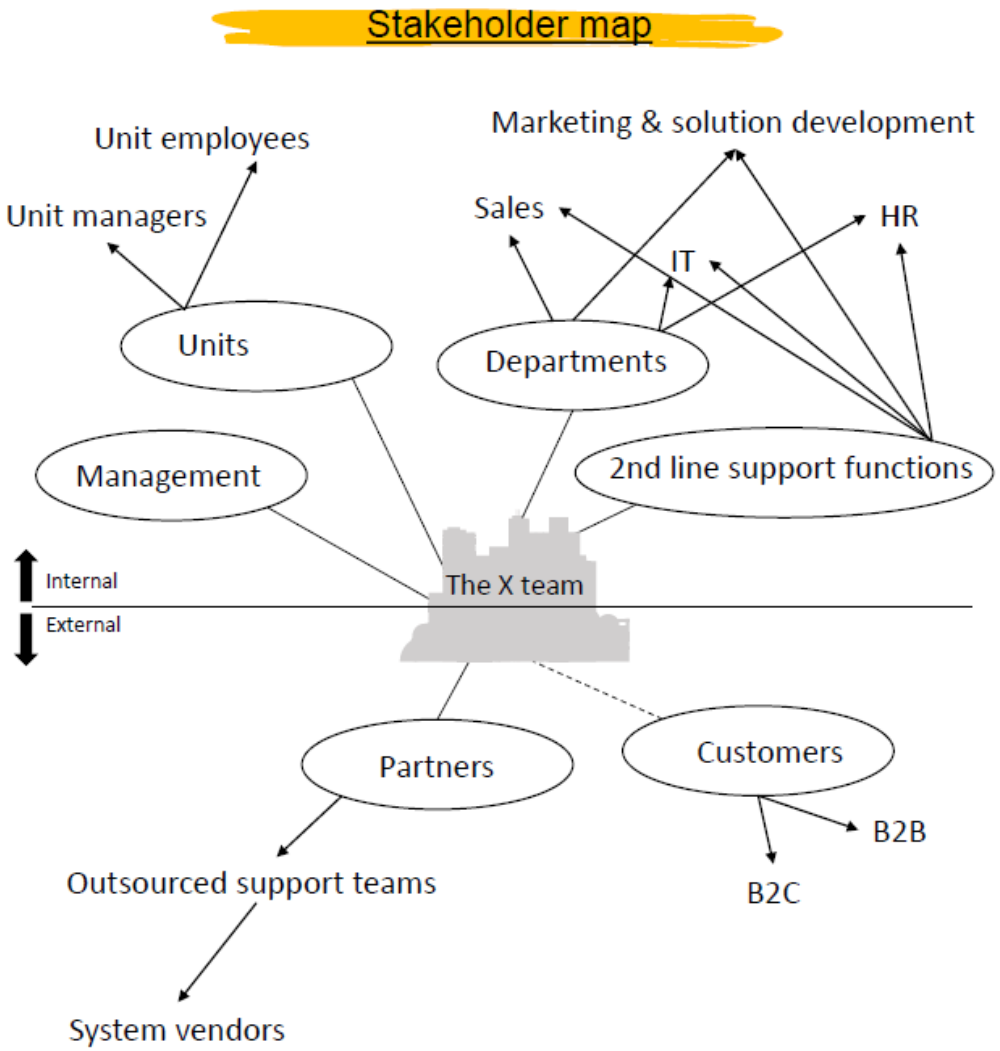
I picture 18 is the created interconnected circles map about factors that affect to support. I started the creation with mind mapping all the factors that had raised from the analyzed material that might affect to support. From those I chose the most important ones that has clear affection to the topic and that are most relevant from the objectives point of view. Then I created the circle and placed the chosen factors somewhat equally distributed to frame the circle. After this I went through one by one each factor and drew the connections among those. As looking at the picture, it can be easily seen that few factors are highlighted: service quality, rush, 2nd line support, contact channels and service hours. This tells that these factors have the most meaning and relations among other factors – in

other words these are the factors that should be focused to when offering and developing support services. By concentrating on these, satisfaction level for support services can be increased.

If looking more closely for example the factor “contact channels” it can be seen that it has relations to outsourced support, 2nd line support, strategy, communication, proactive notifications, solution time, answering time and rush, at least. In which ways are the outsourced and 2nd line support contacted? Does company’s strategy give some guidelines that might affect the selected contact channels, for example digitalization as a tool? Communication on the other hand is possible through different contact channels and proactive notifications can possibly be produced through (automated) contact channels. Also, chosen contact channels affects to solution and answering times – how easily is the support team reached – with how little effort can they communicate back? The less effort the more rapidly can the solutions be made. Of course, it is good the keep in mind that contact channels are not the only thing that affects the rapidness of solutions made. And by this also the rush is connected the contact channels.

In picture 19 is presented the stakeholder map which shows the most essential stakeholders for the X team. Stakeholders are divided into internal and external and also themed by groups. External stakeholders are outsourced support teams that act as a part of direct support for the units. The other group is customers, that operate with units and might need help with some common systems or tools or other issues. Both two groups might also communicate directly with the X team if needed.

Internal stakeholders are just about all of the employer company’s departments. Each department has an own relation to the X team: management gives the guidelines and manage the team forward, units are using the support, departments are the backbone for storing, delivering and sharing data and processes and lastly the 2nd line support functions are the ones who solve the tickets with the X team, if needed. Thus it can be said that the X team is like a cross-point where all the departments connect.



Picture 19. Stakeholder map for the X team

14 Operational Excellence team's tool & data gathering

As the new operational excellence team was launched in 2021 April they, among 2nd level support teams, decided to start using system C as their data management tool for ticketing and reporting. This was because of the employer company had decided to use system C as the service center software and because by using this kind of software the team could start to gather more accurate information and data bank about needed support.

Similar tools have been used also earlier with few of the employer company support teams, but not this systematically. Now this team has an opportunity to gather the exact data about support needs and everything related to that. Tool enables highly detailed ticketing for the team. With this data the team can gather it, analyze it, make conclusions and form development strategies instead of gut feelings.

By moving towards data-driven decision making the team, unit managers and whole stakeholder group (as described in picture 19) can benefit. Decision and strategies are clearly based on data and can thus be easily justified. It creates transparency with management processes and affect probably positively to employee engagement. When data drives the decision-making it also encourages the X team employees to produce more accurate data step by step. In other words, they have a clear way to affect teams development.

In order to make effective developments, also metrics need to be taught and decided as part of gathered data. By measuring meaningful issues, development can be seen and stated. Measurements should base on X teams objectives. As stated in metrics theory, there can be three kinds of metrics: technology, process and service. By finding at least one measure for each group, the service can be fully understood and monitored. Below is a list of possible measures for the X team to choose from:

- Technology
    - Failure times of system C
    - Failure times of systems most used in units
        - POS system
        - ERP system
        - HR management system
- Process
    - Tickets / calls handled in month
    - Average time of single ticket / call handling

    - Response time
    - Response percentage for all requests
- Service
    - Unit managers satisfaction level for support services
    - Stakeholders satisfaction level for support services

It is quite important to measure both unit managers (support users) and stakeholders (support givers) satisfaction level in order to see are the thoughts same or not. If the indicators vary a lot or are negative it should be searched why the groups feel so. Could the reason be for example different understandings about the use of support services? In every case that the metrics are negative, situations should be searched accurately in order to produce useful services. The suggested process measurement can identify the speed and fastness of the given support. It was one of the most important things that featured from the results, thus it needs to be monitored and also reported to support users. With technology measurements the X team can monitor the most commonly used systems and identify whether the system failures are one reason for high amount of tickets or not. These also give information about the state of systems and can raise questions about need of change.

Additional to measurements and ticket amounts the system offers multiple choices for data to be collected. This is only possible if the system is used properly and the detailed ticketing data is fulfilled. At first, the team can start with compact amount of fields in use and then, when the knowledge of the system usage and support related issues grows, to move using larger amount of fields. The more accurately the tickets are handled, the more data is gathered to backup development and decision-making. Data, that would help the X team to develop are at least: the category, subcategory and content of the ticket. Category tells high-level topic for the request, like HR, IT or marketing. Subcategories can be one or more, depending how accurately the data is wanted to be documented. Subcategories could be like recruiting, orientation, vacations for HR, computers, printers, network, software for IT and systems, campaigns, materials for marketing. The ticket content itself gives the exact information about what has been asked. With accurate data the X team can identify for example the most frequently asked questions, needs for training, re-occurring problems and so on. These identifications should then lead to actions which should lead to decreasing contact amounts for support and also to more qualified support services in a long run.

The actual values of categories and subcategories might change as time goes by. These should at first be defined based on the X team's objectives. Later they could rise the choices of categories in order to get more accurate data. Categories should not just include operative themes like HR or marketing. They should include also selections like development idea, question, problem and even more accurately: system bug, system failure, system update. These could also give wider understanding of the request coming in.

Also the information about the unit that created the ticket could be useful to gather and analyze. By monitoring this data the X team can receive information if one or some specific units need support more on average bases and then analyze the reasons behind it. The analyze should then lead to actions and actions should lead to increased level of support quality in those units, as they receive help for the root cause of multiple tickets.

For further development one indicator to monitor might be the knowledge that needed the ticket to be sent for 2nd level support or not. This indicates the level of knowledge within the X team and also the quality / difficultness of the tickets. In this case it would also be interesting to follow the content of this tickets: is there something that could be trained d more for the X team and even for the unit managers or is it a case that should also in future be handled in 2nd level support?

15 Reviewing the reliability and validity of the research

As stated earlier in chapter 9.5, there are no ready-made measurements to validate research reliability because the research is more based to qualitative than quantitative methods. Thus, I have pondered and justified throughout the research the choices I have made. By this it is clear and transparent to any reader, why have I ended up to the choices and methods used. Also, as the analyze of the research was made with both qualitative and quantitative methods it increases the reliability of the results as the similar outcomes could be seen in parts made with either one of the methods.

Even though there were many different data sources used in this research, it is needed to state that support tickets were systematically tracked only by company A, ICT and IT teams. This might affect to results with the way that the results are more concentrated to these topics than others, for example accounting or marketing. Also, because IT and ICT teams changed their ticketing system and the data analyzed was from only some parts of time, the results cannot be directly generalized. They can be held only as approximate.

One feature that might have affected to research results and its reliability and validity is the variation of answers both in questionnaires and interviews because of random factors. Answers are often affected by the hectivity of the situation, answerers state of mind and time and place where the answers are given. If for example the answers are given at the end of the day, they might be given too hasty because of the answerers lack of concentration and tiredness. Also, with questionnaires, the answers might have been accidently entered wrong which will affect to results.

With interviews, additional to mentioned above, unclear questions and errors made while writing down the answers might also affect to results. The errors while writing down the answers for interview questions where minimized by using the Microsoft Office Word's software for transcribes. Additional to automated transcribes I also listened the interviews once more and compared the transcribes to recordings in order to fill in possible missing points or errors in the text. About unclear questions it was noticed that answers to questions 6-8 did not really differ from each other and that the answers were very similar. This is a point that needs to be said out loud but it actually did not affect to research validity, because the questions were concerning about the same topic and the answers were given to what was asked. This more brought up the need to pre-test the interview questions before the actual interviews to be sure that all the question differ enough from each other's.

When pondering the generalizability and transferability of the research's main outcomes (speed of answers, easy electric ways to contact, positive feedback on outsourced support services and clear contact points) it can be stated that most of these results could easily be transferred to other circumstances. If thinking for example customer service support for any web shops or public services, as a user myself I definitely would appreciate contact information that can be found easily, multiple ways to ask help and also receiving help fast when needed. As also service center best practices framework presents in any support service it can be held important that answers are received quickly, there is clear point of contact and in today's world electric channels are offered to use. Only one outcome out of four (positive feedback on outsourced support services) cannot be seen as a way of work that always improves the support functions. It can be seen more as an idea to ponder, whether the support can or cannot be outsourced and would it bring any benefits.

