LAPIN AMK
Lapland University of Applied Sciences

DEVELOPMENT OF THE SERVER DEPLOYMENT BASED ON FORMAL CHANGE MANAGEMENT

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Master's Thesis
Technology, Communication and Transport
Technology Competence Management
Master of Engineering

2017

LAPIN AMK
Lapland University of Applied Sciences

Opinnäytetyön tiivistelmä

Tekniikan ja liikenteen ala
Teknologiaosaamisen johtaminen
Insinööri (YAMK)

Tekijä	Henna Ekonoja	Vuosi	2017
Ohjaajat	FT Soili Mäkimurto-Koivumaa, Insinööri (YAMK) Timo Vuori		
Toimeksiantaja	IT Palveluntoimittaja		
Työn nimi	Palvelinten käyttöönoton kehittyminen määrämuotoisen muutoksenhallinnan myötä		
Sivu- ja liitemäärä	58 + 4		

Työn aiheena oli selvittää, miten palvelinten käyttöönotto on kehittynyt määrämuotoisen muutoksenhallinnan myötä toimeksiantajan IT Palveluntoimittajan Suomen muutoksenhallintapalvelussa ja käyttöönottotiimeissä. Työn tavoitteena oli löytää käytössä olevan prosessin toimivat ja edelleen kehitystä vaativat osiot sekä rakentaa malli toimivasta sähköisestä palvelinten tilaustyökalusta toimeksiantajan käytössä olevaan IT-palvelunhallinnan työkaluun.

Opinnäytetyön aineisto kerättiin laadullisin menetelmin ja siinä hyödynnettiin palvelumuotoilua olemassa olevan palvelun kehittämiseksi. Toimeksiantajan Suomen muutoksenhallintatiimille pidettiin ryhmähaastattelu Business Model Canvas -mallilla ja yhteensä neljää asiakastiimien vastuullista henkilöä haastateltiin kasvokkain avoimilla kysymyksillä. Ryhmä- ja yksilöhaastattelujen tulokset analysoitiin, jotta saatiin kuva nykyisestä palvelinten käyttöönoton prosessista ja käytössä olevasta käyttöönottolomakkeesta sekä niiden kehittämisestä.

Uuden sähköisen palvelimen käyttöönottolomakkeen mallintamisessa käytettiin palvelumuotoilun viisiportaista mallia. Työn aineistonkeruu tehtiin tiedonkeruu- ja tutkimusvaiheissa, ja suunnitteluvaiheessa analysoitiin haastatteluiden tuloksia. Pilotointivaiheessa toteutettiin ensimmäinen raakaversio käyttöönoton sähköisestä lomakkeesta muutamalle toimeksiantajan asiakkaalle. Tämän version käytettävyyden pohjalta rakennettiin toimeksiantajan rajatun henkilöstön käyttöön pidemmälle viety ja enemmän automatisoitu versio sähköisestä käyttöönottolomakkeesta, joka integroituisi entistä paremmin toimeksiantajan työnohjausjärjestelmään. Samaan aikaan toimeksiantajan palvelinten käyttöönottoprosessiin tehtiin LEAN-analyysi ja parannusta vaativat työvaiheet kartoitettiin ja osa niistä eliminoitiin.

Asiasanat: Business Model Canvas, muutoshallinta, palvelinten käyttöönotto, palvelumuotoilu

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Abstract of Thesis

Technology, Communication and Transport
Technology of Competence Management
Master of Engineering (M. Eng)

Author	Henna Ekonoja	Year	2017
Supervisors	Soili Mäkimurto-Koivumaa, PhD Timo Vuori, M. Eng		
Commissioned by	IT Service Provider		
Subject of thesis	Development of the Server Deployment Based on Formal Change Management		
Number of pages	58 + 4		

The purpose of this study was to find out how the deployment of the servers has developed due to formal change management at the commissioner's Finnish Change Management and server deployment services. The aim was to figure out the used process phases, which work and which phases need developed. The aim was to build the first version of an electronic server order form, which was integrated into the IT service management tool of the commissioner in use.

The data of the study was collected using qualitative methods and service design thinking in developing the existing service. The Finnish change management team of the IT service provider was group interviewed with the help of business model canvas and four responsible persons of the client service were interviewed face-to-face with open questions.

The 5-step structure of typical service design thinking was used for modelling the electronic server order form. The data collection was done in definition and research phases and in the planning phase the results of the group and individual interviews were analyzed to figure out the server deployment process now in use and the phases of the process to be improved. Based on the interviews, the model of electronic server order form was planned and during the piloting phase the simplified version of the electronic server order form was implemented and published for a few clients of the commissioner. Based on the usage of the simplified version of the electronic server order form the first MyIT self-service portal server order form was built and introduced for the usage of limited staff members of the commissioner. This version of the server order form was a more automated version than the earlier and it was better integrated into the IT service management tool of the commissioner. At same time, the server development process was analyzed using the LEAN thinking and the phases to be improved recognized and some of them were eliminated.

Key words Business Model Canvas, change management, service design, server deployment

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PREFACE

The subject for this thesis was chosen because I have been attracted to the change management process and the servers deployment almost all the time I have worked for the employer, the last over 13 years. For a few years, the Lean thinking or managerial philosophy have also interested me and that is the reason why Lean is part of this research.

I want to thank my closest colleague, Minna Lahtinen, for pushing me to finalize this thesis, my manager, Petri Ekman, for giving me the possibility to do this research and supporting me and the Finnish Change Management team for being one of the biggest source of the research material. The entire studying period to graduate has not been an easy task, the first participation phase of the studies in 2010, ended when I was not able to find a good subject for the thesis. The new start of my studies in autumn 2015 started with deciding the subject of the thesis together with my manager. In addition big thanks to Ph-D. Soili Mäkimurto-Koivumaa for giving good hints for using different bibliographies and building the structure of this thesis and M.Eng. Timo Vuori, one of the thesis supervisors, for tempting to include Lean thoughts in this research.

Last but not least I want to thank my common-law husband, Pekka, for understanding that the stacks of books and materials that have been laying around at home for quite a long time and understanding my changing moods. The long walks with our dog have provoked the best ideas for this research.

26th of May in Laivaniemi, Tornio

Henna Ekonoja

1 INTRODUCTION

1.1 Presenting the Topic

This thesis describes The Development of the Servers Deployment Based on Formal Change Management and what areas of the deployment process can be improved to make the whole process more cost efficient and smooth. The commissioner's Nordics infrastructure services has used ITIL guidelines for several years and many of its process guidelines are modified in such a way that they fit better to Nordics infrastructure services and its operations. One quite detailed process used in Nordics infrastructure services, is Change Management (CM) Process, which is one process of Information Technology Infrastructure Library (ITIL) Service Transition. In ITIL terms, CM means *"The process responsible for controlling the lifecycle of all changes, enabling beneficial changes to be made with minimum disruption to IT services"* (Hannah & Rance 2007, 23). The research was done using the group interview of commissioner's Finnish Change Management team members and team leader (FI CM team) and Nordics infrastructure services Finnish Client Service Managers (CSM) and Service Provision Managers (SRM).

The change management process has specified critical roles and the important responsibilities of these roles. The commissioner's Nordics infrastructure services have generally used processes for taking care of CM. Customized procedures are agreed separately when needed and these will not be taken into account in this thesis. In this thesis, the general CM process and procedures are presented as well as trying to find parts of this process to be enhanced and improved. The change management deals with three different kinds of change requests: normal change, emergency change and standard change. The Request for Change (RFC) is a formal proposal how a change is to be made and it includes the details of the proposed change. In the Nordics infrastructure services RFCs are recorded electronically using ready-made Word and Excel forms and IT Service Management tool's templates, work orders or change requests, depending on the change request type. The IT Service Management tool commissioner uses is BMC Remedy Action Request System's IT Service Management. Two different versions are in use in Nordics infrastructure services ITSM7.6 (OneITSM) and ITSM8.1 (ITSM DR2). The RFC has a defined lifecycle, which has five phases:

1. Initiate
2. Review and Authorize
3. Plan and Schedule
4. Implement
5. Close.

These phases have defined tasks, whose dedicated resources take care of and then forward the RFC from one phase to the next one. (Commissioner 2012, 1–5.)

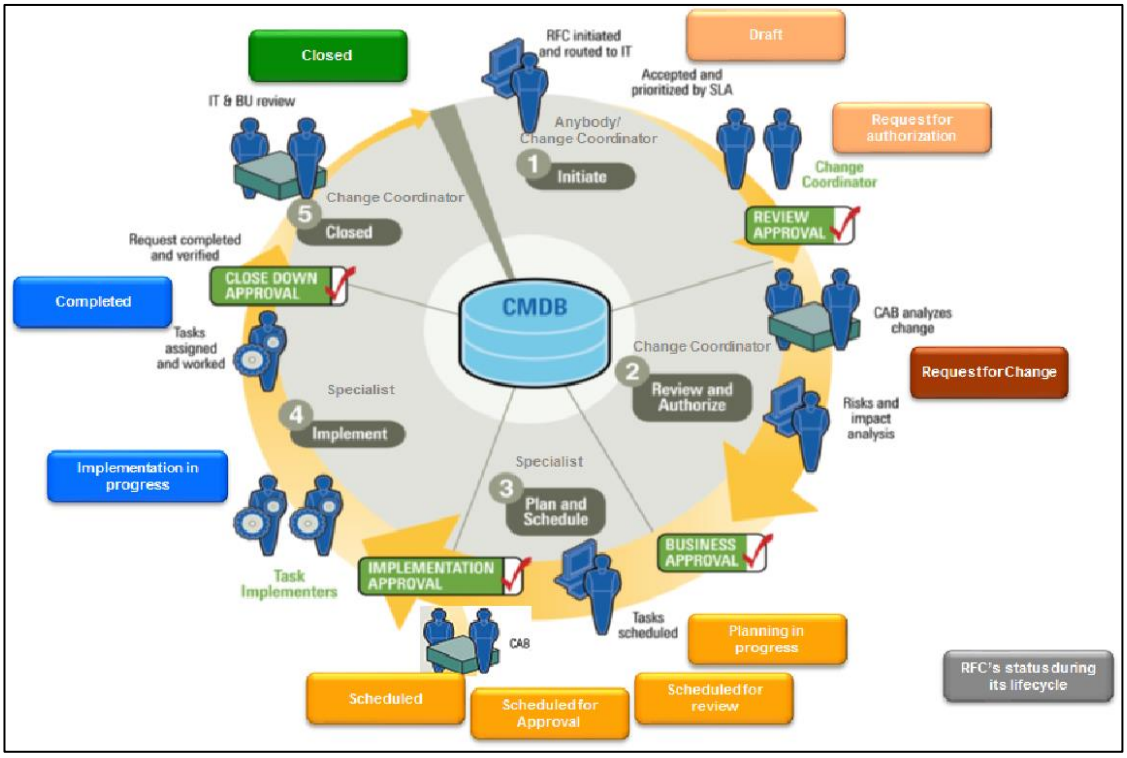


Figure 1. Lifecycle of RFC (Commissioner 2012, 1).

ITIL and more detailed CM is just a theoretical framework to be researched to find the steps of the process to be enhanced and improved. In this thesis the Service design thinking and Business Model Canvas, one of service design tool, and Lean are utilized to find ways to improve server deployment process by working smarter to minimize unproductive time. Lean is developed primarily from the Toyota Production System to shorten the order-to-cash cycle by defining what is value according to the customer. The main thing is to improve deployment even more to what is needed, when it is needed and with minimal unproductive time

between RFC phases. (Georgia Manufacturing Extension Partnership; Modig & Åhlström 2013, 69.)

1.2 Presentation of the Commissioner

IT Service Provider was founded in 1976 and it is one of the world's largest independent IT and business process service companies with 65,000 professionals in 400 locations across 40 countries. This company has global delivery capabilities through centers located on five continents. Through these offices, commissioner offers local partnerships and a balanced blend of global delivery options to ensure that the clients receive the optimal combination of value and expertise required for their success. The IT service provider has long focused pre-practices in all of core industries, providing clients with a partner that is not only expert in IT but also expert in clients' industries:

- communications
- financial services
    - banking and financial markets
    - insurance
- government:
    - central and federal government
    - defense and intelligence
    - health and human services
    - state, provincial and local government
    - public safety and justice
    - tax, revenue and collections: space
- health
- manufacturing
- oil and gas
- post and logistics
- retail and consumer services
- transportation
- utilities.

The IT service provider offers services to clients across the globe in the following areas:

- infrastructure services, solutions and consulting
- application management
- systems integration and consulting
- business process services.

Commissioner's revenue in 2015 was 10.3 billion Canadian dollars and the estimated backlog was 21.5 billion Canadian dollars and it is a listed company in New York stock exchange (NYSE: GIB) and in Toronto stock exchange (TSX: GIB.A). The IT service provider delivers all services in compliance with industry standards that include ISO 9001, ISO 27001 and IT Infrastructure Library (ITIL) guidelines. (IT Service Provider 2016a; 2016b; 2014.)

IT service provider's Nordics Infrastructure Services is a business unit under commissioner and more detailed Nordics Infrastructure Services Tools & Processes is a sub-business unit (BU) of Nordics infrastructure services, and this thesis is done for this unit. The Nordics infrastructure services is a BU, which provides infrastructure services around the Nordic countries. The Nordics Tools & Processes is a sub-business unit responsible for Quality & Security, IPC Management and Tools in the Nordic countries. (Commissioner 2017b.)

1.3 Objective and Research Background

The objective of this thesis was to find the negative and positive functions of the server deployment process and tools that are in use and what are wanted to be used in the future in the server deployment process. The short summary how servers are ordered in the infrastructure services in Finland during the years is presented. The aim was to get the needed information of the process and to find the solutions to enhance the process to be more agile in the future. The change management process was included in the research because it is the process responsible for managing the lifecycle of all changes and it is designed to align with ITIL V3, which is utilized by the commissioner of this thesis.

The expected outcome of this thesis was to develop an electronic tool to gather all needed and detailed information from the change requester to be able to implement the server and service more cost efficiently. It is also expected to reduce

the lead time of the deployment and to save money by for example providing correct license information for the order already in initiate phase of RFC.

The research objectives can be summarized in the following research sub-questions:

- What are the positive and negative functions of the process?
- What is the desirable tool for future use?
- How and where can the costs be saved in the process?

1.4 Outline and Structure of the Work

The change management is much more than server deployment but in this thesis the main task was to research how the server deployment has developed based on the formal change management and find the functions of this process to make it even more agile. Customized change management procedures are also left out from this research.

This thesis consists of five chapters. Chapter 1 introduces the subject, commissioner, objective and research background and question and sub-questions. Second chapter introduces the theoretical framework of the thesis like ITIL, change management in ITIL, Lean and management of change. Chapter 3 introduces the research methodology and used tools. This chapter clarifies the service design thinking and business model canvas and that this thesis is a qualitative research. In addition, the data collection methods are clarified. The fourth chapter presents the findings from the interviews and the observations according the methodologies described in the third chapter. Finally, the fifth chapter introduces conclusions, actions made and suggestions for actions in the future. The assessment of the studied process and the business value of the research is presented in this last chapter.