Also, when looking more closely at answers of the different questionnaires and interview, it can be said that the results of those can be generalized because of the number of respondents. In 2018 questionnaire the answer rate was 63%, with 2021 questionnaire it was 52,86% and with company A customer satisfaction survey it was 40%. The number of interviews were received 11 and based on theoretical framework, 6-12 answers offer reliable results. During the interviews it came also clear that, no new information were received after six or seven answers, which also indicates that the number of answers were sufficient to make conclusions.

As a part of reliability it also important to ponder if my own role as a member of the researched community and my values have affected the research and it's results. While working as a part of the employer company's internal ICT team I felt that our team's resources were not enough for solving and educating the unit managers needs and that unit managers struggled with finding help. By justifying made choices and used methods throughout the research it can be seen that my opinions have not directed the research since the results include also many positive sides, like the amount of expertise in different support teams or fast answers via the diamond team.

While pondering the validity of my research it is important to think how well the chosen methods are supporting the research questions, did the answers gave solutions to what was asked and whether the results can be generalized and thus be said to be valid. Research questions for this research were the following:

1) Which were the issues in the past support model and why?
2) Which parts were working well in the past support model and why?

3) How the chosen new support model can develop their working habits with data?

The chosen methodology for this research was inductive based on the fact that I had many different data sources from which I founded repetitive patterns and from those patterns the conclusion were made. As management strategy, I used action research. If looking at the theory and made research steps, it can be said that the chosen strategy were right: development proposals were given by means to influence organizations procedures. In research strategy methods, two methods were used simultaneously: case studies to collect and analyze data from the past state in order to understand the reasons behind the results and survey studies to find the patterns from the collected data.

Data collection were conducted with interviews and questionnaires. Interviews offered more deep information about support and reasons behind the answerers opinions whereas questionnaires offered more larger information about needed support types in general. Interview question were pondered through overlay matrix to ensure how they are linked with the chosen framework. These methods together with ticketing data analyzation gave large and trustful base for conclusions to be made. Thus it can be said that the chose methods did help to receive the right kind of data for set research questions.

When comparing the results between questionnaires made in 2018 and 2021. it is need to identify that time spent in between the questionnaires might have affected to answers. During that time, employees for example are probably learned more about company's working habits and where to find help. On the other hand, the employees might have changed during this time, so the results would then be more comparable among each other. Also, the questions and scales on those are not equal between the questionnaires so no direct comparison could thus be made. Nevertheless the comparison gave some approximate results about how the support have changed during the years.

By looking all of the listed points when pondering the validity and also reliability of my research, it can be said that there were not found meaningful factors that would have affected to research validity. It can also be said that the results are reliable when keeping in mind the highlighted points: answering amounts, available ticketing data, variations of answers because of random factors, generalizability of the outcomes, analyze processed with both qualitative and quantitative methods and my values that are revealed.

At the end, my opinion about this research is that it was worth doing it, the results can be relied on, and that these result will give clear and structured information for the target organization to work with in the future.

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Appendixes

Appendix 1. Questionary for unit managers about support services in 2018

Appendix 2. Questionary for unit managers about support services in 2021

Appendix 3. Themed interview questions for unit managers

Appendix 4 Survey about company A's service level satisfaction

Appendix 5. Personas and user stories

Appendix 1: Questionary for unit managers about support services in 2018

Yksiköiden tukipalveluiden uudistaminen

Case yritys X

Tutkimussuunnitelma

Sanna Törmälä (os. Jousala)

Tutkimus
Liiketoiminnan koulutusohjelma
2018

Sisällys

1 Johdanto

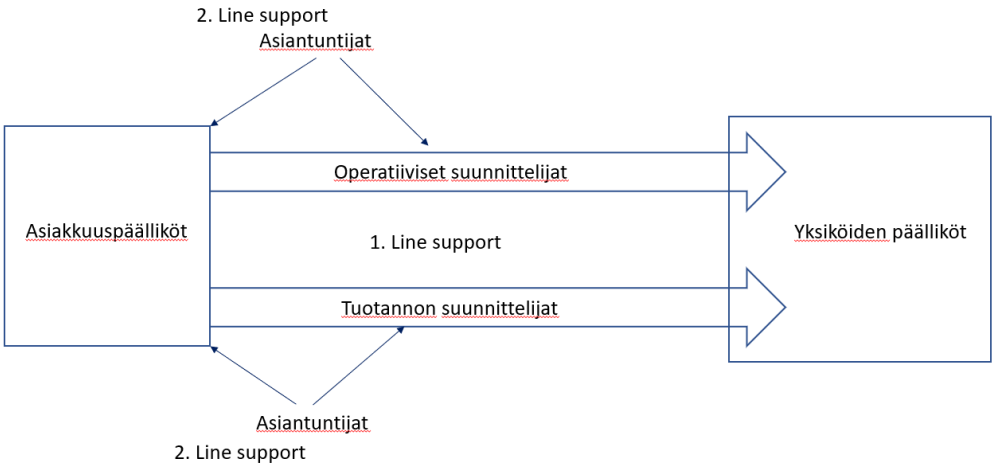
Tämän tutkimuksen aiheena oli selvittää yksiköiden, operatiivisten suunnittelijoiden ja tuotannon suunnittelijoiden toiveita ja tarpeita tulevaisuuden operatiiviseen tukimalliin sekä löytää mahdollisia haasteita ja pullonkauloja nykymallista. Tutkimukseksi valittiin määrällinen tutkimus ja se toteutettiin kyselylomakkeen avulla.

Tutkimus tehtiin nykyiselle työnantajalleni, yritys X:lle joka toimii asiakaspalvelualalla Suomessa reilun 500 yksikön voimin.

2 Tutkimuksen tausta ja tavoite

Tutkimus hetkellä reilun 500 yksikön tukitoiminnot olivat jakautuneet omiin yksikköihinsä. Tuki käsitti seuraavat yksiköt: HR-tuki, laatutuki (esim. hävikki & asiakaspalautteet), talous-, laskutus- ja järjestelmätuki, markkinointi- ja myyntituki sekä hankinta- ja tuotekehitystuki. Yksiköillä oli siis useita puhelinnumeroita ja sähköposteja, joihin ottaa yhteyttä, kun apua tarvittiin. Aina henkilökunta ei tiennyt, mihin tukeen ottaa yhteyttä missäkin asiassa. Tämän seurauksena yksiköt turhautuivat pitkiin viestiketjuihin ja toisaalta taasen samat pyynnöt kiersivät usean tuen läpi työllistäen tarpeettoman suurta määrää asiantuntijoita.

Ongelmaan oli herätty yrityksessä useissa toiminnoissa ja sen vuoksi perustettu työryhmä, joka tutki, miten voimassa ollutta tukipalvelua voitaisiin uudistaa. Uutta tukimallia oli hahmoteltu rakennettavaksi kuvan 1 mukaisesti. Yksikön päälliköitä tulisivat jatkossa tukemaan ensisijaisesti operatiiviset suunnittelijat sekä tuotannon suunnittelijat. Näitä henkilöitä tukisivat sitten tarpeen mukaan asiakkuuspäälliköt sekä eri tiimien asiantuntijat. Tällöin yksittäiset tukitiimit osittain ehkä poistuisivat ja asiantuntijat voisivat jatkossa keskittyä kehittämiseen tukemisen sijaan.



Kuva 1: Uusi tukimalli.

Tutkimista nykyisen tukimallin toimivuudesta ja ongelmakohdista oli lähdetty jo tekemään toteuttamalla muutamia syvähaastatteluita sekä yksiköiden päälliköille, että tuessa toimiville asiantuntijoille & tuen esimiehille. Koska yksiköitä on yli 500, ei jokaista päällikköä voitu haastatella erikseen. Tämä antoi hyvät lähtökohdat toteuttaa määrällinen tutkimus, jotta jokaiselle päällikölle annettaisiin mahdollisuus osallistua uuden tuen rakentamiseen. Tukipalveluiden perusajatuksena on kuitenkin toimia aina nimenomaan yksiköiden apuna.

Yksiköiden päälliköiden syvähaastatteluissa käytettiin ennalta suunniteltuja kysymyksiä. Tuloksia tarkasteltaessa huomattiin seuraavia pointteja:

- Yksiköiden päälliköt eivät osaa antaa vinkkejä siitä, mitä tulevaisuuden tukimalli voisi olla
- Osa koki erilliset tukipalvelut hyväksi, osa taas kaipaisi yhtenäistä mallia. Yhtä paikkaa, johon olla yhteydessä
- Tukea kaivattaisiin myös viikonloppuisin, nyt sitä tarjotaan vain arkisin
- Erilaisilla paikoilla erilaisia avuntarpeita (isot kohteet vs. pienet kohteet)
- Apua on helpoin hakea puhelimitse (sähköposti ja etsintä verkosta hitaita tapoja)
- Kaivataan uusia tapoja tiedon jakamiseen ja opiskeluun
- Tukiasiat pitäisi saada helposti ja nopeasti hoidettua (Xxxxxxxx-Xxxxxxxx, 29.9.2018)

Nämä haastattelut ja esiinnousseet kommentit antoivat hyvän pohjan tutkimuksen toteuttamiselle. Kokemus näytti, että tutkimukseen tarvitaan valmiita vaihtoehtoja, joista

valita tai antaa arvioita. Päälliköt eivät osaa välttämättä antaa vastauksia uusiin ideoihin muuten.

3 Tutkimusongelma

Tutkimuksen aiheena oli selvittää yksiköiden, operatiivisten suunnittelijoiden ja tuotannon suunnittelijoiden toiveita ja tarpeita tulevaisuuden tukimalliin sekä löytää mahdollisia haasteita ja pullonkauloja nykymallissa. Tutkimus tehtiin osana meneillään ollutta uuden tukimallin kehittämisen projektia.

Tutkimuskysymyksenä oli: Millainen tukitarve liiketoiminnalla on?
Alakysymyksinä käytettiin seuraavia:

- Kuinka tyytyväisiä vastaajat ovat nykyisiin tukipalveluihin kokonaisuudessaan?
    - Kysytään tyytyväisyyttä koko tukipalveluille yhteisesti asteikolla tyytyväinen – ei lainkaan tyytyväinen.
- Miten tukea halutaan saada?
    - Tässä selvitetään, millä työkalulla tai mitä kautta vastaajat haluaisivat saada apua. (sähköposti, puhelin, chat-palvelu, tietoportaali)
    - Kysymyksissä otetaan myös kantaa ohjeiden käyttämiseen ja etsimiseen
- Mihin asioihin tukea tarvitaan?
    - Tässä selvitetään yleisimmät tukipyyntöjen sisällöt. Tarvitaanko tukea eri järjestelmiin (jos niin, mihin?), valikoiman suunnitteluun, laskutukseen jne.
- Kuinka useasti tukea tarvitaan?
    - Tässä tutkitaan pyyntöjen tiheyttä. Kuinka useasti vastaaja lähettää tukipyyntöjä päivä-, viikko- ja kuukausitasolla. Lisäksi kysytään kuinka monta tukipyyntöä vastaajat lähettävät edellä mainituilla aikajaksoilla.
- Milloin tukea tarvitaan?
    - Tässä kysymyksessä tutkitaan aikaikkunaa, milloin vastaajat tarvitsevat tukea. Kysymyksissä otetaan esille kellonajat sekä viikonpäivät.
- Miten nopeasti tukea tarvitaan?
    - Tässä tutkitaan, ovatko tukipyynnöt luonteeltaan kiireellisiä vai ei-kiireellisiä ja kuinka paljon näitä pyyntöjä tulee.
    - Kriittinen = tarvitset apua 1 tunnin sisällä
    - Kiireellinen = tarvitset apua 8 tunnin sisällä
    - Ei-kiireellinen = tarvitset apua 24 tunnin sisällä

4 Aineiston keruu- ja analyysimenetelmät

Tutkimus toteutettiin verkon kautta tehtävänä kyselynä ja se luotiin työnantajalla käytettävissä olevalla Surveypal ohjelmalla. Linkki kyselyyn lähetettiin jokaiselle yksikön päällikölle, operatiiviselle suunnittelijalle ja tuotannon suunnittelijalle sähköpostitse. Tällöin otannaksi muodostui 428 henkilöä.

Kysymykset suunniteltiin niin, että vastaukset pystyttiin keräämään, tai tarvittaessa muuntamaan, numeraaliseen muotoon. Kyselyssä oli mukana 6 avointa kenttää omille kommenteille sekä runsaasti valmiiksi määriteltyjä vastausvaihtoehtoja tutkimusongelman mukaisesti. Tyytyväisyyttä ja mielipidettä kysyessä käytettiin lomakkeessa vaihteluväliä 1-10 (1= Täysin eri mieltä, 10= Täysin samaa mieltä).

Yksiköiden päälliköt valikoituivat kohderyhmäksi, koska he ovat taho, joka on yhteydessä tukipalveluihin. Yksiköiden päälliköt ovat viimekädessä vastuussa oman yksikkönsä tuloksesta ja toimien oikeellisuudesta. Näin ollen he ovat ryhmä, joka tarvitsee eniten tukea ja koulutusta. Lisäksi kysely lähetettiin operatiivisille suunnittelijoille ja tuotannon suunnittelijoille, jotta saisimme tietoa, millaista tukea he tarvitsevat toimiessaan jatkossa yksiköiden ensikontaktina tukiasioissa.

Kyselylomake jaettiin seuraavilla taustamuuttujilla:

1. Yksikön päällikkö
    a. 1-2 henkilön paikka
    b. 3-5 henkilön paikka
    c. Yli 5 henkilön paikka

2. Operatiivinen suunnittelija
3. Tuotannon suunnittelija

Tutkimusasetelma oli ei-kokeellinen kyselytutkimus. Tukipalveluista ei ole aiemmin teetetty kyselyitä näin laajamittaisesti, joten vertailupohjaa aiempiin tuloksiin ei ole käytettävissä. Sen vuoksi kyselyllä pyrittiin selvittämään nykytilanne ja tarve, jotta tiedettäisiin, mitä uudelta mallilta vaaditaan. Tulokset analysoitiin Excelin avulla, eriyttäen ne taustamuuttujittain.

5 Tulokset

Kysely lähetettiin yhteensä 428 henkilölle. Tästä määrästä yksiköiden päälliköitä oli 384, operatiivisia suunnittelijoita 22 ja tuotannon suunnittelijoita 22. Vastauksia kertyi yhteensä 271 kappaletta. Otannasta siis 63,32% vastasi kyselyyn, joten tuloksia voidaan pitää yleistettävinä. Taustamuuttujina käytettiin seuraavaa jakaumaa:

1. Yksikön päällikkö
    a. 1-2 henkilön paikka
    b. 3-5 henkilön paikka
    c. Yli 5 henkilön paikka

2. Operatiivinen suunnittelija
3. Tuotannon suunnittelija

Taulukko 1: Vastauksien määrät

	Vastauksia	Lähetettyjä	Prosenttia
Tuotannon suunnittelija	16	22	72,73 %
Operatiivinen suunnittelija	26	22	118,18 %
Yksikön päällikkö	229	384	59,64 %
Kaikki	271	428	63,32 %

Taulukossa 1 on esitetty vastauksien määrät taustamuuttujittain. Suurin vastausmäärä tuli yksiköistä, kuten oli oletettuakin. Saimme myös hyvän prosentuaalisen vastauksen tuotannon suunnittelijoiden ryhmältä suhteessa lähetettyjen kyselyiden määrään, joten tuloksia voidaan tarkastella taustamuuttujittain. Operatiivisten suunnittelijoiden kohdalla vastauksia kertyi enemmän kuin lähetettyjä kyselyitä. Tämä voi johtua muun muassa siitä, että vastaajat ovat epähuomiossa valinneet väärän vaihtoehdon roolin kohdalla. Tuloksia arvioitaessa operatiivisten suunnittelijoiden ryhmän kohdalla pitää huomioida arviolta noin 40% liian suuri vastaajamäärä. Arvio perustuu keskimääräiseen vastausprosenttiin muissa ryhmissä ((72,73%+59,64%)/2=66,19%, 22*0,6619=14,56 eli noin 15 vastausta).

Yksiköiden päälliköille oli tehty lisäksi toinen taustajakauma, jossa kysyttiin heidän yksikkönsä kokoa eli työntekijöiden määrää. Taulukosta 2 käy ilmi, että suurimmat vastausmäärät kertyivät yli 5 henkilön kohteista. Tämä antaisi ymmärtää, että isompien yksiköiden johtamisessa on enemmän kiinnostusta ja tarvetta tukipalveluihin. Toisaalta näissä kohteissa saattaa myös olla aikaa enemmän käytettävissä asioiden tarkempaan pohtimiseen ja suorittamiseen.

Taulukko 2: Yksikön koko

	Lukumäärä	Prosenttia
1-2 henkilöä	43	18,8 %
3-5 henkilöä	61	26,6 %
Yli 5 henkilöä	125	54,6 %
Kaikki	229	100,0 %

Ohessa on jäsenneltynä tutkimuskysymyksittäin oleelliset tulokset.

5.1 Kuinka tyytyväisiä vastaajat ovat nykyisiin tukipalveluihin kokonaisuudessaan?

Tällä haimme tutkimuksessa vastauksia nykyiseen tukimallin tyytyväisyyteen ja sen toimivuuteen. Kysyimme 3 eri kysymystä, joihin vastattiin asteikolla 1-10 (1= täysin eri mieltä, 10 = täysin samaa mieltä.). Ensimmäisenä kysyttiin, ovatko vastaajat tyytyväisiä siihen, että jokaiselle tukitoiminnolle on eri yhteystiedot (sähköposti & puhelin). Vastaukset käyvät ilmi Taulukosta 3, jossa ne on jaoteltu rooleittain. Vihreällä värillä on korostettu suurimpia vastaajajoukkoja. Yksiköiden päälliköt ovat kaikkien tyytyväisimpiä ja sitten tuotannon suunnittelijat. Operatiivisten suunnittelijoiden kohdalla on huomionarvoista se, että yli 19% vastaajista on täysin eri mieltä siitä, että eri tukipalvelut olisivat hyvä asia. Operatiivisten suunnittelijoiden kohdalla tulee kuitenkin muistaa, että vastauksia on annettu noin 40% liian paljon, joten tulokset heittävät.

Kysymys: Mielestäni on selkeää, että eri toiminnoille on omat tukitoiminnot (useampia sähköposteja/puhelinnumeroita)

Taulukko 3: Tyytyväisyys erillisiin tukipalveluihin

	Tuotannon suunnittelija (n= 16)	Operatiivinen suunnittelija (n= 26)	Yksikön päällikkö (n= 229)	Kaikki
1	6,3 %	19,2 %	4,4 %	4,7 %
2	6,3 %	0,0 %	3,9 %	3,6 %
3	6,3 %	0,0 %	7,9 %	6,8 %
4	6,3 %	7,7 %	4,4 %	4,7 %
5	6,3 %	0,0 %	8,7 %	7,6 %
6	0,0 %	11,5 %	3,1 %	3,6 %
7	0,0 %	3,8 %	13,5 %	11,5 %
8	18,8 %	26,9 %	21,4 %	21,2 %
9	6,3 %	7,7 %	17,9 %	15,8 %
10	37,5 %	11,5 %	11,4 %	12,6 %
n	16	26	229	278

Seuraavaksi arvioitiin tukipalveluiden tarjoamien palveluiden selkeyttä. Kysymys esitettiin näin: Tiedän, mistä tukipalvelusta saan apua mihinkin kysymyksiini (mitä tukea saan yksiköiden tuesta, mitä IT:stä, mitä laskutustuesta jne.). Taulukosta 5 käy ilmi, että valtaosa vastaajista on tietoisia, mikä tukipalvelu osaa auttaa milloinkin. Vihreällä korostetut kohdat osoittavat suurimmat vastaajamäärät. Tuotannon suunnittelijoissa sekä yksiköiden päälliköissä huomataan kuitenkin pieni epävarmuus selkeydestä.

Taulukko 4: Tukipalveluiden selkeys

	Tuotannon suunnittelija (n= 16)	Operatiivinen suunnittelija (n= 26)	Yksikön päällikkö (n= 229)	Kaikki
1	6,3 %	7,7 %	3,5 %	2,9 %
2	6,3 %	3,8 %	3,9 %	4,0 %
3	12,5 %	0,0 %	8,3 %	7,6 %
4	0,0 %	3,8 %	10,5 %	9,0 %
5	6,3 %	7,7 %	6,1 %	6,1 %
6	0,0 %	0,0 %	7,4 %	6,1 %
7	6,3 %	3,8 %	10,9 %	9,7 %
8	18,8 %	19,2 %	19,2 %	18,7 %
9	25,0 %	11,5 %	15,3 %	15,1 %
10	12,5 %	30,8 %	11,4 %	12,9 %
n	16	26	229	278

Tyytyväisyyden osana kysyttiin myös sitä, onko vastauksia saatu nopeasti (saman työpäivän aikana), vai ovatko vastaukset viipyneet pidempään. Tästä taulukosta käy jo hieman enemmän hajontaa ilmi. Etenkin tuotannon suunnittelijoiden osalta vastauksissa on mennyt selkeästi pidempään kuin yksi työpäivä. Myös yksiköiden päälliköiden ja operatiivisten suunnittelijoiden vastauksissa on huomattavissa samaa. Tästä voisimme päätellä, että vastaajat kaipaisivat nopeammin vastauksia omiin kysymyksiinsä arjen keskellä.

Taulukko 5: Vastauksien nopeus

	Tuotannon suunnittelija (n= 16)	Operatiivinen suunnittelija (n= 26)	Yksikön päällikkö (n= 229)	Kaikki
1	12,5 %	7,7 %	6,1 %	5,4 %
2	12,5 %	7,7 %	4,8 %	5,4 %
3	6,3 %	7,7 %	4,4 %	4,7 %
4	0,0 %	3,8 %	6,1 %	5,4 %
5	6,3 %	15,4 %	10,5 %	10,4 %
6	0,0 %	7,7 %	8,3 %	7,6 %
7	0,0 %	7,7 %	12,2 %	10,8 %
8	6,3 %	3,8 %	14,4 %	12,6 %
9	37,5 %	19,2 %	20,1 %	20,5 %
10	12,5 %	7,7 %	9,6 %	9,4 %
n	16	26	229	278

Taulukossa 6 on vielä yhteenvetona kaikkien kysymysten eritellyt keskiarvot sekä yhteinen keskiarvo. Tämä keskiarvo antaa kokonaiskuvaa vastauksena kysymykseen ”Kuinka tyytyväisiä vastaajat ovat nykyisiin tukipalveluihin kokonaisuudessaan?”. Keskiarvot pyörivät 6,6-6,8 välillä, joten voimme todeta, että vastaajat ovat keskimäärin tyytyväisen puolella, vaikkakaan ei paljon yli puolen välin (arvo 5). Asteikko tässä kysymyksessä oli 1-10 (1= täysin erimieltä ja 10= täysin samaa mieltä). Keskiarvossa on syytä ottaa huomioon myös mahdollinen virhemarginaali. Kun tyytyväisyys nykyisiin palveluihin on keskimäärin 6,7, keskiarvon 95% luottamusväli on tällöin 6,4 -7.

Taulukko 6: Keskiarvot

	Keskiarvo	Keskihajonta	n
Mielestäni on selkeää, että eri toiminnoille on omat tukitoiminnot (useampia sähköposteja/puhelinnumeroita)	6,8	2,6	256
Tiedän, mistä tukipalvelusta saan apua mihinkin kysymyksiini (mitä tukea saan ravintolatuesta, mitä IT:stä, mitä laskutustuesta jne.)	6,7	2,6	256
Olen saanut vastaukset tukipyyntöihini nopeasti (yhden työpäivän sisällä)	6,6	2,7	256
Kaikki	6,7	2,6	

5.1.1 Avoimet kommentit

Avoimet kommentit liittyen nykyisten tukipalveluiden tyytyväisyyteen on jätetty pois tietosuojasyistä. Kommenttien pohjilta voidaan kuitenkin todeta, että tyytyväisiä ei juurikaan olla, lukuun ottamatta muutamaa yksittäistä kommenttia.

5.2 Miten tukea halutaan saada?

Seuraavaksi tutkittiin tapoja, miten tukea haluttaisiin tulevaisuudessa saada. Vastaajilta kysyttiin mielipiteitä eri työvälineiden käyttöön, erilaisiin ohjeisiin sekä omatoimiseen ohjeiden ja tiedon etsintään. Tässä osiossa kysyttiin lopuksi myös mielipidettä siihen, olisiko parempi, että tukipalveluita olisi olemassa vain yksi monen eri tahon sijaan.