2 THEORETICAL PERSPECTIVE

2.1 ITIL - Information Technology Infrastructure Library

The Information Technology Infrastructure Library (ITIL) is a framework outlining best practices in IT Service Management and it is the only publicly available, comprehensive and non-proprietary guideline for IT Service Management. The UK's Office of Government Commerce (OGC) develops it and it outlines Best Practice in Information Technology. "ITIL seems to be the de facto standard and forms the basis of the BS1500 de jure standard." (Potgieter, Botha & Lew 2005). Potgieter etc. define in their research project Evidence that use of the ITIL framework is effective and both customer satisfaction and operational performance improve as the activities in the ITIL framework increase.

ITIL is used in organizations operating in dynamic environments to improve their performance and maintain competitive advantage. As ITIL is a public framework and standard it means that it has been validated across diverse environments and its knowledge is widely distributed among professionals. There are also publicly available different content ITIL trainings and certifications available. ITIL is core based, meaning that best-practice publications are applicable to all types of organizations that provide services to a business. There is a complementary set of publications with guidance specific to different industry sectors, organization types, operating models and technology architectures. ITIL is used in all sized organizations all over the world and it helps organizations solve business issues and improve IT capability. (TSO 2007, 3–5; 2009, 7–8.)

ITIL is not only regarded as a strict standard and theory, it is a wide collection of Best Practices for designing and delivering IT services and maintaining and managing efficiently IT infrastructure. ITIL's defined service processes are widely used in different organizations all over the world and ITIL model fits as frame for the IT process of all sized companies. Earlier, in 2000/2001, the consolidated publications of ITIL version 2 was divided into two parts and it was strictly process based: Service Support and Service Delivery processes. ITIL version 3, published in 2007, is defined to have a service aspect and the service has a lifecycle:

- Service Strategy
- Service Design
- Service Transition
- Service Operation
- Continual Service Improvement.

All stages of the service lifecycle support all other stages. ITIL 2011 is the latest updated version of ITIL framework, it follows the same structure as ITIL version 3. (itSMF.fi 2015.)

The ITIL service lifecycle model is built based on practical IT service management. ITIL guidance is recognized and widely used, this means that its methods and terms can be understood and communicated by many individuals and organizations. With the help of ITIL it is possible to improve the delivery of IT and it supports valued business services. ITIL provides value for an organization's resources and capabilities including customers and employees. (BMC Software Incorporated 2016.)

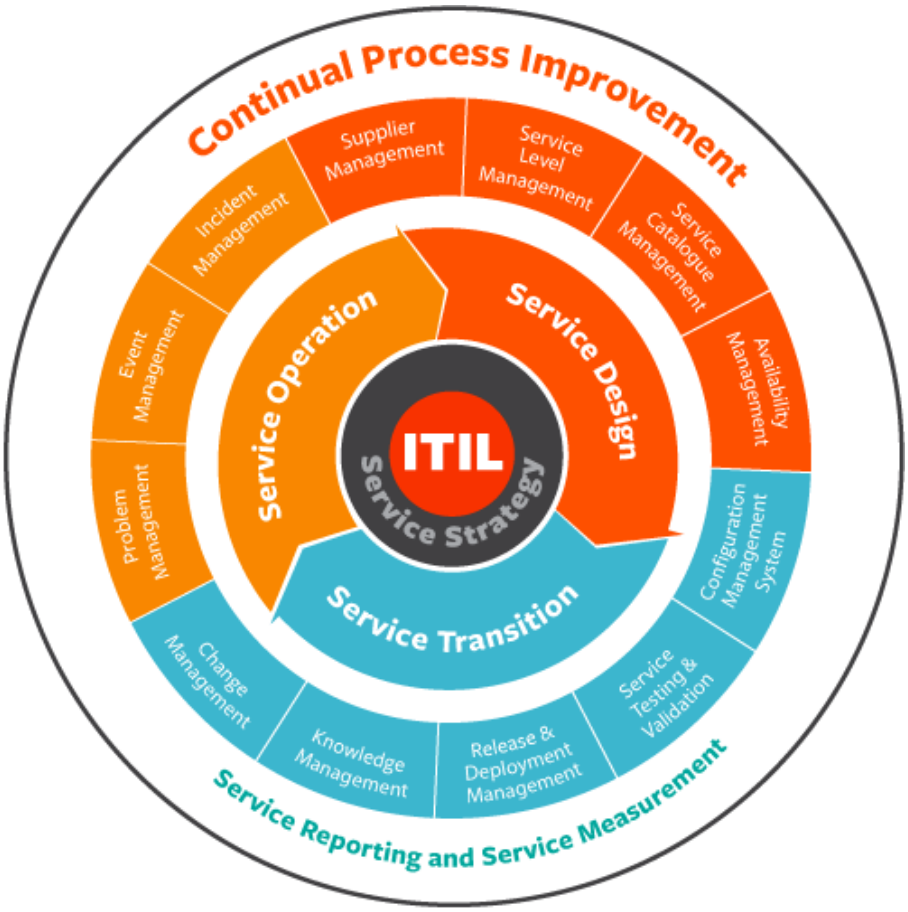


Figure 2. ITIL Service Lifecycle (BMC Software Incorporated 2016).

The ITIL service strategy includes the objectives and policies required to implement the service lifecycle approach. The service design, the service transition and the service operation are individual phases of the service lifecycle and continual service improvement concentrates on an environment of learning and enhancement. (AXELOS 2015; Barcley 2016c, 5.)

There is a variety of other frameworks, which are linked to ITIL frameworks. Control Objectives for IT and related Technology, CobiT, which is a different kind of processes framework, for monitoring the other processes defined for example in ITIL. ISO/IEC 20000 quality standard is an international standard for ITIL based IT service management. Cobit, Dynamic Systems Development Method (DSDM), Information Services Procurement Library (ISPL) and Application Services Library (ASL) are IT management models, which complement the concept of ITIL. (AXELOS 2015.)

Every single organization delivers a product or a service and for all of these organization the ITIL way of working easies to manage the delivery, industrialization, standardization, support and consumerization of the service lifecycle or of the product lifecycle. The benefits and advantages of adopting ITIL best practices are:

- stronger alignment between IT and the business
- reduced costs through improved use of recourses
- better management of business risks and service disruption or failure
- greater visibility of IT costs and assets
- improved service delivery and customer satisfaction
- more stable service environment to support constant business change. (BMC Software Incorporated 2016.)

Next, a few basic terms of ITIL used in this work are explained. Service Level Agreement (SLA), Operational Level Agreement (OLA), Configuration Management Database (CMDB), Configuration Item (CI), Configuration Management System (CMS) and BMC MyIT Self-Service Portal (MyIT) are the terms used in this thesis. The service lifecycle contains service design and one of its processes is Service Level Management (SLM). The SLM process focuses on researching

and understanding business requirements and then defining, negotiating, agreeing on and documenting IT service targets with business key persons. SLM establishes and maintains SLAs and develops and manages OLAs. There are three different types of SLAs: a service-based SLA, a customer-based SLA and a multi-level SLA. The customer-based SLA and the service-based SLA are used in this thesis. The customer-based SLA covers all services used by an individual group and the service-based SLA covers service for all customers. One process in the service transition is the service asset and configuration management, which defines and controls components and maintains configuration records. A CI is any item or component that needs to be managed to deliver an IT service and CMDB is a database used to manage IT infrastructure configuration information. The CMS is a set of tools and databases used to manage an IT Service Provider's configuration data. BMC's MyIT is a digital workspace for self-service, which cuts support costs, reduces IT friction and betters customer satisfaction. With the help of MyIT self-service tool, the employees of the organization can formlessly create requests to service provides and have a social collaboration with the service desk. (Barcley 2016a, 25; 2016d, 6, 15–19; Wakaru Partners Oy 2009, 119–121.)

2.2 Change Management in ITIL

One of the authors and examiners of ITIL, Anthony Orr, has listed eight Dos and Don'ts in change management on-line training materials "How to Implement Change Management within Your Organization". He has asked: "Why is change management so important?" He has emphasized that the change management is important because of operational excellence, since it manages the risks and is an overall strategy. He challenged every organization to coordinate and collaborate across the organization, get to know the inventory of the organization, to know what assets you have in your organization. He has also demanded communication to those who need to know about the change in the organization and to approach the change management from a service-oriented perspective. Anthony Orr has forbidden to overlook the role of people and not to introduce too much change at the same time and he has told that do not think about change in a silo. Everyone has to think of the big picture who the change will affect. He has reminded not to pick a technology that does not support a holistic perspective and that the change management is one of the primary processes in IT service

management, since it affects strategy, design, transition and operation. (Orr 2016.)

The change management is one of the service transition processes of the ITIL service lifecycle. Its goals are to respond to the organization's changing business requirements while maximizing the value and reducing the risk and the service outage; to ensure that all changes are recorded and evaluated, authorized, planned, prioritized, tested, implemented, documented and reviewed in a controlled manner; and to respond to the business and IT RFCs. The CM covers changes to baselined service assets and CI's across the whole IT service lifecycle and it should always be defined according to the organization's needs. An organization has to be able to make changes rapidly without disturbing the services. Change management is a mechanism that helps service improvements and other changes in services or products to be implemented and controlled through standardized procedures. There are three kinds of change types: normal change, standard change and emergency change. The normal change follows the CM normal process. The standard change has well-known tasks that are documented and proven; having low risks. They are budgeted or within the acceptance limits of the change requester and they are preauthorized by the Change Advisory Board (CAB). The emergency changes are such that their number should be kept in minimum; as much testing as possible is required The authorization for these can be given by emergency CAB or operations teams; and they have to be documented/change records updated. (Cherwell Software 2016, 9; Wakaru Partners Oy 2009, 114–118.)

The CM has the following steps in a process flow:

- planning and controlling changes
- change and release scheduling
- communications to and between different parties of the changes
- change decision making and change authorization
- ensuring there are remediation plans
- measurement and control of the changes
- management reporting
- understanding the impact of changes
- continual improvement of the process. (Wakaru Partners Oy 2009, 114–118.)

Figure 3 shows an example of a process flow for a normal change of service provider's services, applications or infrastructure. The picture on the right hand side shows that the change and CI is kept updated all the way through the change activities. Figure 4 shows an example of a process flow for a standard deployment request and figure 5 shows an example of a process flow for standard operational RFC.

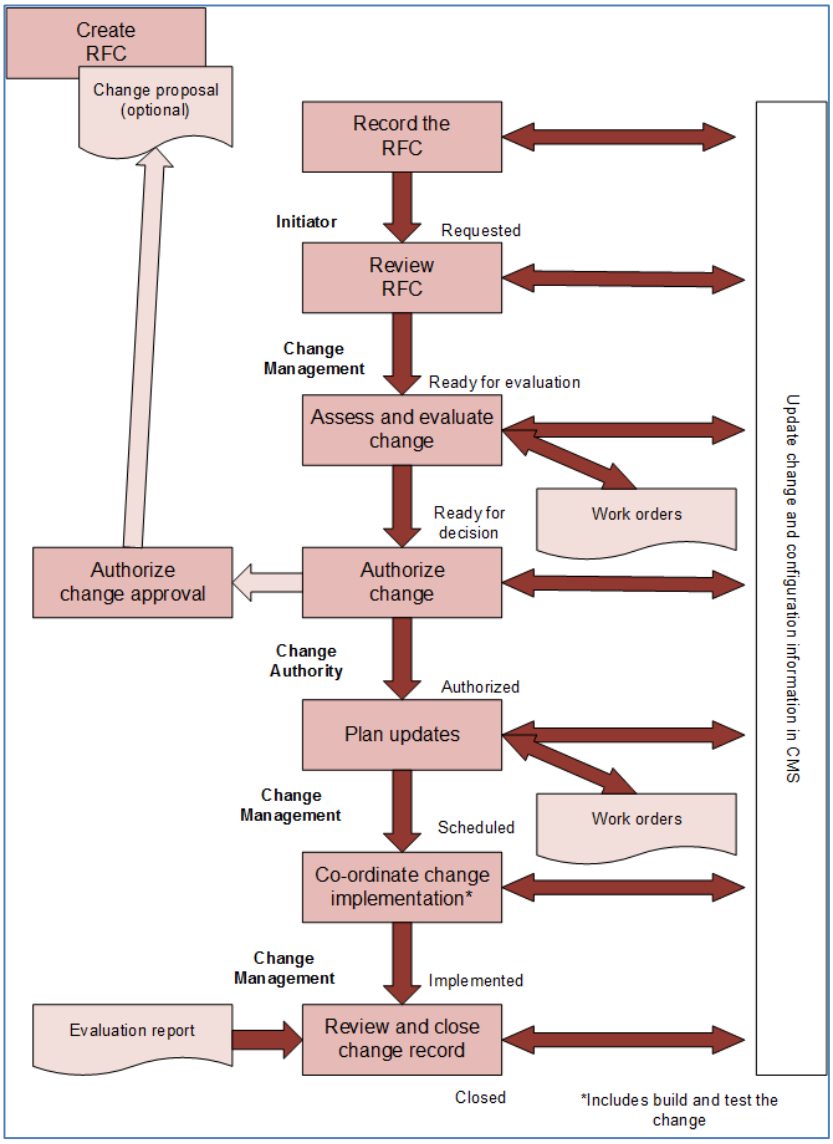


Figure 3. Example of process flow for a normal change (TSO 2007).

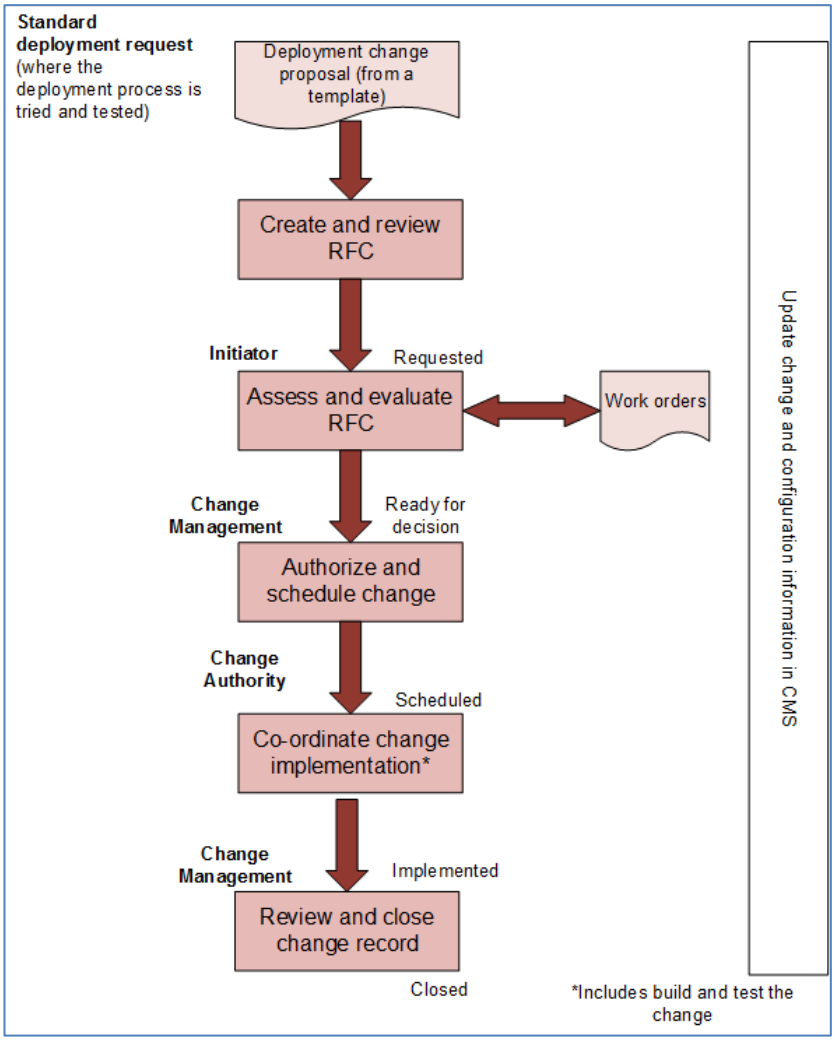


Figure 4. Example of process flow for standard deployment request (TSO 2007).

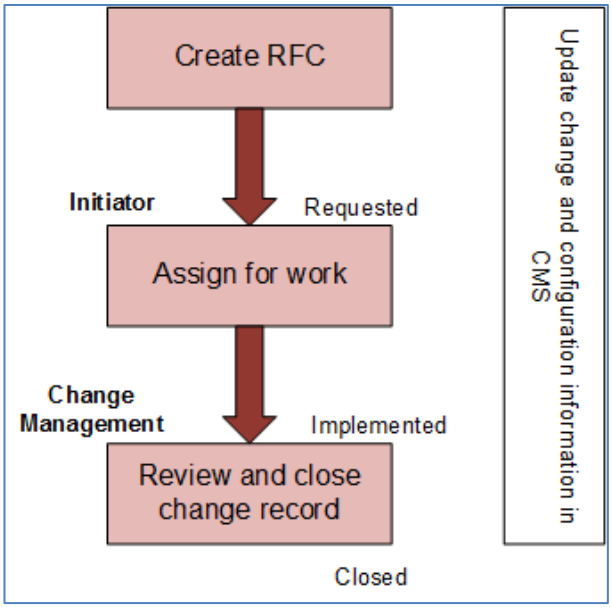


Figure 5. Example of process flow for standard operational change request (TSO 2007).

In the CM process the seven Rs are used. An impact assessment cannot be completed and the balance of risks and benefits to the live service cannot be understood without answers to all seven questions. If the questions are not answered, it may result in the RFC failing to deliver at all or unexpected effects may happen on the live service. (TSO 2007; Commissioner 2013c.)

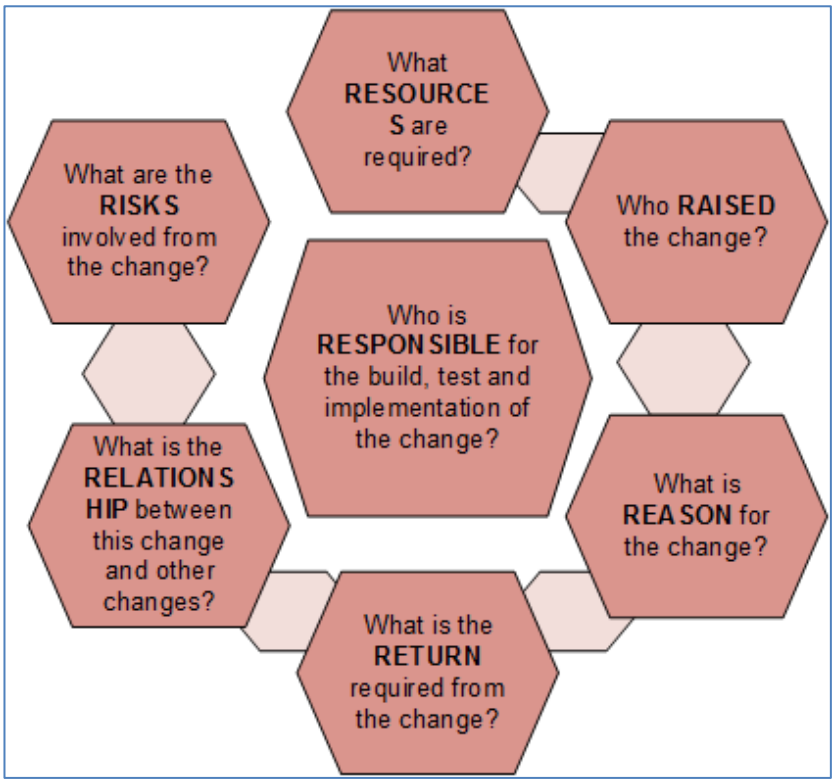


Figure 6. The seven Rs of the change management (Commissioner 2013c).

2.3 Management by Change

The change is testing, trying, erring and full of possibilities. The key words of change are based on facts and methods, co-operation and communication. To manage a change is possible to understand first what is happening and how the change has to be managed. The conclusions based on the situation lead to actions how to manage the change and how to work towards to the changed circumstances. (Kuuluvainen 2009.)

Tuomo Takala has written in his article, Muutosjohtaminen – haaste ja mahdollisuus globalisoituvalle liikkeenjohdolle, management by changes and the challenges how to make the changes as power for developing the organization. Changes happen all the time in all the companies and around the companies and this requires that the leadership of the companies needs to channel the changes

for positive power, which will be gained as power for the whole organization. If company is lead only in a proprietary central manner, the personnel will not be treated as holistic persons. This leads to the situation that the persons are treated only as instruments and costs for a company and a company as a community of people will be left outside. The personnel should always be treated not only as instruments but also as a goal for a change itself. A change requires changing the attitude of the leadership and the whole organization. The fear of a new and uncontrollable situation restrains the willing of change effectively and this achieves counterforces. To turn over the counterforces for supporting the change is the biggest and true challenge for a manager of the change. A good manager should be a specimen for a change to be implemented in an organization or organization's product or service. Good manager is nice, robust, appropriate, keen for a change to be implemented and handles the change businesslike. The management of the change will be successful if the manager can gather the personnel behind her-/himself for implementing the change. The manager has to her-/himself work as a role model for her/his own colleagues and employees and the manager has to recognize her-/himself the necessity of the change. (Takala 2007, 1–7.)

As Anne Luomala in her research on Muutosjohtamisen ABC has described, is essential to state questions like why the planned change is needed, what is the goal of the change and how to achieve the goal of the change. It is not enough that the change is led in the change management process, but it is a key to lead the staff to make the change happen. The successful change requires that the organization also alters to a changed way of working or changed process. To lead the personnel in a change culminates that supervisors and managers have ability to motivate the personnel and give them space and possibilities to involve with true affection. To manage the personnel during the change requires from management that the individuals' and groups' knowledge and thoughts will be taken into account during the change process. To inform about and discuss the coming change is essential and these remedies reduce the counterforces against the negative attitudes. During the change process, it is important that the personnel are heard and they have enough strength to go through the planned change. (Luomala 2008, 3, 5–9, 12–13, 15–19, 27.)

2.4 Lean

Lean is known as management philosophy for getting the continual flow of development of work. The goal of lean is to get outstanding customer experience and quality. Using lean principles all the non-profitable functions of delivering process can be removed. According to lean thinking, all projects should do right things, in right time and with right quality. It is not meaningful to load service or product design or implementation projects with full expectations but instead the first minimum viable product (MVP) has to be built and on top of that add valuable unities. This kind of incremental way of implementation process or project reduces lead times and gives possibility to build fast feedback cycles for customers and even end users of the service or product. Fast feedbacks mitigate both the effects of errors and the amount of extra work and costs of ready service or product. The amount of work-in-progress (WIP) has to be controlled to prevent growing queues and stock. In team work, the goal is to minimize the bottlenecks in implementation projects and if bottlenecks appear, the resources have to be moved to the phase(s) where the bottlenecks exist and resolve them. This means that all project team members have to know the goal and the priorities of the project from the very beginning and in that way the decision making in challenging tasks can be done with different members of the project. (Rowe 2015a; 2015b.)

One of the Taiichi Ohno's teaching is that "*If you make the work as simple as possible, you will have fewer mistakes and you will not obey the rules*" (Harada 2015, 18). Ohno has also said that we usually look at the time line of business stream of values in a holistic way, and shorten that time line by reducing all kind of waste all the time. It is said many times that *satisfaction kills the development* and in IT service sector too high satisfaction is the biggest threat pushing through successful projects and keeping services and products attractive for customers. It is not enough that IT service provider is good enough, the competitors will bypass from left and right. The agile way of working is suitable in IT projects and implementations since for example in the Scrum process the main focus on planning is meeting the business requirements and understanding end users and business needs. Scrum is a framework for managing product development incrementally and iteratively. After the planning is done, there will be a queue of development, which will be followed and maintained actively throughout the whole

project. In the Scrum process the implementation will be done in teams of specialists in short two to four weeks sprints and their content is decided precisely. Sprint by sprint it is possible to offer parts of service or product ready for customer and get feedback and acceptance even from end users. The agile way of working is reducing coincidental work in progress tasks, it is making possible to get parts of delivery ready constantly. (Harada 2015, 18–20, Rossi 2016.)

Niklas Modig and Pär Åhlström have researched what lean is and what it is not in the book This is Lean. Lean is not the all what is good and all good is not lean, this means that the lean is a choice, which has to be made in the junction point. Lean is a strategy of working, which emphasizes the efficiency of flow not the efficiency of resources. When the lean is chosen as a strategy of working in a company, it has to be highlighted to all people that it has been a strategic choice for all. All companies can benefit from a better efficiency of flow and in the same time grow the efficiency of resources. The tools and functions make it possible to accomplish the method and the method is built on what the company does and what the company has. The lean strategy of working has several realization resources and these can be divided into four groups:

- Values tell what the company has to be
- Principles define how the company has to think
- Methods define what the company has to do
- Tools define what the company has to use.

Some of the companies who have chosen the lean strategy of working have decided to concentrate only on some of the above defined realization resources and some of the companies have accomplished all of them. It has to remember that all the listed realization resources are not automatically way of the lean itself but these are means to execute the lean as strategy of working. (Modig & Åhlström 2013, 87, 97,117, 126, 139–141.)

3 RESEARCH METHODOLOGY

3.1 Research Methodology

This research is implemented using qualitative research methods, Service Design and one of a tool used for service design like Business Model Canvas. The BMC can be used for researching and defining of the processes and functionalities, which are in the production use. The purpose is to the find parts and sections of the change management process to be enhanced and improved. The qualitative research enables to increase the overall understanding of the quality, characteristics and meanings of the change management and the content of this thesis. It is a method, which examines why and who from the decision making, not just what, where, when and who. The information is gathered by the individual interviews of the Nordics Finnish Client Service Managers and Service Provision Managers and organizing a group interview for the Nordics Finnish Change Management team. (Creswell 2014, 66–68, 183–186, 246.)

The Business Model Canvas (BMC) method is used for the FI CM team group interview. The reason for choosing this method was that then the existing change management process and functionalities could be visualized and new ideas for developing the change management sketched out. The BMC was a suitable tool to structure the thinking of the FI CM team, and to have a shared language for the proficient discussion about ideas. (Ojasalo, Moilanen & Ritalahti 2015, 182–184.)

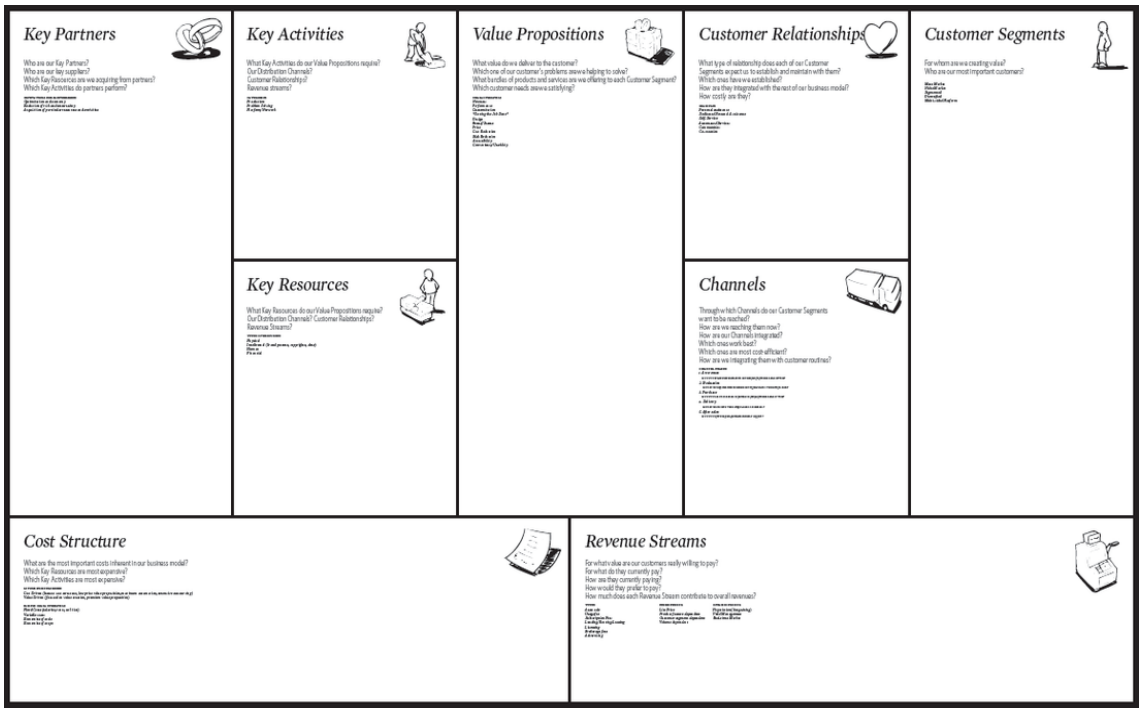


Figure 7. Example of a business model canvas (Strategyzer AG 2016).

The service design is used as development method in this thesis since the purpose is to develop the present server deployment process of the Nordics Finnish infrastructure services, the RFC flow from the phase one, “initiate”, to the phase five, “closed”. The purpose is to even simplify, automate and formalize the deployment process and functionalities. The service design is essentially a philosophy, where a product or a service is constantly being improved: learning, refining, experimenting, modifying and then learning again. (Jyväskylän ammattikorkeakoulu 2010-2012.)

3.2 Qualitative Research Methods

Qualitative research methods are based on gathering the material from the field and interviews in this thesis from the FI CM team, one Finnish CSM and three Finnish SPMs. The material from the FI CM team group interview and individual interviews of the CSM and SPMs are analyzed together. From the collected data the extensions of the change management process and server deployment process are done. The recurring structures are also found out and based on these the critical analysis of the results is done. The deployment process of the servers is examined based on long experience of the usage of it, the first deployment orders by the thesis worker have been done in 2005. (Creswell 2014, 184–186.)

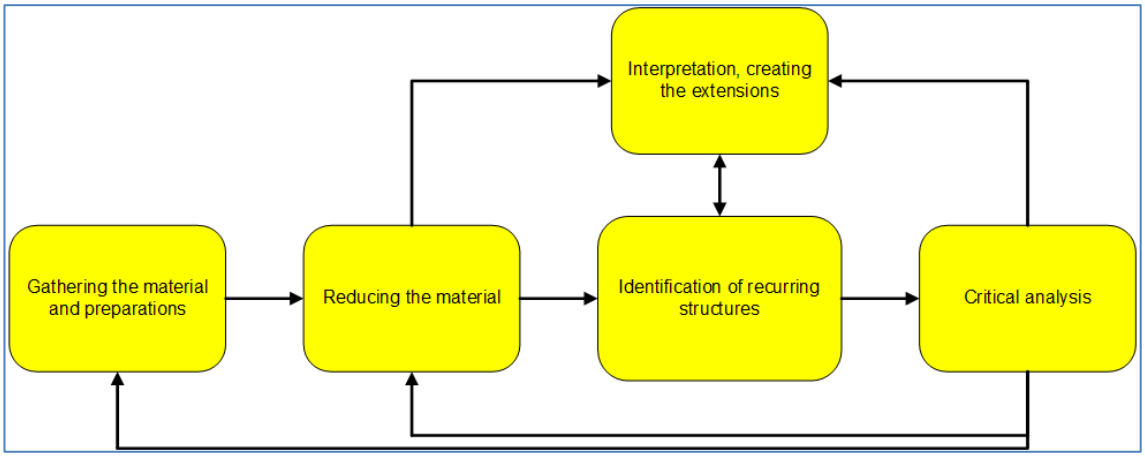


Figure 8. Common model of the qualitative research (Ojasalo etc. 2015, 138).