Taulukossa 7 on esitetty kaikkien vastaajien kesken mieluisimmat työvälineet tuen saamiseksi: puhelin, sähköposti, chat-palvelu (jos tällainen olisi tarjolla, käyttäisitkö) sekä tietoportaali (intranetin pelastusrengas). Keltaisella värillä on korostettu yli 10% vastausmääriä ja vihreällä värillä yli 20% vastausmääriä. Puhelin ja sähköposti ovat selkeästi vastaajien mielestä parhaimmat tavat saada ja pyytää tukea. Yli 40% kaikista vastaajista piti puhelinta mieluisimpana tapana kommunikoida. Chat-palvelu herätti mielenkiintoa puolesta sekä vastaan. Reilu 16 % ei olisi kiinnostunut kokeilemaan chattia mutta taas yli 35% vastaajista yhteensä kokeilisi palvelua ihan mielellään. Tuen hakeminen intranetissä olevan pelastusrenkaan kautta ei taas tuntunut mieluisalta vaihtoehdolta. Lähes 40% vastaajista yhteensä koki portaalin huonoksi vaihtoehdoksi (vastaukset arvoltaan 1-4). Tiedon ja avun etsiminen itse jakoi vastaajien kesken selkeästi mielipiteitä. Hieman alle 30% piti itsenäistä etsimistä ei-mieluisana kokemuksena (vastaukset arvoltaan 1-4), kun taas lähes 50% piti etsimistä mieluisana tai keskimäärin mieluisana vaihtoehtona (vastaukset arvoltaan 6-10).

Vastauksista voimme päätellä, että sähköposti ja puhelin ovat osa jokapäiväistä työtä ja helppoja käyttää avun hakemiseen. Tässä syynä voisi olla esimerkiksi se, että vastaajat kokevat nopeammaksi kysyä apua kuin etsiä tietoa itse. Chat-palvelun herättäessä mielenkiintoa näinkin paljon, sitä voisi lähteä kokeilemaan, toimisiko se uutena kanavana avun saamiseen.

Taulukko 7: Työvälineiden käyttö

	Puhelimitse	Sähköpostilla	Chat-palvelulla	Portaalin kautta (pelastusrengas)	Etsin itse
1	2,0 %	3,2 %	16,3 %	16,3 %	11,9 %
2	0,8 %	0,4 %	6,0 %	7,9 %	4,0 %
3	2,0 %	1,6 %	5,6 %	7,9 %	6,0 %
4	3,2 %	3,6 %	5,2 %	6,7 %	6,3 %
5	2,4 %	4,4 %	9,1 %	12,7 %	11,5 %
6	1,6 %	5,2 %	4,0 %	8,7 %	9,9 %
7	6,0 %	11,1 %	9,1 %	9,1 %	12,3 %
8	17,5 %	20,6 %	9,5 %	13,1 %	19,0 %
9	24,2 %	22,2 %	11,9 %	9,1 %	10,3 %
10	40,5 %	27,8 %	23,4 %	8,3 %	8,7 %
Kaikki	100,0 %	100,0 %	100,0 %	100,0 %	100,0 %

Edellisessä taulukossa vastaajat olivat hieman jakautuneet mielipiteiltään sen suhteen, onko tiedon etsiminen itse mielekästä vai ei. Vähäistä kiinnostusta etsimiseen selvittää muun muassa taulukon 8 tulokset, jossa kysyttiin sitä, kuinka helposti ohjeita löydetään intranetistä. Lähes 60 % vastaajista oli sitä mieltä, että ohjeita on hankalaa tai todella hankalaa löytää (vastaukset arvoltaan 1-5). Samalla vain noin 8% koki ohjeiden löytämisen todella helpoksi (vastaukset arvoltaan 9-10). Tämä lienee yksi tärkeimmistä kehittämisessä huomioitavista kohdista, joita uudessa tukimallissa tulisi ottaa huomioon. On turha tehdä monia ohjeita, jos koetaan, että niitä ei löydetä.

Taulukko 8: Ohjeiden löytyminen intranetistä

	Löydän intranetistä ohjeet tarvittaessa
1	7,1 %
2	9,1 %
3	13,5 %
4	17,1 %
5	12,3 %
6	10,3 %
7	12,3 %
8	10,3 %
9	6,7 %
10	1,2 %
Kaikki	100,0 %

Taulukkoon 9 on koottuna kysymyksiä liittyen ohjemateriaaleihin ja avun saamiseen eri tavoilla. Skype-tietoiskut, kirjalliset sekä video-ohjeet ovat saaneet vastaajien suosion. Näitä siis kannattaisi tehdä ja työstää sekä muistaa huomioida niiden helppo löytäminen eri kanavista. Mahdollisena uutena toimintona, asiantuntijoilta varattavat ajat, kysyimme,

mitä vastaajat olivat mieltä. Tämä palvelu jakoi jälleen mielipiteitä. Turvallista on siis sanoa, että tästä palvelusta ei keskimäärin osattu sanoa, olisiko se hyvä vai huono apu.

Vastaajilta kysyttiin myös, tykkäisivätkö he, jos kaikki tukiasiat saisi hoidettua jatkossa yhden palvelun kautta (yhdestä puhelimesta & sähköpostista). Vastaajista noin 45% oli sitä mieltä, että olisi todella hyvä, jos käytettävissä olisi vain yksi taho / osoite. Tulos on sinänsä jännä, koska ensimmäisessä kohdassa kysyimme mielipidettä, että onko vastaajista selkeää, kun eri tukipalveluilla on eri yhteystiedot. Tähän vastauksesi saimme positiivisen vastauksen: on hyvä, että palvelut ovat erillään. Samalla vastaajat myös totesivat, että he tietävät mistä apua saa mihin asiaan. Ehkäpä tästä voisi päätellä, että vastaajista olisi vielä helpompaa, jos käytössä olisi vain yksi paikka yhteydenottoon, mutta nykyinenkin malli on heille ollut toimiva.

Taulukko 9: Avun saaminen

	Eri järjestelmien käyttämisestä pidettäisiin lyhyitä skype tietoiskuja	Saatavilla olisi video-ohjeita	Saatavilla olisi kirjallisia ohjeita	Asiantuntijoilla olisi kalenterista varattavissa 30-60min tukiaikoja	Kaikki tukikysymykset saisi hoidettua yhden tukipalvelun kautta
1	3,2 %	4,4 %	2,0 %	9,1 %	4,0 %
2	1,6 %	6,7 %	1,2 %	11,9 %	2,8 %
3	5,6 %	4,8 %	2,0 %	8,3 %	6,3 %
4	7,5 %	4,8 %	1,6 %	5,6 %	4,8 %
5	9,5 %	12,3 %	8,7 %	17,1 %	11,1 %
6	9,5 %	9,1 %	11,1 %	9,9 %	7,5 %
7	13,1 %	10,7 %	12,3 %	11,5 %	8,3 %
8	19,8 %	17,5 %	26,6 %	9,9 %	9,9 %
9	10,7 %	11,9 %	13,1 %	4,0 %	13,1 %
10	19,4 %	17,9 %	21,4 %	12,7 %	32,1 %
Kaikki	100,0 %	100,0 %	100,0 %	100,0 %	100,0 %

5.2.1 Avoimet kommentit

Avoimet kommentit liittyen eri tapoihin saada tukea on jätetty pois tietosuojasyistä. Kommenteista voidaan kuitenkin todeta, että ehkä tuloksiakin selkeämmin, intranet koetaan erittäin hankalaksi ja huonosti toimivaksi tiedonetsintä kanavaksi.

5.3 Mihin asioihin tukea tarvitaan?

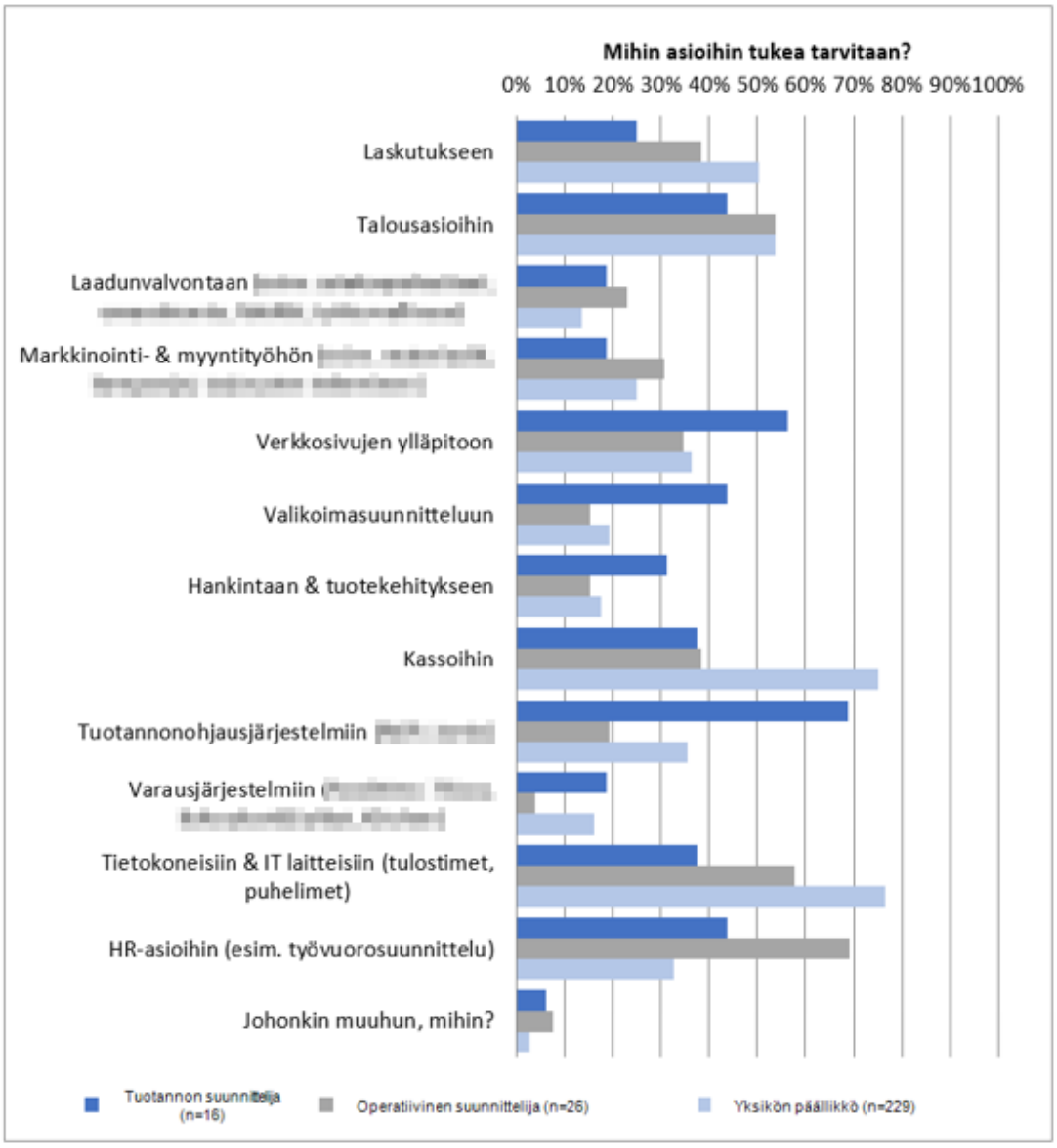
Taulukosta 10 käy ilmi, että tuen tarve eri asioihin vaihtelee hieman eri rooleista riippuen. Yksiköiden päälliköiden suurimmat tukitarpeet kohdistuvat kassoihin, tietokoneisiin & IT-laitteisiin sekä talouteen ja laskutukseen. Tuotannon suunnittelijoiden tuen tarve on suurimmillaan tuotannonohjausjärjestelmissä sekä verkkosivujen ylläpidossa. Kun taas operatiiviset suunnittelijat tarvitsevat tukea HR-asioihin, talouteen sekä tietokoneisiin & IT-laitteisiin.

Muutama vastaus kertyi myös vaihtoehdolle ”johonkin muuhun, mihin”:

- rekrytointiin
- Perehdytys olisi voinut olla systemaattisempaa, että tietäisi mitä kaikkea pitäisi osata, selviää sitten työn edetessä
- HR-järjestelmään
- Yksikössäni oleviin diginäyttöihin
- Talouden järjestelmiin.

Näistä suurimmista tuen tarpeista sekä avoimista kommenteista voisi päätellä, että vastaajat voisivat hyötyä näiden asioiden äärelle järjestetyistä koulutuksista. Näin voisimme saada tuen tarvetta arjessa vähennettyä.

Taulukko 10: Tuen tarve aihealueittain



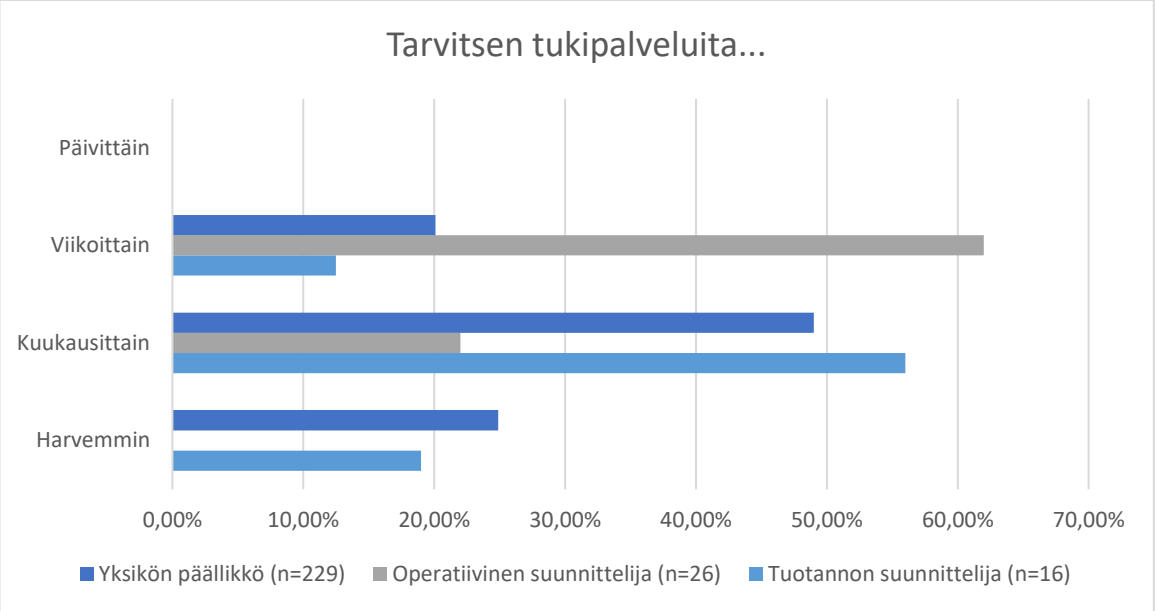
5.3.1 Avoimet kommentit

Avoimet kommentit liittyen tuen tarpeen jakautumiseen eri osa-alueisiin on jätetty pois tietosuojasyistä. Kommenteista voidaan kuitenkin todeta, että yhtenäiseksi tekijäksi nousi tuki etenkin erilaisiin laitteisiin, kuten kassaan sekä intranetin toiminnallisuuden parantaminen.

5.4 Kuinka useasti tukea tarvitaan?

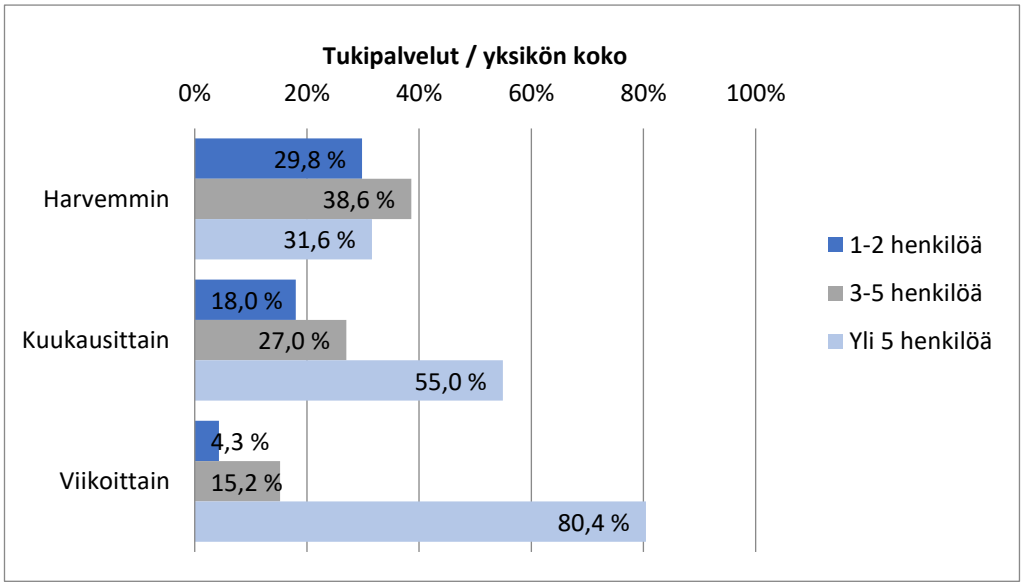
Tässä tutkittiin pyyntöjen tiheyttä. Kuinka useasti vastaaja lähettää tukipyyntöjä päivä-, viikko- ja kuukausitasolla. Lisäksi kysyttiin, kuinka monta tukipyyntöä vastaajat lähettävät arviolta kuukausitasolla. Taulukossa 11 on esitetty vastaukset tukipyyntöjen lähetystarpeen tiheyteen. Kukaan vastaajista ei ole ollut sitä mieltä, että he tarvitsisivat apua päivittäin. Se, mikä ryhmä tarvitsee eniten tukea milloinkin, on hajautunut. Yksiköiden päälliköt sekä tuotannon suunnittelijat tarvitsevat keskimääräisesti enemmän tukea kuukausittain, kun taas operatiiviset suunnittelijat viikoittain.

Taulukko 11: Tukipalveluiden tarpeen tiheys (%-yksikköä)



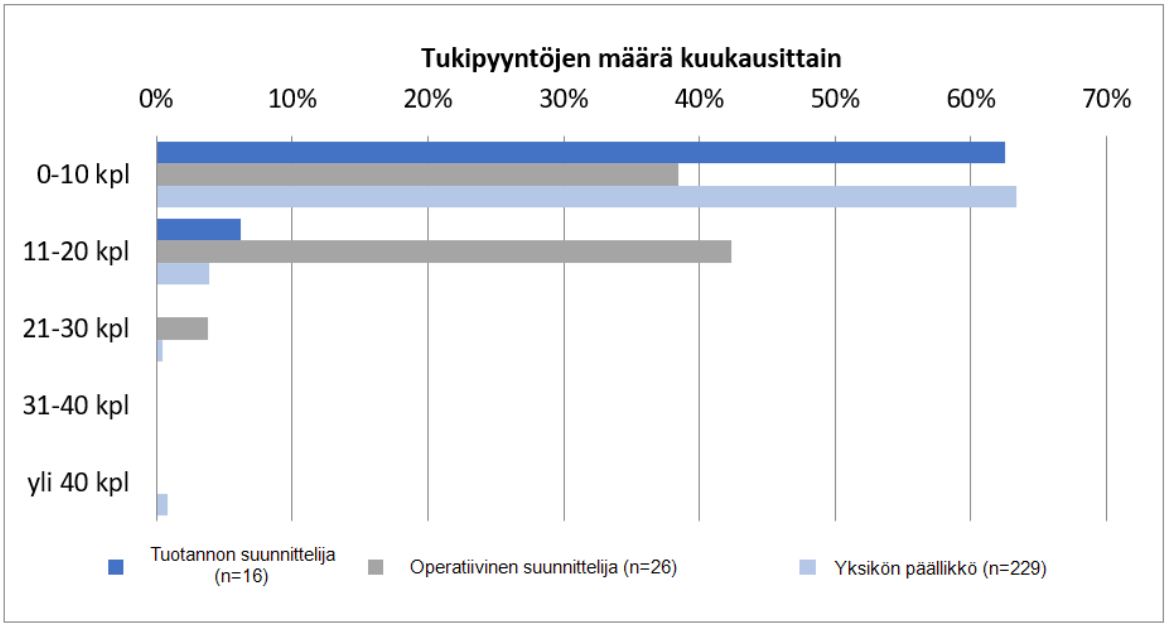
Taulukossa 12 on lisäksi tutkittu tukipalveluiden tarpeen tiheyden määriä yksiköiden koon mukaan. Kuten taulukosta käy ilmi, suurin ryhmä on yli 5 henkilön paikat viikoittaisella tukitarpeella. Myös kuukausittain tämä sama ryhmä on suurin tuen tarvitsija. 1-2 henkilön paikoista tukea tarvitaan harvemmin, kuin kuukausittain. Tämä voi selittyä sillä, että pienissä kohteissa on vähemmän liikkuvia osia, joihin tukea tarvitaan.

Taulukko 12: Tukipalveluiden tarpeen tiheys (%-yksikköä) / yksikön koko



Kuukausittaisten tukipyyntöjen määrä on arvioitu vastaajien toimesta painottuvan 0-10 ja 11-20 kpl / kuukaudessa välille (Taulukko 13). 0-10 pyyntöä kuukaudessa ei itsessään ole suuri määrä, mutta kun kerromme sen yksiköiden määrällä, saammekin kuukauden arvioiduksi tukipyyntömääräksi 0-5000 kappaletta kuukaudessa. Se on jo niin suuri määrä, että sen työstämiseen tarvitsee suunnitella toimiva ratkaisu.

Taulukko 13: Tukipyyntöjen määrä kuukausittain (%-yksikköä)



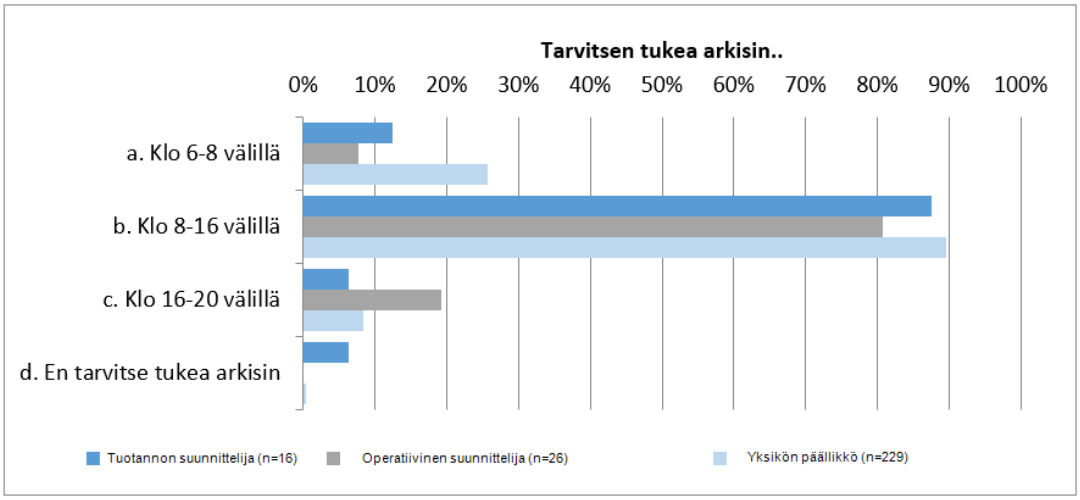
5.4.1 Avoimet kommentit

Avoimet kommentit tuen tarpeen tiheyteen liittyen on jätetty pois tieturvasyistä. Kommenteista ei käynyt ilmi mitään yhdistävää tekijää, jonka voisi nostaa esille yllä esiteltyjen tuloksien lisäksi.