The gathered material from the group interview is reduced in a manner that the questionnaire of the interview is built in such a format that it is possible to identify both the positive and negative things of the CM and servers order form, like the ideas of how to improve the processes. The qualitative analysis of the material gathered consists of two phases, resolving the enigma and reducing the material. This kind of differentiation can be done only in an analytical way. When reducing the gathered material, two parts can be separated: first of all the material is examined only in one theoretical-methodological aspect and secondly connecting the observations. The enigma is resolved by creating the extensions about the research objectives and then the recurring structures of the processes can be found and the possibilities to better them are achievable. (Alasuutari 2011, 26, 31–35.)

3.3 Service Design

Service design is nowadays a very popular manner of approach and a selection of tools to develop new or improve an existing service or product. This approach is used both in public and private sectors because it brings the client and / or end user of the service in the center point of the whole service design process. The service design process follows the principles of creative problem solving and it means that the process consists of recurring and logically progressive functions. The service design can be utilized in all levels of service development: the business process models, processes, strategy, service environment and the client service models of the company. (Ojasalo etc. 2015, 71–73.)

Designing the services and products is continual development, which can be learned only by doing. It is a way of thinking where a product or a service is developed continuously: learning, developing, testing, modifying and again learning. When the flow is learned, it is possible to adapt and invent totally new services and products, which will smoothly fit to the business. The most essential tasks in the service design is that there should be courage to test a draft services and products with suitable customers in the early phase of the design process and get the feedback and in that way minimize the risk of investments. (Jyväskylän ammattikorkeakoulu 2010-2012.)

The Professor Michael Erlhoff, Köln International School of Design, KISD, was the first person who launched the service design know how in 1991. The very first company of the service design business area, live|work, was founded in 2001. The European design schools, like Carnegie Mellon University, Linköpings Universitet, Politecnico di Milano and Domus Academy, established Service Design Network, SDN, to widen and create discussion between the education, the working service designers and the companies in 2004. The roots of the service design are strongly in Europe and Scandinavia has also been a notable part in developing the service design tools and models. The Finns have also taken part in service design discussion and developing it and the foundations of Finnish service design are from 1997, when Satama Interactive, a subsidiary of Talentum, was founded. Nowadays Palmu Incorporated is the best known service design company in Finland. (Tuulaniemi 2011, 31.)

Two examples of vendible service design thinking tools are Customer Pulse and Prototype Factory from CGI Finland Oy. This company is one of the ICT service providers in Finland and part of the global CGI Group Incorporated. One of their services is the CGI Service Design Studio, which provides tools to make sure that the design of the client experience will be taken to concreteness. This service area is quite new for CGI Finland Oy but it has already two earlier mentioned tools to provide in the area of the service design for the customers. The Customer Pulse is a tool for continuous development and measurement for the client experience of services or products. This tool helps to fit the measurement of the client organization needs and to get the concrete actions how to better a product or a service development process. The Prototype Factory produces agile and fast prototypes out of new concepts, ideas or services. The ideas will be visualized and

that makes it possible to estimate the benefits and functionality of the product or service. This makes it also easier to validate a new product or a service. Figure 9 presents the service design from the experience of the client and the worker of the service provider. The products and services, which are provided by a service provider like CGI Finland Oy, are visible for the client. In the client meeting usually the main users of the software and IT personnel of the client meet the client responsible from service provider discuss about the products and services provided for the client. The meetings can be events where a service design process can be started from a one single idea. (Myllylahti 2016; CGI Finland Oy 2016.)

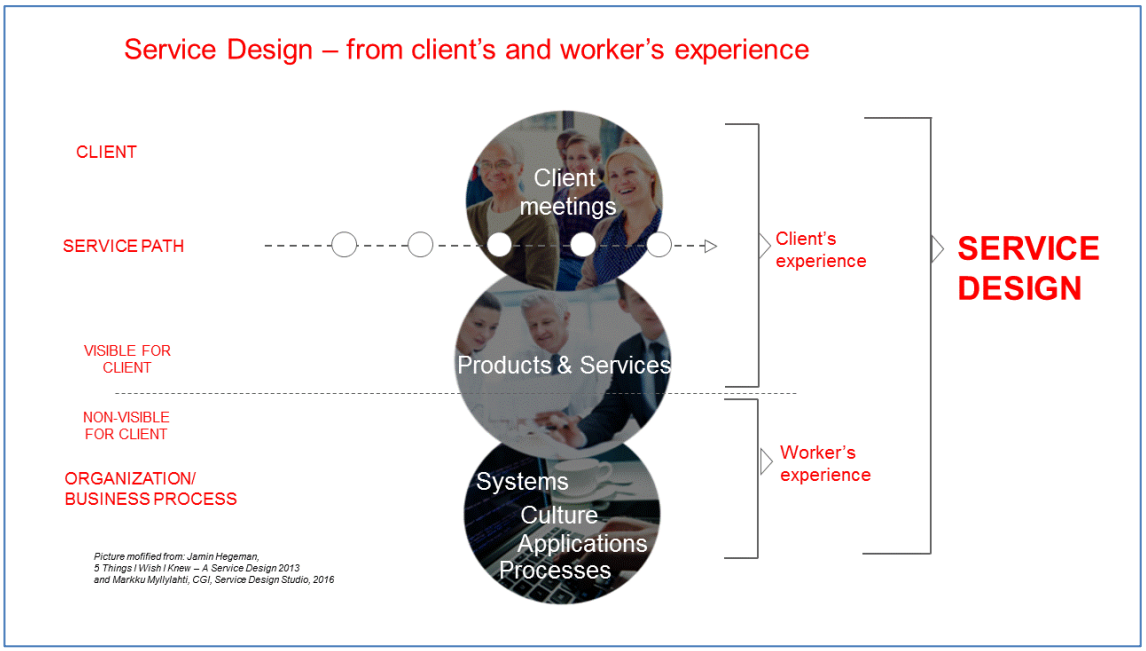


Figure 9. Service design - the experiences of the client and the worker (Myllylahti 2016).

Figure 10 shows one model of the phases of the service design method. During the definition phase, it is meant to understand the organization and its goals to produce the service or product. The research phase is carried out by discussions, interviews and client surveys to build up the common knowledge of end user and /or client organization, needs, areas, working environments and resources, which need to be developed. In the planning phase, the key performance indicators (KPIs) are defined for measuring the service or the product. The concepts and the ideas of the different kind of service or product solutions are made and these will be tested with clients. During the piloting phase, the designed concept of the service or the product will be introduced to the limited number of the clients to be used and the service production is planned. In the evaluation phase, the service

development process is measured by KPIs and the service or the product will be tuned based on the experience of the first minimum viable product or service. (Commissioner 2016b; Ojasalo etc. 2015, 71–76.)

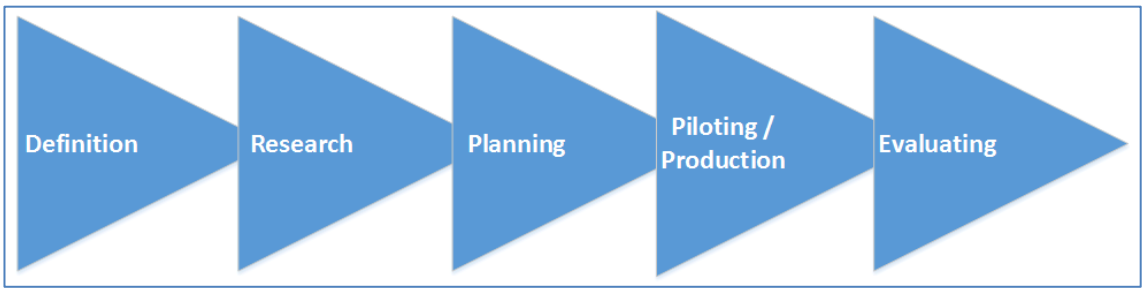


Figure 10. Phases of the service design (Tuulaniemi 2011, 56).

3.4 Business Model Canvas

The Business Model Canvas is one model used for designing new businesses or processes and / or to develop the existing businesses or processes. The BMC is one method of the concept in the service design process. In this thesis, the BMC is used to get the knowledge of the existing change management process, which is used in the Nordics infrastructure services for implementing the servers. Alexander Osterwalder and Yves Pigneur have led 470 business professionals in 45 countries to develop the Business Model Canvas. The basic idea of the BMC is to model with nine building blocks in a one sheet of a paper a business model. This model describes and explains how a company produces and provides value for their customers. The organizations must consciously decide whether they serve the mass market without distinguishing between the different customer groups or focus on the specific customer segments and ignore the others. In this research the BMC is used for focusing on the specific service process, the server deployment process. This process follows the change management of the ITIL. (Osterwalder & Pigneur 2009, 15; Ojasalo etc. 2015, 182–185.)

The BMC is easy to use and it is a comprehensive model, since its users need only a pen and paper and it does not require a long time to form business models. When developing new business models, it is recommended to develop several alternative models and build up to the final business model comparing and combining the building blocks from the different BMCs. The most successful business

models are rarely build up using the same models as others has used. (Ojasalo etc. 2015, 182–185.)

The BMC gives an easy way to sketch out the new business ideas, better the existing ones and to visualize the existing business process or the service. The BMC can be used individually as a tool to structure thinking or in teams where members work with the same product or with the same process to better the strategic conversation. (Strategyzer AG 2014b.)

3.5 Data Collection

The group interview and the individual interviews are used to gather the information about how the formal change management is utilized in server deployment process now and how this process should be developed to meet the future needs.

In the group interview of the Nordics infrastructure services FI CM team, this simplified Business Model Canvas poster is used. The content of the group interview for the FI CM team was decided in the meeting hold on 16 February 2016 together with Anton von Martens, Tuija Tervo and Henna Ekonoja. The group interview was held on 14 April 2016.

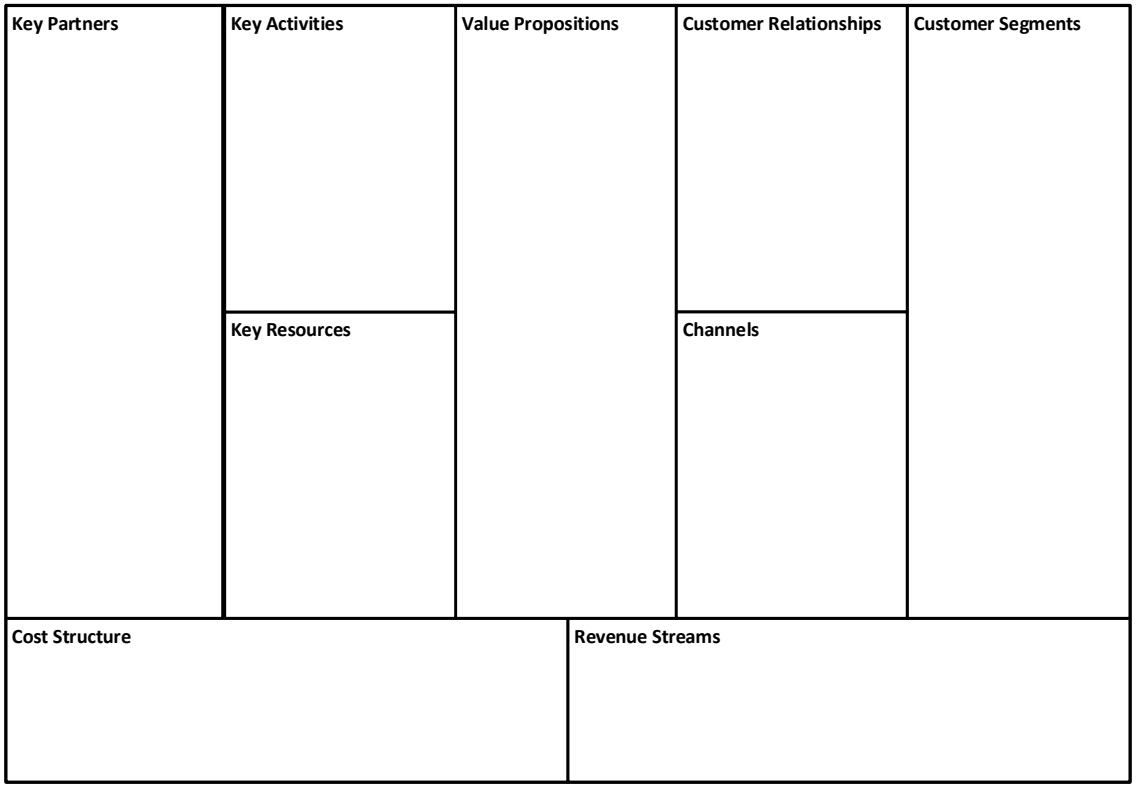


Figure 11. Blank business model canvas poster

Before the interview, there was a guidance how to and in which order to fill in the nine building blocks of the BMC poster. All members in the interview were challenged to model the “as-is” state and what is wanted to or planned to be built in the “to-be” state. The different color post-it notes was used for this purpose. The combination of words and pictures were suggested, since human brain processes pictures faster than words. During the introduction of the group interview, it was also pointed out that too many details in one area might hide the big picture of the process. 30 minutes time was given on filling in the BMC poster and after that the post-it notes in each building block were checked together and the most critical ones pointed with exclamation mark. (Strategyzer AG 2014a; 2014b.)

All building blocks of the BMC poster and their meaning were briefly described. The customer segments was meant to find out the external key customers and the teams of the commissioner of the change management and the value propositions block lists of what is promised to the customers; is there customized propositions and how to satisfy the needs of the customers. The channels building block was meant to list the ways customers contact the change management

services. The FI CM team members had to list what kind of customer relationships they have with different customers. The team members had to list ways of making profit, list the results of how successfully value propositions are offered for the customers and as well as the key resources, which make it possible to meet the value propositions. The team members were asked to list the key activities of the change management process and key the partners and partnerships, which make the change management process possible. Then the key resources making it possible to meet the value propositions of the change management process. Last, but not least the cost structure of the change management was asked to be listed. (Appendix 2; Strategyzer AG 2014b.)

After all the building blocks of the BMC poster were filled in and checked through together, the key areas for developing the change management were discussed with the help of the following questions:

- List the key areas of developing the process to be more efficient and better the cost structure.
- List the key issues needing even more development, in each building block.
- Describe why these areas should be developed.

(Appendix 2; Appendix 3.)

Four individual interviews were held in total: one Client Service Manager and three Service Provision Managers were interviewed between 13th and 15th of June 2016. The individual interviews were conducted as a face-to-face with unstructured open-ended questions. The interviews were recorded and partially transcribed. The aim of these interviews was to gather both historical information and improvement ideas of server deployment process and order form. The interviews took from 10 to 17 minutes. (Creswell 2014, 183–212; Hirsjärvi, Remes & Sajavaara 2007, 203.)