5.5 Milloin tukea tarvitaan?

Jotta yrityksemme voisi tarjota tukipalveluita parhaalla mahdollisella tavalla, kysyttiin myös, millä kellonajoilla tukea useimmiten tarvitaan arkisin ja viikonloppuisin. Valtaosa vastaajista on kertonut normaalin toimistoajan klo 8-16 arkisin riittävän (Taulukko 14 ja 15). Huomionarvoista on kuitenkin myös yksiköiden päälliköiden arvioima tarve tukeen aamulla klo 6-8 välillä, joka noin 25% vastaajien määrästä. Tämän pohjilta voisi lähteä kokeilemaan aamuisin tuen tarjoamista jonkin tietyn aika jakson aikana ja katsoa, onko tarve niin suuri, että tukipalveluita kannattaa tarjota myös klo 6-8 välillä.

Taulukko 14: Tuen tarve arkisin rooleittain (%-yksikköä)



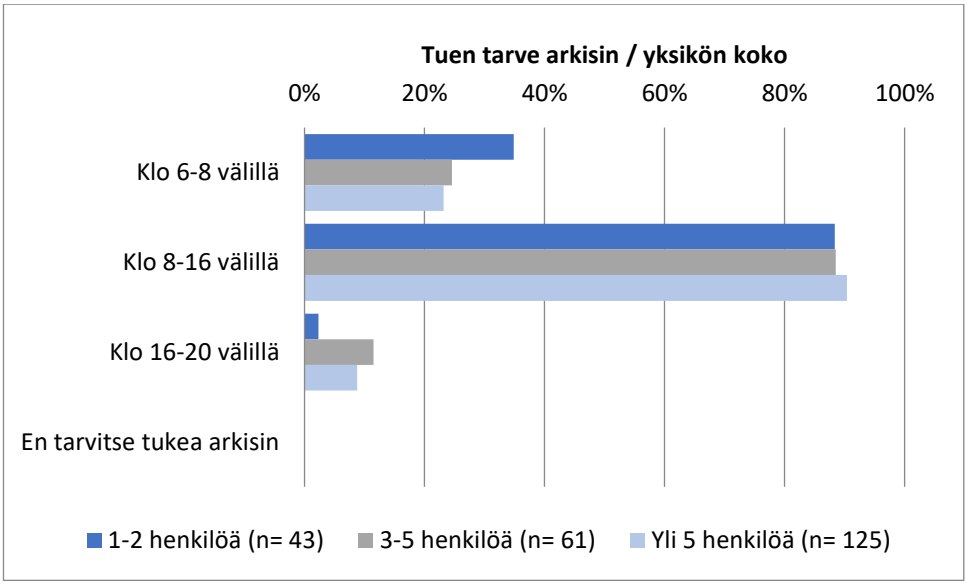
Taulukko 15: Tuen tarve arkisin rooleittain (kpl)

Lukumäärä

	Tuotannon suunnittelija	Operatiivinen suunnittelija	Yksikön päällikkö	Kaikki
a. Klo 6-8 välillä	2	2	59	63
b. Klo 8-16 välillä	14	21	205	240
c. Klo 16-20 välillä	1	5	19	25
d. En tarvitse tukea arkisin	1	0	1	2
n	16	26	229	271

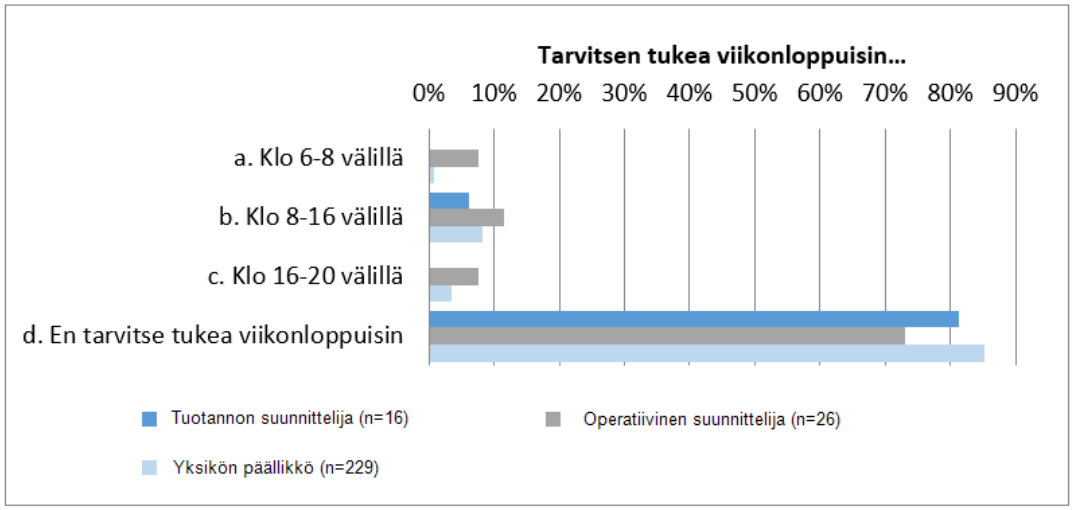
Taulukossa 16 tarkastellaan myös tuen tarpeen jakautumista arkisin yksikön koon mukaan. Tässä ei ole mitään poikkeavaa yllä olevan taulukon 14 tuloksiin verrattuna. Suurin tarve kaiken kokoisilla yksiköillä on arkisin klo 8-16 välillä. Myös aamun tukiaika klo 6-8 välillä nousee tarpeelliseksi.

Taulukko 16: Tuen tarve arkisin (%-yksikköä) / Yksikön koko



Viikonloppujen osalta valtaosa ei tarvitse tukea lainkaan (Taulukko 17). Tämä on linjassa yksiköiden aukioloaikojen kanssa, suurin osa on myös viikonloppuisin kiinni. Ne, jotka ovat kertoneet tarvitsevansa tukea, käyttäisivät sitä mieluiten klo 8-16 välillä. Vastaajamäärän ollessa niin pieni, en tiedä onko kannattavaa lähteä kokeilemaan tukipalveluiden aukipitämistä viikonloppuisin. Ei ainakaan suuressa mittakaavassa. Ehkä tähän voisi miettiä jonkin muun tavan, esimerkiksi automaatiolla toimivan chatbotin, joka osaisi etsiä apua ja vastauksia yleisimpiin kysymyksiin.

Taulukko 17: Tuen tarve viikonloppuisin rooleittain (%-yksikköä)



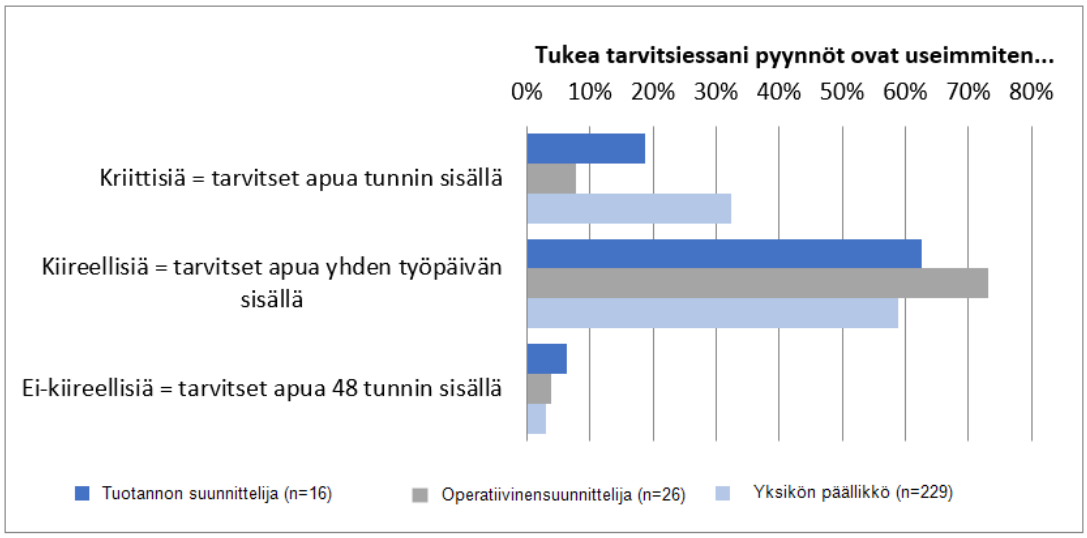
5.5.1 Avoimet kommentit

Avoimet kommentit liittyen tukipalveluiden palveluaikaan arkisin ja viikonloppuisin on jätetty pois tietoturvasyistä. Niistä voidaan kuitenkin todeta, että monesta kommentista kävi ilmi, että palveluita olisi hyvä tarjota arkiaamuisin jo klo 7.00 eteenpäin sekä sitten iltapäivisin klo 16.00 jälkeen. Näin yksiköt voisivat saada avun ennen aukeamista ja sulkemisen jälkeen. Kommenteista nousi myös esille, että moni tukitarve kohdistui kassapalveluihin ja niihin pitäisi saada tukea myös viikonloppuisin.

5.6 Miten nopeasti tukea tarvitaan?

Taulukko 18: Tukipyyntöjen kiireellisyys (%-yksikköä)

Tukipyyntöjen kiireellisyys (%-yksikköä)



Taulukko 18 esittää vastaajien mielipiteitä siitä, kuinka kiireellisiä heidän tekemät tukipyynnöt ovat keskimäärin. Alla on selitetty kiireellisyyden määritelmät:

- Kriittinen = tarvitset apua 1 tunnin sisällä
- Kiireellinen = tarvitse apua 8 tunnin sisällä
- Ei-kiireellinen = tarvitset apua 24 tunnin sisällä

Mielenkiintoista on se, että alle 10% kokee tukipyyntöjen olevan ei-kiireellisiä ja valtaosa pyynnöistä on kiireellisiä. Yksiköiden päälliköiden kohdalla myös kriittisten pyyntöjen määrä on suhteellisen suuri, yli 30%. Tämän pohjalta voimme olettaa, että valtaosaan pyynnöistä pitäisi saada vastauksia vuorokauden sisällä tai alle. Jälleen kerran tämä tulos antaa viitteitä siihen, että tukipalvelut tulee suunnitella huolella, jotta näihin tarpeisiin pystytään vastaamaan.

5.6.1 Avoimet kommentit

Avoimet kommentit liittyen tuen kiireellisyyteen on jätetty pois tieturvasyistä. Kommenteista voidaan kuitenkin todeta, että ne ovat linjassa yllä olevien tulosten kanssa, valtaosa pyynnöistä koetaan kiireellisiksi ja kriittisiksi. Mikäli näin ei ole, voidaan apua etsiä sitten itsekin. Eli tukipalveluista odotetaan ripeitä vastauksia ravintoloiden pyyntöihin.

5.7 Millainen tukitarve liiketoiminnalla on?

Tutkimuksen aiheena oli selvittää ravintoloiden, operatiivisten suunnittelijoiden ja tuotannon suunnittelijoiden toiveita ja tarpeita tulevaisuuden tukimalliin sekä löytää mahdollisia haasteita ja pullonkauloja nykymallissa. Kuten kohdassa 5.1 todetaan, nykyiseen tukimalliin ei olla keskimäärin kokonaisuudessa kovinkaan tyytyväisiä. Yksittäisiä kysymyksiä tutkiessa tyytyväisyyttä kuitenkin löytyi mm. siihen, että tukipalvelut ovat erillisiä palveluita ja siihen, että mistä palvelusta saa milloinkin apua. Oli jännä huomata, että avoimista kommenteista kävi selkeästi ilmi tyytymättömyys nykyisiin palveluihin sekä vastauksien hitaus. Kuitenkin taulukoissa valtaosa vastauksista painottui positiiviseen päähän.

Tutkimme myös, miten tukea haluttaisiin saada. Kohdan 5.2 vastauksista voimme päätellä, että sähköposti ja puhelin ovat osa jokapäiväistä työtä ja helppoja käyttää avun hakemiseen. Chat-palvelusta yli 35% vastaajista kokeilisi palvelua ihan mielellään. Tämä innokkuus näkyi myös osassa vapaita kommentteja aiheen tiimoilta. Tärkein huomio

tukipalvelun saamiseen liittyen nousi kuitenkin esiin yrityksessämme käytössä olevasta intranetistä. Sekä avoimissa kommenteissa että tutkimuksen tuloksissa kävi selkeästi ilmi, että se on huonoin mahdollinen kanava avun löytämiseen ja etsimiseen. Intranetiä pidettiin avoimissa kommenteissa muun muassa ”villinä viidakkona josta voi vahingossa oikean ohjeen löytää”.