The questionnaire was sent two weeks before the interview to the interviewees and they were urged to look into it. The questionnaire contains two questions about getting to know a little about the background of the interviewee and then five questions related to the server ordering and the change management process. (Appendix 4.)

3.6 Data Analysis

The main focus in analyzing the results of the qualitative research is not estimating numerical values and mean values of the data but it is evaluating the thoughts and opinions of the interviewed persons and analyzing the results from the interviews. The data analysis of the qualitative research concentrates on making conclusions from the material gathered from the performed group interview and individual interviews. (Pasanen 2015.)

The data was gathered in the group interview and in four individual interviews. The group interview was filmed in advanced video codec high definition (AVCHD) file with a digital camcorder and the individual interviews were recorded as MPEG4 audio files with help of a smartphone. The interviewees gave filled in questionnaires in paper format in the end of the interview sessions. The film, the recorded interviews and the paper format questionnaires were transcribed partly using spoken language. The analysis was done by reading the transcriptions and watching the film and listening the recordings several times to find the connections to the used research methods. Both the BMC and the face-to-face unstructured with open-ended questions interviews were done in such way that the themes of the research objectives could be analyzed. Because of the subject of this thesis, quite a small amount of individual interviews and one group interview can point out the order of the process phases to be improved and the ideas of how to improve the process. It was decided that the four individual interviews and the group interview of the change management team were enough. (Creswell 2014, 189, 195; Ojasalo etc. 2015, 110–111.)

The questionnaire and the group interview with help of the business model canvas are built up so that the thoughts of the interviewees can be gathered together and are easily comparable with each other. The participants were chosen purposefully to get the personnel view of the change management and the server order processes. The interviewed personnel are working closely with the researched processes. Then the negative and positive phases of the process could be found from the results and the ideas how to better these to get the whole process working even more smoothly. To understand the research objectives was done with help of the questions of the individual interviews, which are related

to the server order form, the desirable tool in the future and to the change management process and its functions. (Creswell 2014, 185–187; Hirsjärvi etc. 2007, 216–220.)

4 ANALYSIS OF RESULTS

4.1 Change Management in the Nordics Infrastructure Services

The change management ensures the standardized procedures and methods are used for efficient handling of all coming changes. The CM process ensures that all the changes of the supported service are in a controlled manner understood, planned, communicated and implemented with known impact on the business and the operational activities. In support of these needs, the change management process encompasses the core activities of the CM. The core activities are recording of the request of the change, the assessment and approval of the RFC, planning, scheduling, implementation, reporting and tracking of the changes. The CM process is designed to meet a number of key business requirements, like improve visibility and communication of the changes;, deal with higher volumes of the changes and reduce incidents and problems resulting from the change. (Eriksson 2016, 5–6.)

In the Nordics infrastructure services, the change management process is well organized, documented and phased. The change requests are categorized in four types: Standard, Small, Big and Development changes. The change management process consists of three different variants: Normal change, Standard change and Emergency change. The change request has a clear lifecycle and its phases are shown in figure 12. (Eriksson 2016, 6–9.)

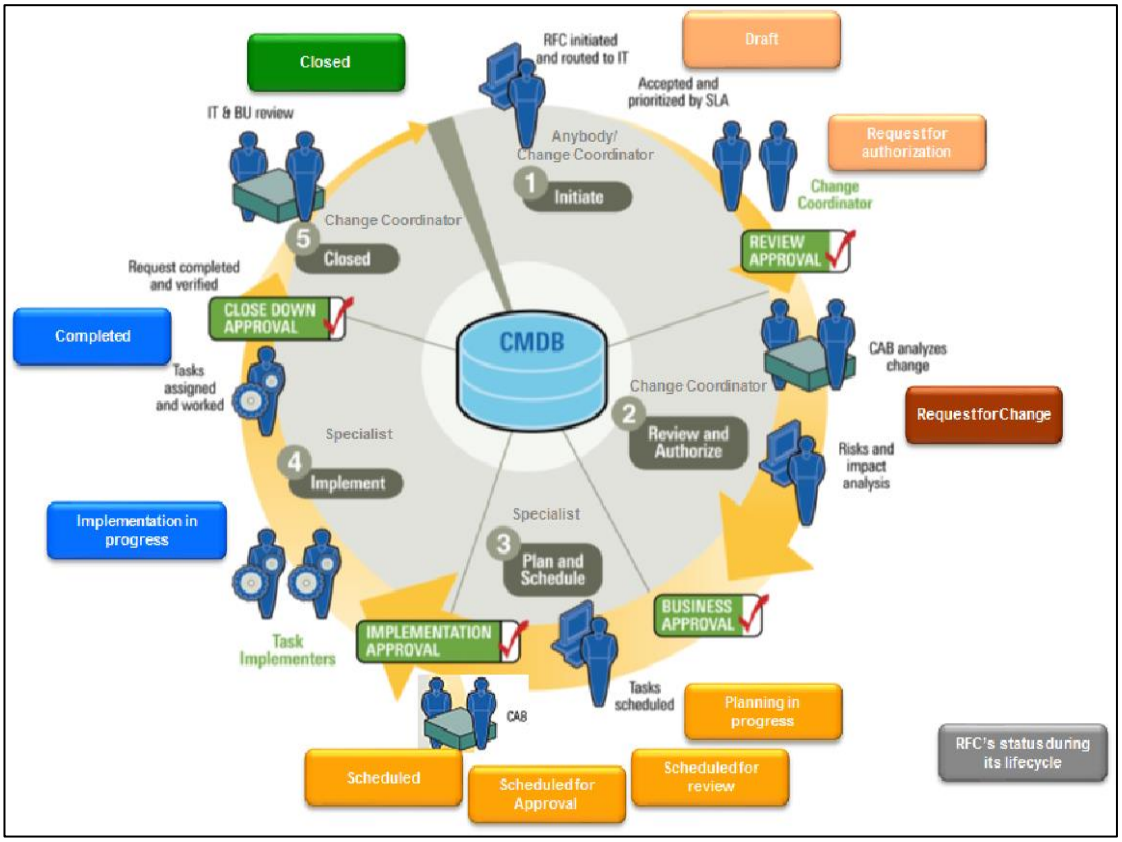


Figure 12. Lifecycle of the RFC (Commissioner 2012).

The change management process has definitive roles and all roles have their own responsibilities, this forms the RACI model of the CM process.

Table 1. The Responsibility Chart of the Change Management Process (Eriksson 2016, 16–18).

Change Management Phase and Detailed Tasks	Change Requester	Change Manager	Change Implementer	Change Approver	Client Delivery Manager
1. INITIATE RFC					
Initiate RFC	A, R				
Trigger CI Correction Procedure	A, R				
Submit classified Request for Change for Validation	A, R	I			
2. REVIEW AND AUTHORIZE RFC					
Validate RFC	R	A, R	R		
Update Classification if Required	I	A, R	R		
Assess and Evaluate RFC	A, R	I	R		
Prepare CAB	I	A, R	C		
Review RFC		A, R		R	R
Approve and Prioritize RFC		A, R		R	C
Authorize RFC	I	A,R	I		
3. PLAN AND SCHEDULE WORK					
Plan and Schedule Work		A	R		
Plan and Schedule Work of Emergency Change		I, C	A, R		C
Authorize Emergency Change		A	C	R	C
4. IMPLEMENT					
Build and Test	I	I	A, R		
Schedule Implementation		I	A, R		
Prepare CAB	I	A, R	C		C
Review Change	I	A, R	C	R	
Approve and Prioritize		A, R			
Authorize Change	I	A, R	I	R	
Implement / Go Live	C	I	A, R		
Remediation	I, C	I	A, R		I, C
5. CLOSE CHANGE					
Reject RFC	I	A, R			I
Reject Emergency Change	I	A, R			
Cancel RFC	I	A, R	I		
Review Change Implementation	I	A, R	C		
Close Change	R	A, R	R		
Explanation of letters: R=Responsible, A=Accountability, C=Consulted, I=Informed					

The Excel based electronic ordering form is used internally in the commissioner for making a change request about a server deployment (Appendix 1). The form is quite complicated to fill in and it requires that the subscriber knows well the environment where the server and / or the service requested will be installed. The subscriber has to know the following details of server needed: virtual or capacity server; the amount of processors, RAM, disk capacity; back up methodology needed; and licenses. The drop down lists of the order form help for choosing the most suitable combinations but still a lot of special knowledge is needed about the server to be implemented. To get the order under the change management process, the subscriber has to raise a change request using IT Service Management tool, in the case of the commissioner of this thesis, using the OneITSM or the ITSM DR2, depending on the customer. (Eriksson 2016, 4–7, 16–18.)

The customers of the commissioner, who are using MyIT self-service portal, can raise the standard changes via this web-based tool. The tool is the same as the internally used Excel based electronic ordering form but it contains limited objects to choose. This raises automatically a work order into the ITSM DR2 with status draft and is ready for a change coordinator to start the review for authorization of the request for change. (Eriksson 2016, 13.)

4.2 Results of the Group Interview based on the Business Model Canvas

All started with a blank BMC poster, shown in the section 3 in figures 7 and 11 of this thesis. The filled in BMC poster after total of 52 minutes eager group discussion is shown in figure 13. While filling in the BMC poster, group eagerly discussed the server order form and how it is used nowadays and how this should be used and developed in the future to grow the automatization rate and in that way reduce the costs of one server deployment.

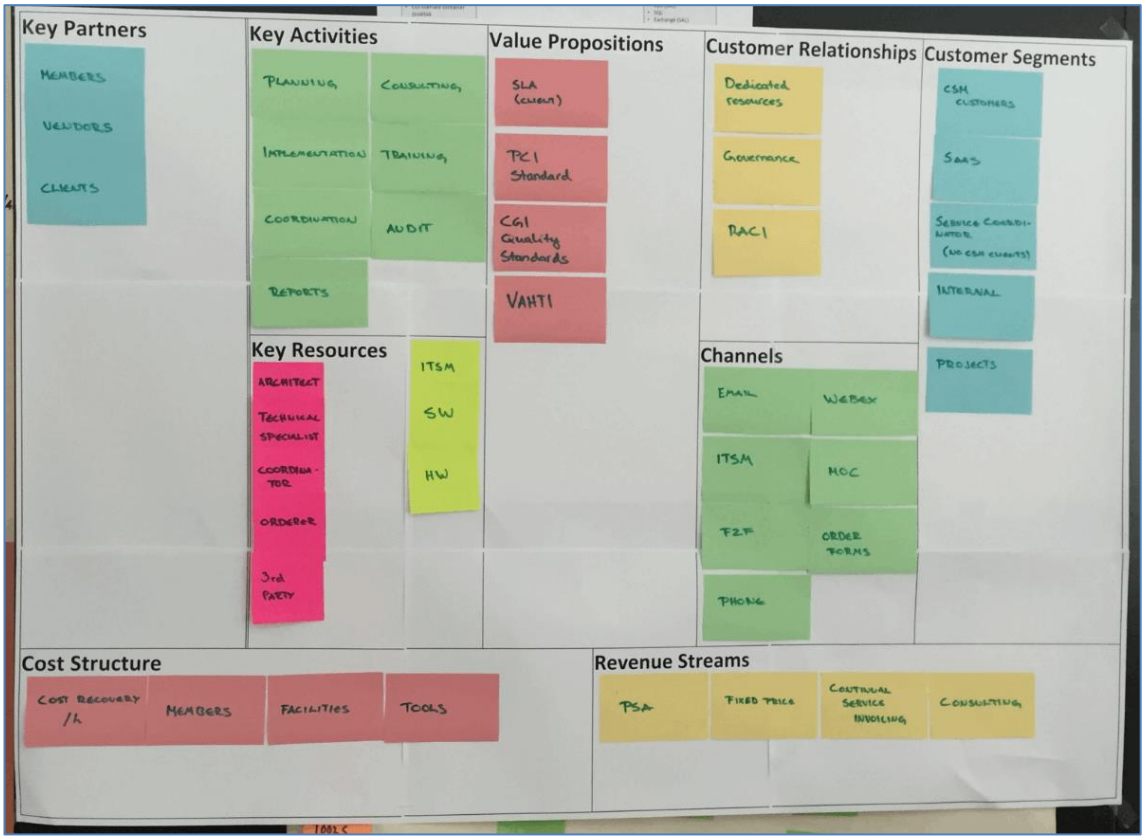


Figure 13. The business model canvas after the group discussion

The Customer Segments block was the hardest to fill in, since it was the first block to handle. The decision of the group was that the CSM customers is the biggest group where the change management requests of the server order is coming. A software as a Service (SaaS) is also a remarkable customer segment and that is the area, which needs to be developed. To get the SaaS change requests to go at least as smoothly through the CM process as the orders of the CSM customers, the ordering form needs developed. The Finnish Service Coordinators also send quite a lot of server deployment requests, as well as the Project Managers. These orders are the ones that require the most extra questions, definition work and even meetings with the project managers and the change coordinator to get the RFC under the CM process with all the needed information.

Under the section Value Propositions, SLAs (customer-based) are listed, as well as the PCI standards, the quality standards of the IT service provider and VAHTI. The change coordinators pointed out that the SLA measurement / reporting is challenging to do. It is not clear where the measurement starts. The change management team challenges that the server deployment measurement starts from

completely filled in ordering form. The order form contains the hardware definitions, the operating system and licensing details, the services to be included, like maintenance, monitoring, virus protection and backup; network details, security level, software system on the server, what is the role of the server, the contact persons (the internal of the commissioner and Customer) and the invoicing details. The measurement of process stops when the hardware itself with earlier listed details is ready for the installation of the software system. Another value propositions development issue is that the change management process does not have an OLA.

The Payment Card Industry (PCI) Data Security Standard (PCI DSS) is an essential value proposition, since part of the customers of the commissioner are from banking and financial sector and there are the own tight and accurate information security standards. "*The PCI Security Standards Council offers robust and comprehensive standards and supporting materials to enhance payment card data security" (*PCI Security Standards Council 2015). The PCI materials include a framework of tools, measurements, specifications and needed support resources to help the organizations to ensure the safe handling of the cardholder information at every step of the support and maintenance work. The PCI Data Security Standard provides an actionable framework for developing a robust security process of the payment card data, which includes detection, prevention and appropriate reaction to security incidents. (PCI Security Standards Council 2015.)

The same applies to the VAHTI standards, which are adapted to the government segments customers. VAHTI, the Government Information Security Management Board, instructions are administrated by Ministry of Finance. There are instructions from different point of view and they are one of the most comprehensive set of information security instruction in the whole world. The PCI standards and VAHTI-instructions are more detailed, tight and defined data security and cyber security rules than normal SLAs. (Valtiovarainministeriö 2015.)

Email, WebEx conferencing, ITSM, Microsoft Office Communicator, face-to-face meetings and discussions, and phone are listed into the Channels building block. Even though all kind communication channels are used for ordering the server deployment, the order form has to be filled in for every order. The order form can be filled in for example in a meeting with a change coordinator and an SPM. The

order form is the only way to get the change management process in progress. The WebEx conferencing meeting is a very common method to start the change management process, since it is a handy tool to get different specialists in the same meeting around Finland, Nordic countries and from near- and off-shore.

While discussing the Customer Relationships the dedicated resources, governance and RACI were listed into the block. The RACI model of the Nordics infrastructure services change management is explained in the paragraph 4.1. The Finnish Change Management team can offer the named resources for clients as part of the service delivery agreement, the named change coordinators for the deployment and transit projects. It is also possible to get a time and material based resource for filling in one server deployment form. The RACI model of the CM aligns to the Client Partnership Management Framework (CPMF) of the commissioner. The CPMF is the enterprise process framework of the commissioner and it establishes the common language for the activities related to managing and delivering the client engagement of the all types from proposal to closure. (Commissioner 2017a.)

The Profit equal to the Revenue Stream building block was quite challenging to fill in but after a deep thinking and a group discussion the block was filled in. Into the block is listed PSA, fixed price, and continual service invoicing and consulting. The fixed price server deployment means that faster the hardware itself is ready for the software system installation, the better the profit margin of one server deployment is. The shorter deployment means that the system will be in the continual service invoicing and this grows the continual service invoicing of the process. The PSA is an application hub and one part of it is the pricing model. The charge-back cost for each enterprise and regional IT service utilized internally by all the IT service provider staff is shared by the business units who consume the majority of solutions within those services based on pre-determined allocation method, like headcount, revenue, customer agreement charging rules. The PSA time is the tool to prepare the time reports among other things for customer invoicing. (Commissioner 2016a.)

The Key Resources was the easiest building block to fill in. In this block the issues are divided into physical and human resources. The physical ones are written down in yellow post-it and the human ones in red post-it. ITSM, SW (software)

and HW (hardware) are listed as physical resources. The ITSM is the tool that is used for handling the RFCs. The whole lifecycle of the RFC is in the tool. The reporting is based on work info and done tasks in the change management or work order ticket of the ITSM. An architect, a technical specialist, a coordinator, an orderer and a third party are listed as human resources. The architect means Nordics and / or the solution architect of the business sectors of the commissioner. The architects provide the detailed environment planning of the ordered server deployment. The technical specialists are network specialists, Windows, Linux or UNIX specialists, datacenter specialists, active directory specialists, the essential people to make the hardware available and ready for the software system installations. The coordinator is the key person, who is responsible for the assigned RFCs. If required, the coordinator gathers all needed specialists together and takes care that the RFC goes through all its lifecycle phases, the phases shown in the figure 12. The orderer is the person who fills in the server order form and starts the lifecycle of the RFC. This initiates the order. The third party is a person, a company or a software system provider, who normally takes the role of continuing the software system installation after the server deployment itself is ready. The third party can also raise an RFC into initiate phase.

The next building block is the Key Activities and in this block the listed issues are mainly the phases of change management process: planning, deployment, coordination, reports, consulting, training and audit. Following the phases of the change request initiate, review and authorize, plan and schedule, implement and closed in order and with work info and done tasks to all the phases, the audit is easy to perform. The audit requires that also all the guidance and procedure documentation and ITSM user rights of change management process are available for all members. The Nordics change management is responsible of keeping the process and guidance documentation up to date.

The Key Partners building block was another challenging one to fill in but finally the members of the change management listed out members, vendors and clients. The members mean the commissioner staff, since all employees of the commissioner can be part of any phase of the RFC lifecycle. The vendors are for example network operators: they make the data-communication network possible or the hardware providers provide needed servers, storage, cables etc. to be available and everything needed is in place in required time. The clients are the

partners, who make the whole process possible to work. The clients are the clients of the commissioner but also the internal clients, i.e., the teams and business sectors of the commissioner.

The Cost Structure block was the final one to be filled in and there are cost recovery per hour, members, facilities and tools listed. The cost recovery per hour means that the faster the RFC goes through the change management process the more money for the change management team. Also the faster the hardware is ready for the software system installations the more continual service fees will be charged. The members is the staff of the change management team. It requires that all the team members have enough RFCs to handle or that they are sold to work as change managers or change management coordinators for named clients or work in projects to make the revenue for the Finnish change management team. The facilities and tools are assets that make it possible to work in an office or remotely with needed computers, connections and software.

After all the building blocks were filled in, the change coordinators were guided to point out the most critical items in every block and also re-organize the issues in the blocks in order to describe the importance of all listed items. The group discussion was eager and the finalized BMC poster is in the figure 14.

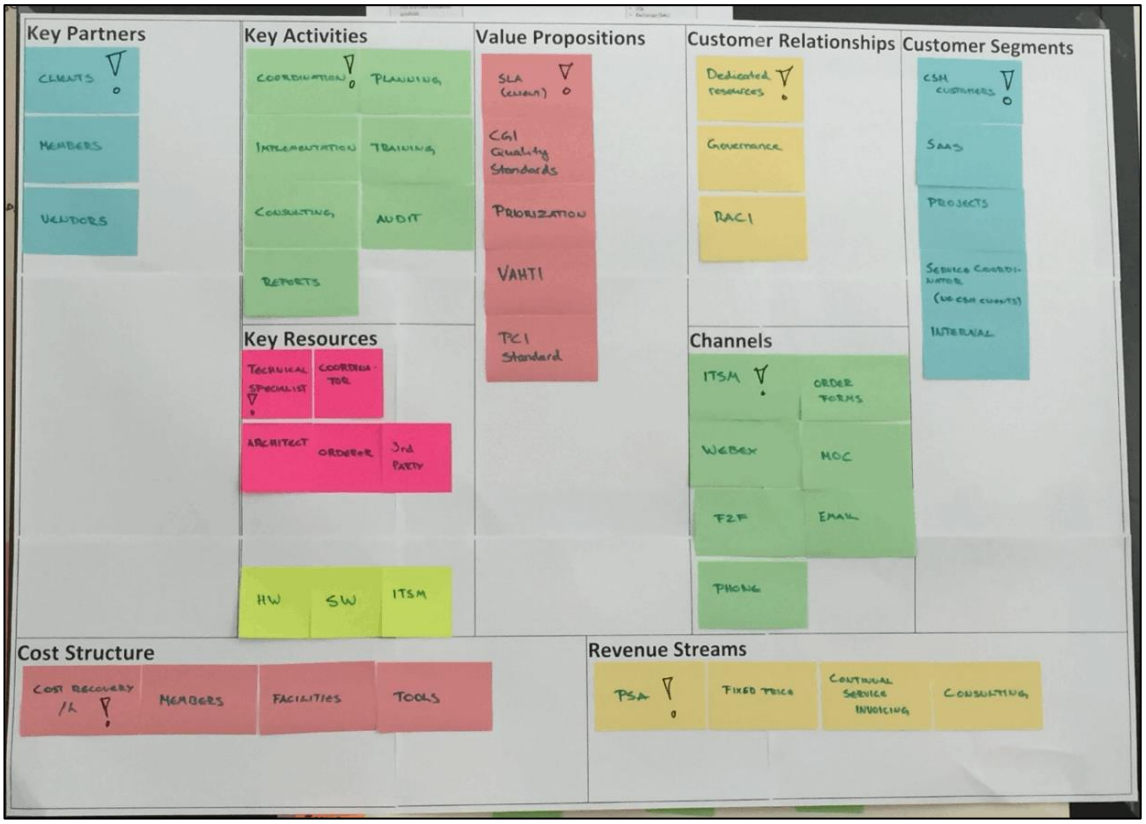


Figure 14. The finalized business model canvas poster

During the group interview, the key development areas of the change management process were discussed. To develop the process to be more efficient and better the cost structure of the process and list the key development issues, which need to be developed even more and finally why these areas should be developed.

The next figures 15, 16 and 17 explain the areas to be developed. The texts are in Finnish in the figures since they are used as daily instructions for handling the orders. The most critical issue to be developed is to get the basic order details easily in one order form. It is crucial to develop the server order form together with the client management team, to have clear guidelines of how to fill in the form (explanation what all the fields of the form mean). If the orderer does not have enough knowledge to fill in the server order form, the clear guidelines are needed of how to contact the change management team and get a dedicated resource to fill in the order form together with the orderer. The consulting work is a time and material based billable work, and it is essential that in these cases orderer has fixed the time reporting rights to the correct PSA code, so that the commissioner is paid by the client for the work the coordinator has done.

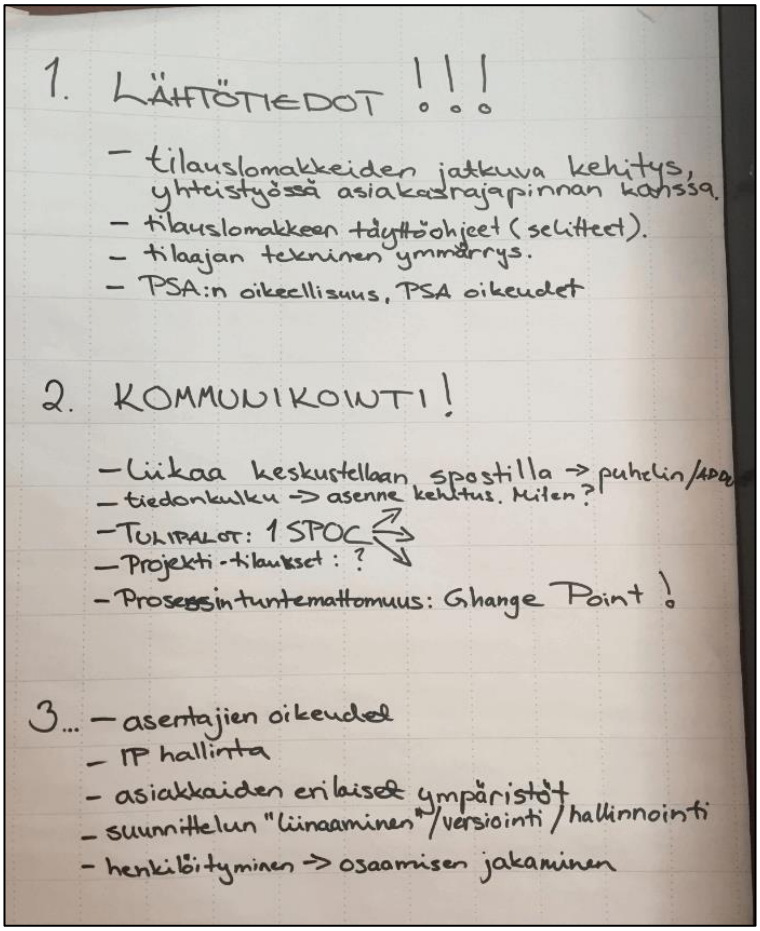


Figure 15. The areas to be developed

The communication between different parties of the server order is critical during the lifecycle of the RFC. It would be better to have WebEx conference calls and face-to-face meetings to get issues clear all at once. The knowledge transfer needs to be continual to be sure that the server order goes smoothly from phase to phase. During the Emergency Changes (ERFC), all communication has to go through a single point of contact (SPOC) to be sure that the ERFC can be controlled and processed according the change management process. It is essential to wider the knowledge of the whole Nordics change management process with the responsibilities of the actors in the process. The RACI model of the Nordics CM process is explained in detail in the paragraph 4.1.

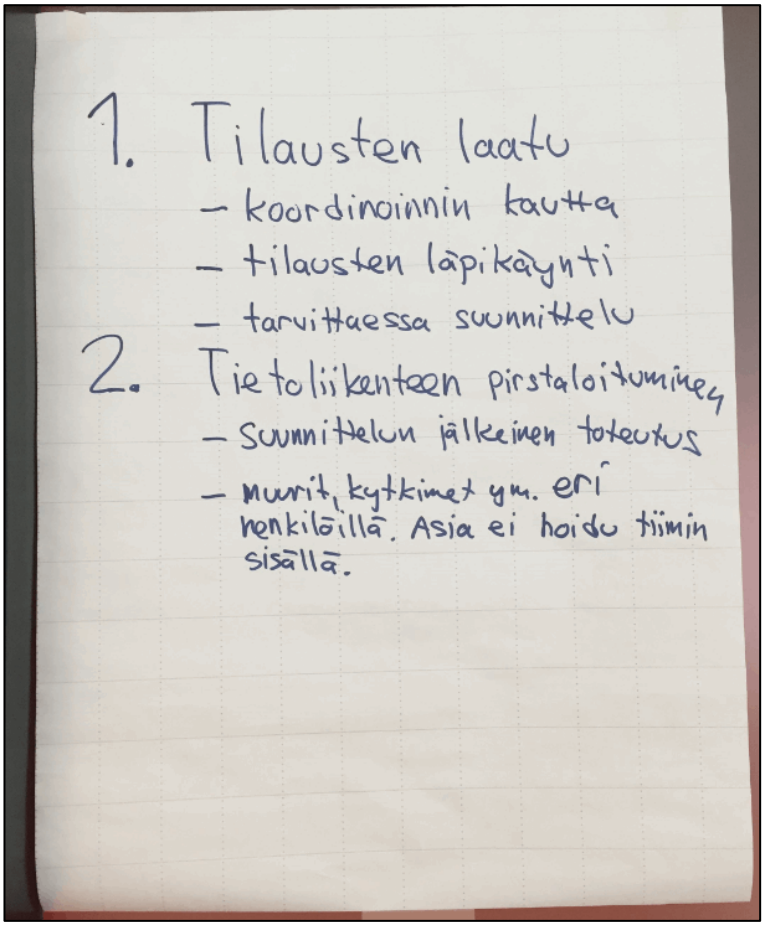


Figure 16. The areas to be developed

The key areas for developing the server development process to be more efficient and to better the cost structure are listed by the FI CM team.

- The quality of the RFCs needs to be improved and all orders have to go through change coordinators. This makes it possible to check the details of the orders and if needed, to offer the designing and planning for the orderer to improve the efficiency of delivering the hardware ready for software system installations.

- The spallation of network environment has to be prevented by following the done plans and firewall, network switches etc. are maintained by different persons, which means that the discussion inside and between the different teams has to be better.

- The whole deployment process of the servers has to be unified. The orders will always come from the same source and the form has to be clear, understandable and have needed guidance.

- The continual development of the change management and the deployment process of the servers is needed. When good developing ideas come out in daily work, these should be taken as normal working manners. The way of thinking has to be changed and more dedicated resources for different phases are needed.

- Make the decommissioning of the servers an agile process. Take into account the exit-projects and decommissioning of continual services servers of the customers and services.

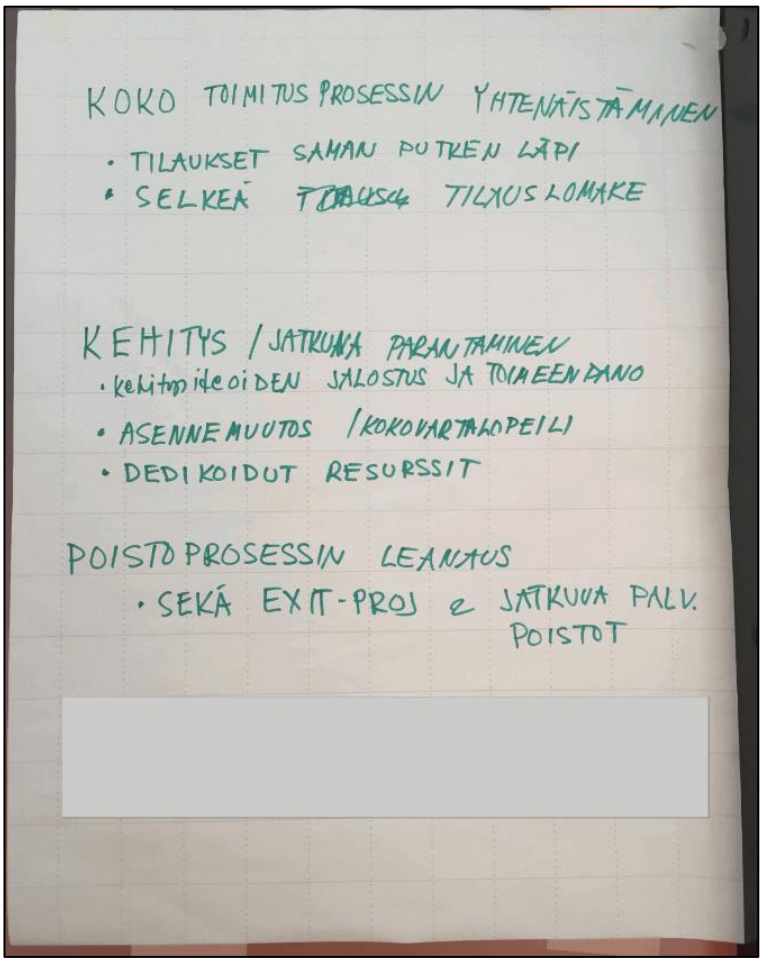


Figure 17. The Areas to be developed

4.3 Results of the Individual Interviews

The four individual interviews were held in mid May 2016. One Client Service Manager (CSM) and three Service Provision Managers (SPM) were interviewed. The interviewed CSM has worked for the commissioner for nine years and all that time as a CSM. One of the three SPMs has worked 11 years for commissioner and 3 years of that as an SPM, second interviewed SPM has worked 15 years for commissioner and five years as an SPM and the third interviewed SPM has worked 15 years for commissioner and about 10 years of that as SPM. All the interviewed persons have a wide background knowledge of Finnish infrastructure services and the server deployment and the change management processes are well known for them.