Mihin asioihin tukea sitten tarvitaan? Nämä vastaukset jakautuivat hieman vastaajaryhmittäin eri kohtiin. Yksiköiden päälliköiden suurimmat tukitarpeet kohdistuvat kassoihin, tietokoneisiin & IT-laitteisiin sekä talouteen ja laskutukseen. Tuotannon suunnittelijoiden tuen tarve on suurimmillaan tuotannonohjausjärjestelmissä sekä verkkosivujen ylläpidossa. Kun taas operatiiviset suunnittelija tarvitsevat tukea HR-asioihin, talouteen sekä tietokoneisiin & IT-laitteisiin. Avoimissa kommenteissa tuen tarve nousi tärkeimmäksi erilaisiin laitteisiin ja IT-välineisiin liittyen. Nämä suurimmat tuentarvekohteet voisivat hyvin olla ne, joita lähdetään ensisijaisesti perehdyttämään käyttäjille. Tällä voisimme vähentää tuen tarvetta arjessa. Perehdyttämisen tärkeys nousi myös vastaajien kommenteissa esiin useammassa eri kohdassa.

Tutkiessamme tukipalveluiden tarpeen määrää, kukaan vastaajista ei ole ollut sitä mieltä, että he tarvitsisivat apua päivittäin. Se, mikä ryhmä tarvitsee eniten tukea milloinkin, oli hajautunut. Yksiköiden päälliköt sekä tuotannon suunnittelijat tarvitsevat keskimääräisesti enemmän tukea kuukausittain, kun taas operatiiviset suunnittelijat viikoittain. Kuukausittaisten tukipyyntöjen määrä oli arvioitu vastaajien toimesta painottuvan 0-10 ja 11-20 kpl / kuukaudessa välille (Taulukko 13). 0-10 pyyntöä kuukaudessa ei itsessään ole suuri määrä, mutta kun kerromme sen ravintoloiden määrällä, saammekin kuukauden arvioiduksi tukipyyntömääräksi 0-5000 kappaletta kuukaudessa. Se on jo niin suuri määrä, että sen työstämiseen tarvitsee suunnitella toimiva ratkaisu. Taulukossa 19 on lisäksi tutkittu miten kiireellisyys ja tiheys ovat suhteessa keskenään. Kuten voimme huomata, vastaukset painottuvat nopeudeltaan Kiireellisiä kohtaan. Eniten niitä tarvitaan kuukausittain, sitten harvemmin ja puolet vastaajista tarvitsee kiireellistä apua viikoittain. Myös kriittisiä avunpyyntöjä tarvitaan, eniten viikoittain. Avoimista kommenteista oheiset tulokset kävivät myös hyvin ilmi. Pyynnöt ovat kiireellisiä tai kriittisiä ja niitä tulee vastaan viikoittain. Mikäli pyynnöt ovat ei-kiireellisiä, niihin voidaan etsiä apua itsekin.

Taulukko 19: Tukipalveluiden jakautuminen kiireellisyyden ja tiheyden suhteen

		Tarvitsen tukipalveluita..(valitse yksi)			
		Harvemmin	Kuukausittain	Viikoittain	Kaikki
Kiireellisyys	Ei-kiireellisiä = tarvitset apua 48 tunnin sisällä	6,7 %	0,8 %	6,3 %	3,6 %
	Kiireellisiä = tarvitset apua yhden työpäivän sisällä	60,0 %	73,8 %	51,6 %	64,8 %
	Kriittisiä = tarvitset apua tunnin sisällä	33,3 %	25,4 %	42,2 %	31,6 %
	n	60	126	64	250

Tutkimuksessa kävi myös ilmi, että suurin tukitarve vastaajilla on arkisin klo 8-16 välillä. Avoimista kommenteista kuitenkin nousi selkeästi esiin, että vastaajat toivoisivat tukipalveluita saataville myös aamuisin klo 7-8 välillä sekä iltaisin klo 16 jälkeen. Nämä perustuivat siihen, että ravintoloiden palveluaikoina he eivät ennätä pyytää apua, vaan sitä tarvitaan usein jo ennen aukeamista tai sitten asiaan ehditään palata päivän jälkeen. Osa vastaajista toivoi myös viikonloppuisin jonkinlaista mahdollisuutta tukipalvelun kontaktointiin. Etenkin kassa-asiat huolettivat vastaajia ja niihin kaivattaisiin tukea laajemmalla aika- skaalalla.

6 Tutkimuksen luotettavuuden ja pätevyyden pohdintaa

Reliabiliteetilla tarkoitetaan mittauksen satunnaisia virheitä ja validiteetilla mittauksen systemaattisia virheitä. Yleistettävyydellä otetaan taasen kantaa otoksen edustavuuteen ja suuruuteen. (Taanila 11.9.2018)

Tässä tutkimuksessa reliabiliteettia haittaavia tekijöitä nousi esiin ainakin yksi, liian suuri operatiivisten suunnittelijoiden vastauksien määrä. Tämä voi johtua muun muassa siitä, että vastaajat ovat epähuomiossa valinneet väärän vaihtoehdon roolin kohdalla. Tuloksia arvioitaessa operatiivisten suunnittelijoiden ryhmän kohdalla pitää huomioida arviolta noin 40% liian suuri vastaajamäärä. Arvio perustuu keskimääräiseen vastausprosenttiin muissa ryhmissä ((72,73%+59,64%)/2=66,19%, 22*0,6619=14,56 eli noin 15 vastausta). Toinen mahdollinen ongelma saattoi olla vastauksien vaihtelu satunnaisten tekijöiden vuoksi. Alla on kerrottu tarkemmin, mitä nämä tekijät tarkoittavat käytännössä.

Vastaus vaihtelee satunnaisten tekijöiden takia
Vastauksiin vaikuttavat muun muassa tilanteen hektisyys, vastaajan mielentila, vastauspaikka ja -aika. Jos vastaajalla on esimerkiksi ollut kiire päivä ja hän tekee vastaukset päivän päätteeksi, saattaa olla, että vastaaja ei jaksa keskittyä kyselyyn ja vastaukset ovat liian pikaisesti annettuja, eivätkä välttämättä vastaa todellisuutta.

Vastaus kirjataan vahingossa väärin

Vastaajilla saattaa tulla satunnaisia, vahingossa väärin annettuja vastauksia kysymyksiin.

Validiteettia uhkaavia tekijöitä ei tässä tutkimuksessa noussut esiin. Eli kaikki kysymykset, termit ja asettelut olivat tehty niin, että vastaajat vastasivat juuri siihen mitä kysyttiinkin. Myös mielipideasteikot olivat kaikissa kysymyksissä samat, joten päättelyitä voitiin luotettavasti tehdä ja niitä voitiin myös vertailla hyvin keskenään.

Yleistettävyyteen vaikutti muun muassa saatujen vastausten määrä. Koko kohdejoukko eli otanta oli noin 400 henkilöä, joista vastauksia saimme vajaa 300 eli noin 63%. Tämän pohjalta tutkimusta voidaan pitää yleistettävänä.

7 Tutkimuksen onnistumisen pohdintaa

Tutkimusta oli mielenkiintoista tehdä, koska aihe on tällä hetkellä tärkeässä asemassa yrityksessämme. Ilahduin itse kovasti siitä, että vastauksia kertyi yli 60%. Tämän pohjalta tutkimuksen tuloksia voidaan pitää luotettavina, eikä tutkimusta tehty niin sanotusti turhaan. Osa vastauksista oli juuri sitä, mitä odotettiinkin. Esimerkiksi intranetin huono toiminnallisuus on tiedostettu jo aiemmin, mutta nyt saimme siitä kirjallista materiaalia. Ehkäpä tämän pohjalta saamme viimein muutoksia aikaan ja tehtyä siitä myös toimivan työkalun kaikille työntekijöillemme yrityksessä.

Tukipalveluiden osalta yksiköiden tuki lakkautettiin sellaisenaan vuoden 2018 syksyllä ja sen myötä tukipyyntöihin vastaaminen on hidastunut. Yksiköiden tukitiimi muuttui yksiköiden ICT- tiimiksi ja sen tarkoitus on tulevaisuudessa toimia enemmän teknisenä tukena, kuin käytännön asioiden apuna. Tästä muutoksesta ei ole vielä kunnolla kommunikoitu yksiköille ja se myös näkyy tutkimuksen tuloksissa ja avoimissa kommenteissa.

Mielestäni onnistuin etsimään tutkimukseen ne oleellisimmat kysymykset, joilla saimme kattavat vastaukset tukitarpeista. Näillä tuloksilla yrityksessämme on helpompaa lähteä kehittämään uutta tukimallia, kun tiedämme, mitä yksiköt tarvitsevat. Vastauksien pohjalta voidaan myös lähteä tekemään erilaisia pilotti-kokeiluita, jotta löydettäisiin oikeasti paras tapa toimia. Moni asia toimii lopulta eri tavalla käytännössä, kuin miten sitä on ensin teoriassa ajatellut. Vasta käytännön kokeilut näyttävät todellisen asian laidan.

Koen, että tutkimusta voidaan pitää kaiken kaikkiaan onnistuneena ja siitä saadaan hyvät lähtötiedot uusien palvelumallien kehittämiseen. Tätä tutkimusta on myös hyvä käyttää vertailupohjana, kun mittaamme tulevaisuudessa uusien palveluiden onnistumista.

Lähteet

Xxxxxxxx-Xxxxxxxx, X. Yksikön ICT tiimin esimies. 29.9.2018 Yksiköiden päälliköiden teemahaastattelujen vastaukset. XXXX. Kirjatut vastaukset editoimattomina. Helsinki

Taanila, A. 11.9.2018. Lehtori. Kvantitatiivinen tutkimus. Haaga-Helia ammattikorkeakoulu. Luentoesitys. Helsinki.

Appendix 2: Questionary for unit managers about support services in 2021

Kysely yksikön päälliköille tuen tarpeesta

1

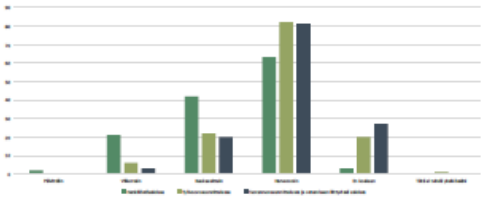
Kysely yksikön päälliköille

Selvitettiin

- Kuinka usein tukea tarvitaan (riippumatta siitä keneltä tukea pyydetään)
- Mitä tehtäviä voisi tiimiläisille siirtää
- Mitä tehtäviä heidän mielestä voisi lopettaa

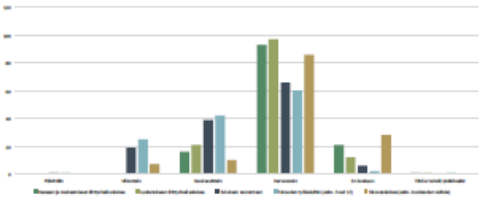
2

Kuinka usein tarvitset tukea



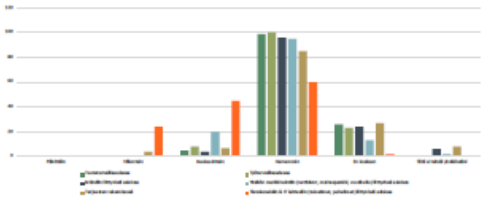
3

Kuinka usein tarvitset tukea



4

Kuinka usein tarvitset tukea



5

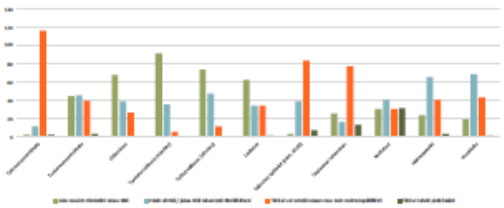
Edellä olevien asioiden lisäksi mihin tarvitset tukea

- Nämä alhaot saivat 3 - 5 mainintaa
  - Teamsin käyttö
  - Henkilöstön hyvinvointi
  - Asiakaspalautteiden vastaaminen

Huom! Lisäksi n. 40 mainintaa tietokoneiden yhteyksien / järjestelmien toimimattomuudesta / hitaudesta.