The questions related to server ordering and change management consisted of five different questions or set of questions. The first set of the question: Have you used the server order form? If you have used it, roughly how many orders have you done? The answers differ a lot depending on the interviewee. The CSM knows the server order form and where it can be found but has used it only four to five times during the last twelve months since the SPM of the same client engagement takes care of almost all the server deployment orders. For all the interviewed SPMs the server order form is very well known and used almost daily and the orders done during the last twelve months are from 15 to 60 per SPM. The amount differs a lot based on the customers who SPMs are responsible for and if the IT staff of the customers uses the simplified server order form from the MyIT self-service tool. All SPMs know where to find the server order form but some of them have a bad habit to use the already filled in order form as basis for a new order. This is not a recommended way to work, since they might be old versions of the server order. The server orders also increase the revenue of the customer service agreement and that is why this is so important to be used.

The second set of questions: How do you estimate this form? Is the form usable? Does it have enough guidance to fill in the order form? All interviewees stated that the form is barely usable, it is mainly unprotected, it does not require to fill in the essential information and the guidance is insufficient. The interviewed CSM pointed out that the order form cannot be used by any means directly with the customers and this means that in some cases, a simplified Microsoft Office Word document has been made for the customer usage. The SPMs stated that if you do not have enough experience or guidance from some colleague or change coordinator, who knows the order form and the process, you will not get the order forward into the change management process at all or it will be rejected and sent back to you to fill in it again more accurately. Two of three SPMs told that they will use the server order form to order only simple and single server deployments and for complicated orders they will always use either the change coordinator pf the FI CM team or the dedicated change resource of the customer to fill in it and forward the server order to the change management process. The server ordering and deployment processes also differs between the customers, since some of them prefer to have all the servers from the licensed Hyper-V container of the

IT service provider and it means that no extra work is required for example about the licensing details.

The third question: After filling in the server order form, do you know where you forward it or how to get it into the change management process? All interviewed persons knew where and how to raise the change management ticket into the OneITSM or ITSM DR2. This means that all the interviewed persons has completed the Nordics Process Management training and assimilated how the process works.

Next, the fourth question: What kind ideas do you have to improve the server order form? One SPM answered that it is easiest just to raise a change management ticket into the OneITSM or ITSM DR2 and leave the filling in of the server order form to someone else's task to do. This means that the change coordinator of the FI CM team will invite a meeting with the change coordinator, the SPM and the needed technical specialists like Windows, Linux or UNIX server specialist and the network designer. One reason not to use the form, is that there has not been enough training or introduction of the whole server deployment process and the questions of the order form essentiality related to the process. One interviewed SPM has the feeling that even trying to gather the needed information to the order form, the server deployed into use is not that kind what was thought to be ordered. One of the SPMs, who has worked long time for the commissioner, pointed out that the form should be protected in a way that the user cannot destroy it by deleting texts or overwriting the existing texts. In addition, the unnecessary fields or fields, which are seldom used, should be removed totally or hidden from the normal user, and such questions can be left for the usage of the change coordinators if needed. The CSM suggested that for big volume customers the server order form should be partly automatically filled in when the customer is chosen from the drop down list. Then there should be automatically filled in fields, for example the network details, the recommended VM-ware environment and the security levels of the customers. When choosing a license option, the order form should automatically offer the server types, which can be ordered, like if the customer has own licenses it is not possible to use the containers or shared environments of the IT service provider. The idea, which all interviewed persons pointed out in for this question, is that a web-form or a web-tool, which would guide the user with all questions and when choosing some option, some

of the other options would be hidden totally. That would speed up the ordering and perhaps the whole change management process for the server deployment.

The last, fifth, question: Do you know that you have a possibility to contact the Nordics Windows and Linux change team and / or the Finnish Change Management team and get a Change Coordinator to help you with the order form? All interviewed persons knew that possibility and two of the SPMs used it for almost every order. One SPM fills in the form itself every time. The CSM and one interviewed SPM prefer the time and material based planning, especially when big environments are in concern.

4.4 Lean Analyzed Server Deployment Process

The main reason why the server deployment process is lean analyzed, is to better the value for the clients and to make the flow of process more efficient. It was essential to identify the key tasks and phases of the deployment process and based on these build and draw the flow of value now.

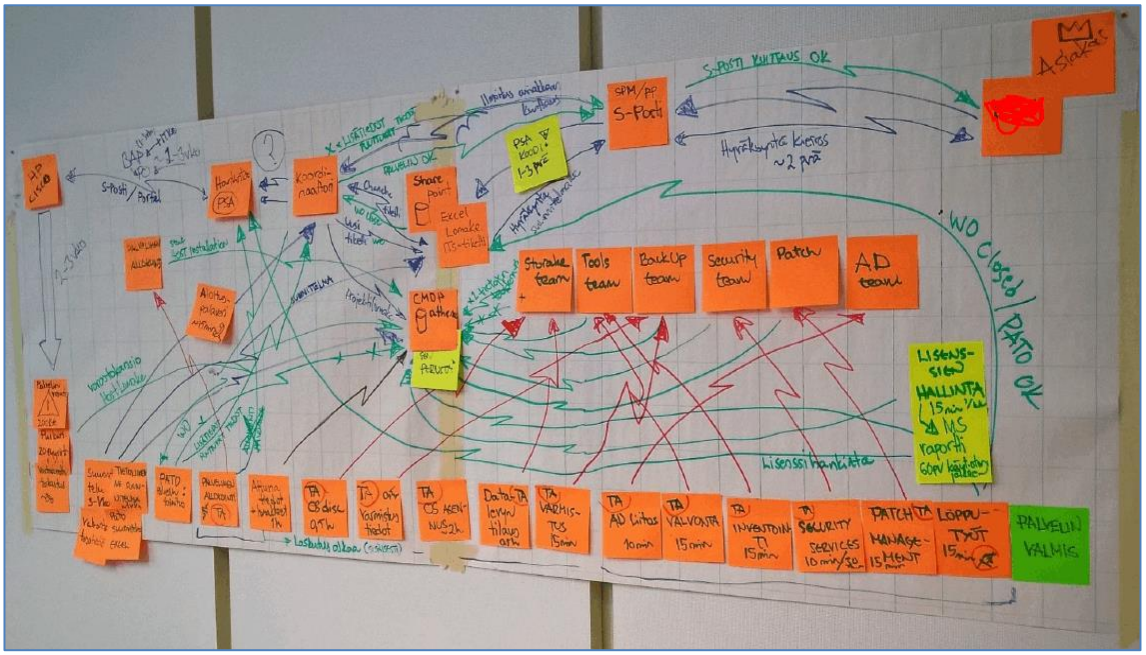


Figure 18. The flow of value of the server deployment process now

Also the time spent with different tasks are estimated and this estimation is done so that the valuable tasks, non-valuable tasks and waiting time are marked for all of them and also it was meant to find the tasks, that are intervening from the other

tasks. From improving the servers deployment process with lean thinking and way of working the following direct wins are possible to get:

- the waste is reduced and that leads to better the value for the clients
- the quality is getting better, since “the quality will be the process itself”
- the flexibility will be better
- the capita will be removed from the current assets
- the floor space and intermedia stocks will be reduced
- the lead times will shorten and this is because of the process flow will be better
- the satisfaction of the work will be better
- the safety of the work will be better
- the profitability will grow
- with the less twist the more ready servers. (Reiman 2015.)

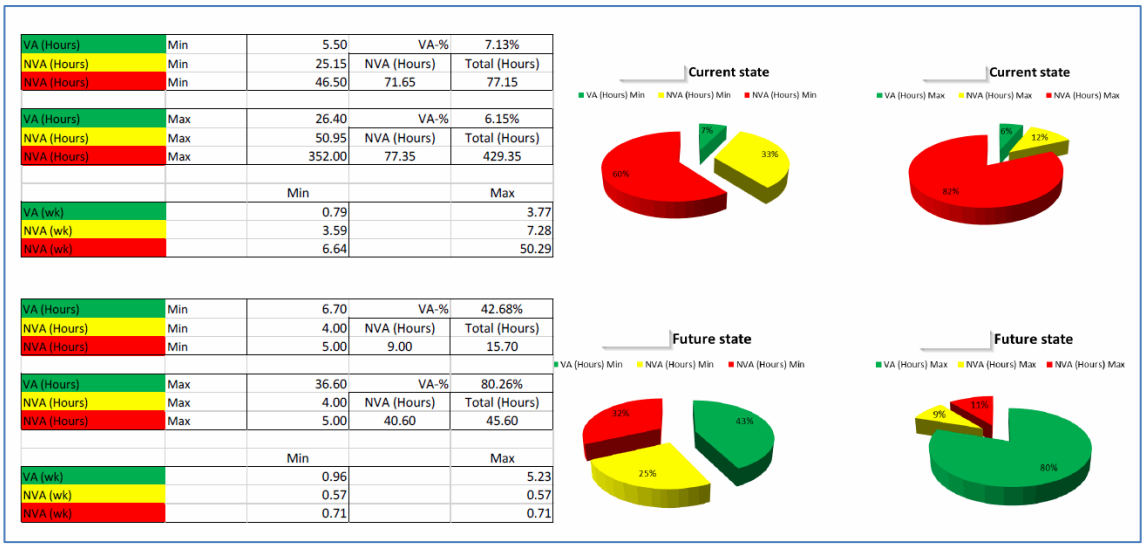


Figure 19. Current versus future state of server deployment flow of value (Reiman 2015).

The goal is to speed up the flow of the process and in the same time better the information security and reliability, not forgetting the flawlessness of the deployment process and keeping the free server capacity available all the time. The lean analyzed server deployment process will reduce the non-official server deployments and the licensing details are much easier to keep on track. All the server deployments will also follow the same process, which means that all the servers will be connected to the antivirus and patch management, the relationships of the servers, services, databases and application systems are much clearer and easier to determine and the reserved storage capacity and the network connections are all available in the asset management. Nowadays, the change coordinators

know the statuses of the server orders accurately and based on that they can give right away an estimation of when the ordered server is ready from the server deployment process. They know all the time the workload of the related support teams and the possibilities to start the next order in the work in progress phase. (Reiman 2015.)

4.5 Improved Server Deployment Process and Service Design Thinking

The improvement of the server order form has followed the service design flow until piloting / production phase now. When defining the most essential parts of the server order form and the deployment process, it is possible to reduce the costs of all parties that take part in server deployment. The exact information about the customer and the restrictions that the service agreement sets for the server environments and the security issues helps to include the right questions in the server order form. The same applies to the license questions and the possibilities to use shared and cloud server environments. The done interviews have clarified the need of the web-based tool for the server order form and for following the deployment process.

In the planning phase, the restrictions of the customers are taken into account and together with the responsible persons of the service support teams, the Finnish change management team, the license specialists and the MyIT self-service portal development specialists, the server order form is implemented in such format that it is usable and optimized. The support teams and the license specialists have given their expertise in areas related to the server capacity, security level, SLA, network restrictions, licensing possibilities and restrictions of the IT service provider provided or the own licensing of the customers. The FI CM team have given input to of what kind and in what format the order details has to come into the CM process and how the lifecycle phases of change request has to be shown to the customers in the MyIT self-service portal. (Tuulaniemi 2011, 51.)

The piloting of the bulk server order form is implemented via web-based tool for a few customers and the IT-staff of these customers are using it now. The forms implemented for the customers are built based on the service agreement limitations of the customers. They are published in the customized web portals. One

of the customer is using the Request Entry of the OneITSM and the other customer is using the MyIT self-service portal. The view of the form of the MyIT self-service portal is available in the paragraph 5.2 in the figure 22.

For limited persons working in the Nordics infrastructure services, a more structured MyIT form is published in the ITSM DR2 pre-production for testing and commenting purposes. This form is now under development and will work reactively when choosing customer from a drop down list. It automatically fills in the PSA invoicing details, security restrictions, network segments and possible combinations of server environments and licenses. The development of the commissioner's internal usage MyIT form is on-going and the goal is to get the first version ready for production during the summer 2017, the view of the form is shown in the figure 23 in the paragraph 5.2. (Tuulaniemi 2011, 63, 85.)

4.6 Summary of the Findings

The interviews have shown some areas to be developed related to the server order form and the change management process. The web based form or tool is the most preferable way to gather the needed information for the order. The tool should automatically fill in the basic details, like the PSA invoicing details, the contact information, the preferable server types and environments and the license possibilities, after the customer is chosen. After the all needed information is filled in, the change management ticket should automatically be raised to the change management queue to be taken under CM process. The web based order form has to have the guidance details like what to be filled in fields. All the important questions have to be compulsory ones, and if the compulsory questions are not answered, the order cannot be sent. The interviewed persons and the team members to the FI CM have stated that the order form in MyIT self-service portal should be available at least for the Finnish Client Service Managers, Service Provision Managers and Project Managers and maybe also for the Product Owners and Project Manager of the industrial operations of the commissioner.

The server order form in the MyIT self-service portal has to be categorized as a standard change request and recorded as a work order ticket into ITSM. This will lead to situations where the change coordinators and the Windows, Linux and UNIX change resources can be utilized for bigger and more complicated change requests and in that way grow the profit margin of the different support teams.

The standard changes sent from the MyIT should reduce the time needed for the clarification work related to the normal server deployment orders. This should also make it possible to follow the orders more precisely and if needed require information from the orderer or directly from the customers. For example, the software specific details should be requested to be ready for the software or system installation. All kind standardization of the change requests and the server orders should better the cost-efficiency of the server deployment and the change management process and grow the usability of the resources in time and material based working. The unified change management process and server order process in the Nordics infrastructure services should make the both processes even more efficient.

5 CONCLUSION

5.1 Reliability and Validation of this Research

The research objectives are summarized in the following research sub-questions:

- What are the positive and negative functions of the process?
- What is the desirable tool for the future use?
- How and where the costs can be saved in the process?