6

Mitä tehtäviä jaetaan tai voitaisiin jakaa tiimin kesken



7

Mitä tehtäviä yksikön päällikön mielestä pitäisi lopettaa

- Nämä aihoot saivat n.10 tai enemmän mainintaa
  - Erityyppiset excel –seurannat (Neukkaunta, aluen oma, ruokamäärien kirjaaminen)
  - Jatkuvat teams –kokoukset (aluen kokoukset, koulutukset)
  - Erilliset järjestelmät (Food LE, Food Lemon, Timeplan) = kaikki halutaan samaan
  - Tuntilmoitusten tekeminen
  - Inventaari jokainen kuukausi
  - Turvallisuushavaintojen / Neukuntaljen / asiakkaiden kirjaaminen / täyttäminen = tekemistä ei haluttu lopettaa
- Nämä aihoot saivat 3 – 5 mainintaa
  - Jatkuva ennustaminen
  - Sopimtamisuunnitelma
  - Tukihenkilöiden kautta raportointi esimiehille

8

Appendix 3: Themed interview questions for unit managers

Themed interview questions for unit managers

1) Minkälaisiin asioihin tarvitset tukea? (kerro esimerkkejä tilanteista)
2) Mitä hyvää on mielestäsi nykyisissä tukipalveluissa – miksi?
3) Mitä huonoa on mielestäsi nykyisissä tukipalveluissa – miksi?

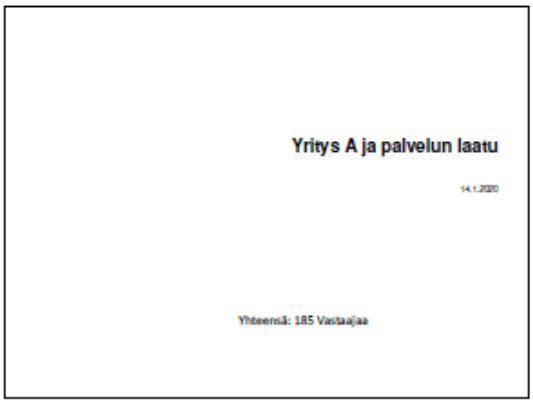
4) Koetko toimittajien* tarjoamat tukipalvelut hyväksi vai huonoksi asiaksi – miksi?

*Toimittajilla tarkoitetaan yksittäisten järjestelmien palveluntuottajia. Esim. yritys A (tarjoaa kassaan liittyvää palvelua) tai yritys B (tarjoaa varausjärjestelmän tukea)

5) Onko intranetistä apua tukea tarvitessasi – miksi?
6) Miten haluaisit saada tukea?
7) Millaista tukea haluaisit saada?
8) Millaisista ohjeista olisi apua?
9) Millainen olisi mielestäsi tulevaisuuden toimiva tukipalvelu?

*Bonus: Mitä mieltä olisit, jos uusi X-tiimi ottaisi käyttöön chat palvelun?

Appendix 4: Survey about company A's service level satisfaction



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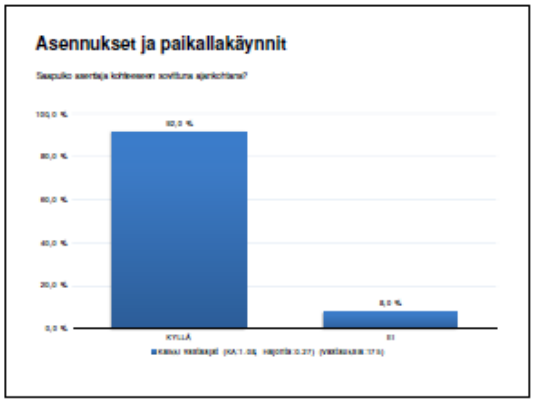

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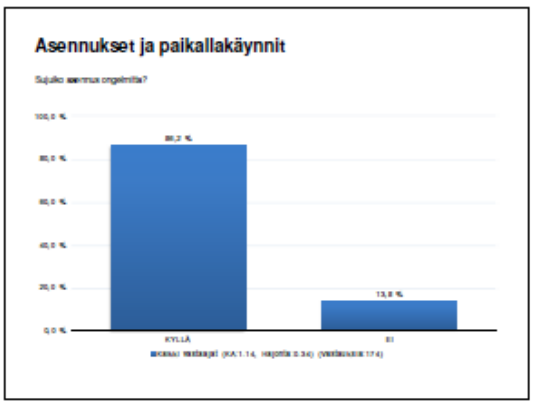

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Asennukset ja paikallakäynnit
KYLLÄ

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Asennukset ja paikallakäynnit

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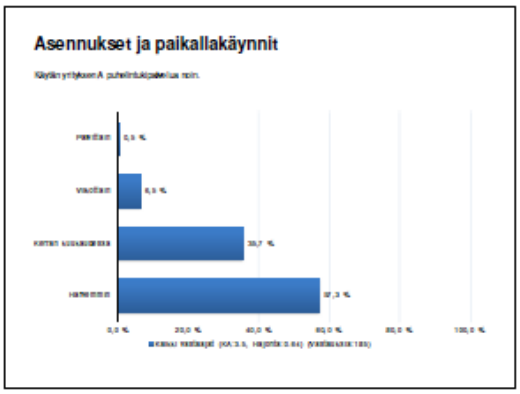
Asennukset ja paikallakäynnit

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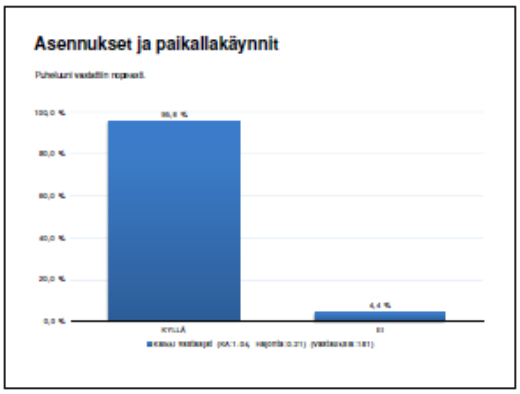
Asennukset ja paikallakäynnit
KYLLÄ

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Asennukset ja paikallakäynnit
KYLLÄ

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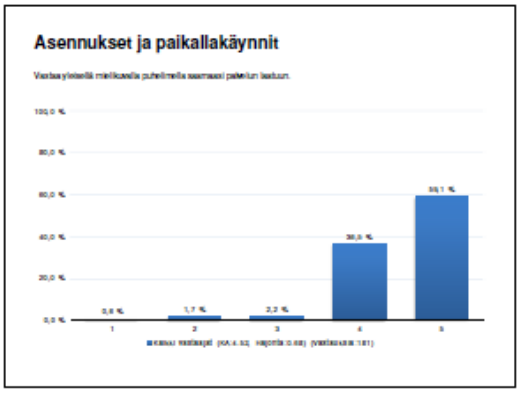
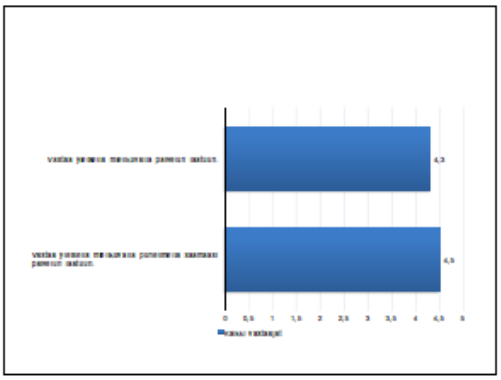

Asennukset ja paikallakäynnit

12



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Kitos!

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Appendix 5: Personas and user stories

"Experienced employee"

" I know the daily tasks, it's when the unusual tasks come along when the help is needed. "

POWERS

- Knows where to get help
- Knows how to use intranet
- Has experience from company's working habits
- Knows colleagues from whom to ask

NEEDS

- Less help because of knowledge
- Trainings for new systems and ways of working
- Help with unusual situations

BEHAVIORS

- Helps other colleagues with pleasure
- Uses electric contact channels instead of phone
- Searches information and instructions proactively

VALUES

- Easy ways to contact support and vice versa if needed
- Responsibility and decision power
- Clear roles
- Peace to work
- Instructions made with "unit language"

ASPIRATIONS

- To teach rather than give ready-made answers
- One contact point is good for support
- Proactive notifications about systems' problems

INTERESTS

- The use on electric channels for support
- Networking among colleagues
- Online training portal

“Experienced employee” stories

- I want that people takes more responsibility to ask and offer help from colleagues
- I want to receive help when I need it, not be forced to use it
- I want more responsibility and decision power to act in my unit
- I want to be able to participate trainings
- I don’t want to give up company A’s or company B’s support services by any means
- I want to use multiple channels to get help when it’s needed
- I want to receive proactive notifications about systems problems
- I want that people are rather taught to solve problems by themselves than given ready-made answers and solutions

“Less experienced employee”

” I need to spent hours in order to understand how intranet is build and where the data can be found. ”

POWERS

- Proactively asks for help
- Easily adapts new ways-of-working
- Interested to learn

NEEDS

- Help with unusual situations & daily tasks
- Trainings for new systems and ways of working
- Personal survey about working skills with different systems

BEHAVIORS

- Frequent support service user with multiple contact channels
- Partisipates trainings if available
- Seachers information

VALUES

- One clear point of contact
- One place for all instructions
- Instructions made with “unit language”
- Fast answers

ASPIRATIONS

- Information to be reliable and up-to-date
- Proactive notifications about system problems
- Knows where to get help
- Sharing best practices

INTERESTS

- Online training portal
- Chat service

“Less experienced employee”

- I want somebody to ask me what things I need help with and what not in order to know in what trainings to take part
- I want the intranet to be more user friendly with search function and structurally so that information can be found
- I want like to ask support from one place so that it would be clear where to ask it from
- I want to be able to participate trainings
- I want trainings to be recorded so I can access them also later
- I don’t want to give up company A’s or company B’s support services by any means
- I want to be able to find instructions in one clear place
- I want to be sure that I can trust the data which can be found from the intranet

The "Caller"

" I call because I don't have time to solve the problem myself / search information. "

POWERS

- Proactively asks for help

NEEDS

- Fast answers
- One clear point of contact
- Large service hours

BEHAVIORS

- Calls rather than uses other contact channels
- Calls rather than searches the information byself
- Calling is a habit

VALUES

- Clear and easy instructions
- Proactive notifications about system problems and updates

ASPIRATIONS

- Wants to focus service instead of systems
- Open communication

INTERESTS

- Trainings with smaller groups
- Sharing best practices

The "Caller"

- I want to call to ask and receive help because it's fastest way of doing so
- I want proactive notifications about system updates & problems to be published as soon as possible, so that I know the error been noticed and is being fixed
- I want instructions to be written in "unit language"
- I want to have quick guides in addition to system manuals in order to save time
- I don't want to give up company A's or company B's support services by any means
- I want short paths to find information by myself
- I want one clear point of contact
- I want long service hours so that I have time to ask for support
- I want to focus service instead of using multiple systems

The "Searcher"

" I like to search solutions in order to learn and remember it next time. "

POWERS

- Eager to learn new things
- Actively uses the support material in hand

NEEDS

- Clear place for all instructions and data
- Online training portal
- Proactive notifications about systems problems and updates

BEHAVIORS

- Uses other contact channels rather than phone
- Searches the information rather than asks it as a first thing
- Uses online trainings and recordings if available

VALUES

- Up-to-date instructions and data
- Instructions made with "unit language"
- Automated replies from contacting
- Recorded trainings

ASPIRATIONS

- New ways-of-working
- Open communication
- Shared information
- Use systems effortlessly

INTERESTS

- Electrict contact channels
- Clear paths to find the data
- New ways of sharing information

The "Searcher"

- I want to receive automated replies from my requests, that I know the messages has been received
- I want the trainings to be recorded so I can access them also later
- I want proactive notifications about system updates, problems etc. so that I know those has already been noticed and are being fixed
- I want to have one place where to find all the different instructions and videos
- I want to have online training platform to study by myself when the time is right
- I don't want to give up company A's or company B's support services by any means
- I want to search information first by myself in order to learn
- I want to use electric contact channels
- I want to information to be up-to-date so that it can be trusted