The interviews gave a very good and coherent view of the positive and negative functions and issues from both the server deployment and the change management processes. The communication has to be developed even more between the different parties of the server deployment and change management processes since the knowledge for example about the network environment of the customer were still too spalled. The quality of the RFCs needs to be improved and this improvement has to be a continual process and all the parties must be taken into account in this development. The standard change request ITSM forms have to be same for all the customers. The server order form has to be clear, the form has to contain the needed and detailed guidance and it has to be understandable. For this the MyIT self-service portal form of the server order that is now under development, might be the solution, at least for big volume customers and also hopefully for smaller customers, who will approve the standard way of ordering. The way of thinking has to be changed so that even more dedicated resources can be assigned to the customers and that leads to growing the time and material based billable work of the teams.

Based on the group interview the management of the change of the servers deployment is already happened in the process of the servers deployment in the FI CM team. The change coordinators takes into account all the phases of the change and keeps the orderer updated of the all parts of the deployment via the change management ticket, since the ticket is all the time updated with all the parts done for the server deployment. The FI CM team has also listed the areas of the server deployment process to be developed even more and that shows that the precisely defined and guided change management process is well managed change of the way of working.

The lean optimized server deployment process has improved the profitability of it since working time is nowadays 43 % of the day where it was earlier only seven percent. This is visualized in the figure 19 where the current versus future state value of the server deployment flow are compared in task level. Nowadays working is more doing than waiting, also the time used for supporting functions is reduced. The change coordinators know all server orders status accurately and based on that they can give right away an estimation of when the ordered server is deployed for software system installation ready. They know all the time the workload if the related support teams and the possibilities to start the next order into work in progress phase.

5.2 Development until now and the follow-up development suggestions

Already now the server order is in much better situation than for example it was twelve years ago, when server order were done in the following way: first you had to draw a rough environment of the system and ask for a quotation of server or servers.

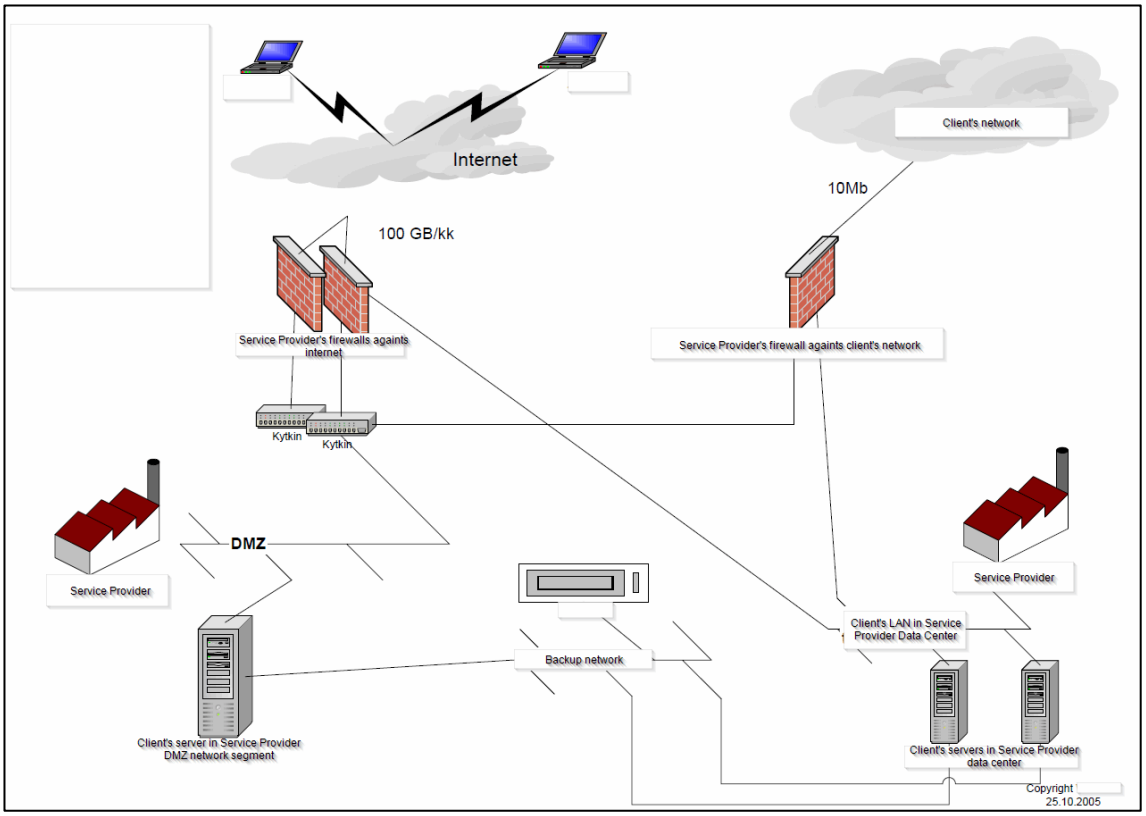


Figure 20. Rough drawing about the environment of the system

Laskelman tekijä	
Asiakas	
Palvelimen käyttötarkoitus	*Tiedostopalvelin*
Malli	*ProLiant DL380R04 1P X3.4-1M 1G iLO M1*

Komponentti	*Lisätiedot*	*Kpl*	*á-hinta*	*Yhteensä*
Perusmuisti + runko	ProLiant DL380R04 1P X3.4-1M 1G iLO M1	1	2 484,00	2 484,00
Lisämuisti	DL380G4 PC3200 DDR2 1G Memory Kit (2 x 512MB)	1	251	251,00
Lisämuisti	*HP 2GB REG PC2-3200 2x1GB Memory*	0	800	0,00
Levykeasema	DL380 G4 Floppy Drive Kit (included in HiPerf models)	1	44	
	DL380 G4 duplex backplane terminator & cables	1	88	
Lisäpoweri	DL380 G4 Hot Plug redundantti virtalähde	1	105,00	105,00
Lisäprosessori	DL380G4 Intel XEON™ 3.4-1M/800MHz suoritin	1	746,00	746,00
Lisätuuletin	DL380 G3 Hot Plug redundantti tuuletinkitti (3 kpl/kitti)	1	41,00	41,00
patterivarmistettu cache	SA6i (G4) Battery Backed Write Cache Enabler Option Kit	1	95,00	95,00
Levyohjain	*Smart Array 642*	0	295,00	0,00
patterivarmistettu cache	*Battery Backed Write Cache 642:lle ?*	0	85,00	0,00
Levyohjain	*SA 6402 / 256 2-kanavainen*	0	438,00	0,00
Poistunut	*36 GB Ultra320 SCSI 10 k*	0	186,00	0,00
Poistunut	*18 GB Ultra320 SCSI 15 k*	0	211,00	0,00
Poistunut	*36 GB Ultra320 SCSI 10 k*	0	211,00	0,00
Systeemilevyt	36.4GB 15k U320 Universal HotPlug SCSI	2	174,00	348,00
Datalevyt	72.8GB 10k U320 Universal HotPlug SCSI	2	182,00	364,00
Datalevyt	*72 GB Ultra320 SCSI 15 k*	0	568,00	0,00
Datalevyt	*146 GB Ultra320 SCSI 10 k*	0	383,00	0,00
Verkkokortti	NC7771 10/100/1000-T Gigabit Server Adapter	2	87,00	174,00
ILO--->RILO (Integroituna)	ProLiant Essentials Integrated Lights-Out Advanced Pack (lisenssi)	1	175,00	175,00
Carepack	4-Hour Onsite Response, 24x7, 3 year	1	1 237,00	1 237,00
Carepack	*13 * 5, 4 h*	0	578,00	0,00
YHTEENSA				6 020,00

Sopimuksen kesto kuukausissa	36
Kuoletus	30
Laitteisto/kk	200,67

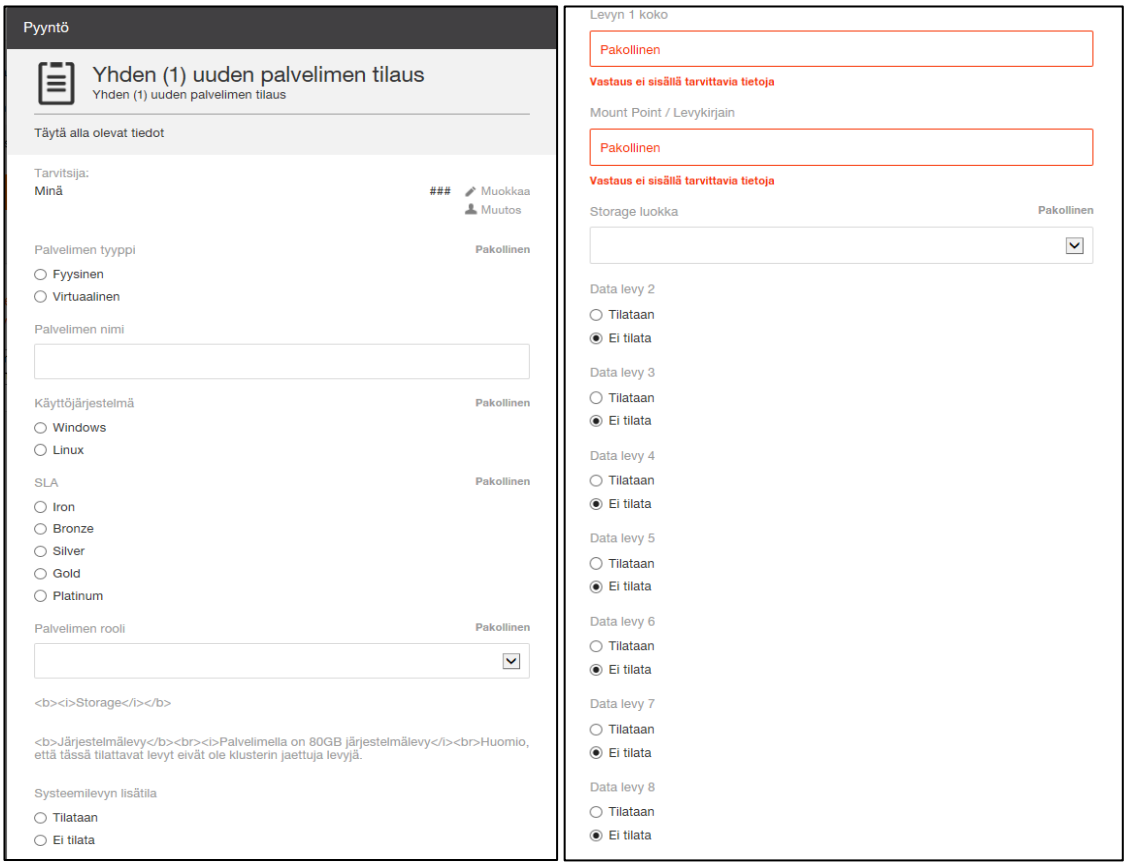
Figure 21. A quotation of the server

Based on the quotation details, the offer was sent to the customer added with the service agreement service pricing and the hardware pricing and then customer accepted or rejected the offer. If the offer was accepted, then the server hardware could be ordered from a vendor or directly from a manufacturer. When the hardware arrived, normally after several weeks or even months, to the data center, the server deployment process could start. The deployment process included hardware and operating system, antivirus, backup and network installations and all these settings could take weeks or even months as total, since the tasks were done in a mixed order and there were not used any kind of tickets of the IT service management tool to follow up the tasks done.

During the last few years the server order form, Appendix 1, has been used and it was modified based on the support teams, the customer engagement responsible persons based on customer needs and the license agreements changes but the form is still very complicated and sometimes leads to the situations that the server implemented is not matching all the needs. These situations might also be a result of that the order form is not accurately enough filled in. Another reason might be that the discussion between the orderer and the change coordinator or the Windows, Linux or UNIX or the network specialists has not been detailed

enough for requiring the exact information for example the software needs, like port openings, needed basic software installations, like IIS, JAVA, and similar things.

The simple version of the server order form was published to a few IT staff member of the customers via the MyIT self-service portal, as mentioned in the paragraph 4.5, and the experiences of its usage are quite positive. The change management gets the needed details of the bulk server to be deployed in one work order request. The IT staff members of the customers can follow the server deployment phase by phase via the MyIT self-service portal and if needed, they can provide more information for the order via the web-based tool. This kind of a tool reduces manual work, since there is no need for separate emails or phone calls to customer and a waiting time can be minimized. The work order ticket will be coordinated by the change management coordinator or assigned directly to the server deployment team right after it was created into the ITSM, depending on the customer.



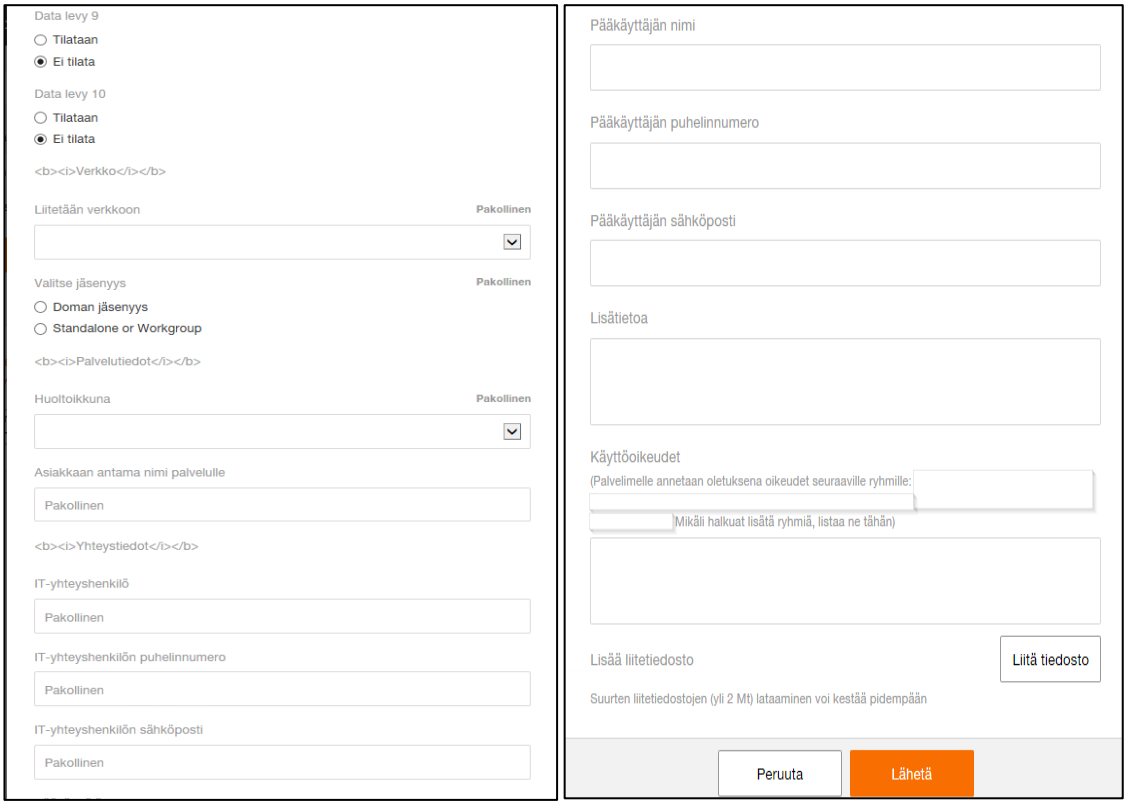


Figure 22. Simplified server order form in the MyIT self-service portal

The complete server order form, which is a more detailed version of the one, which is now in use as Excel form (Appendix 1), is in a development and testing use via the MyIT self-service portal pre-production environment for the change coordinators, the responsible person of the Windows, Linux and UNIX teams and the MyIT self-service portal development team.

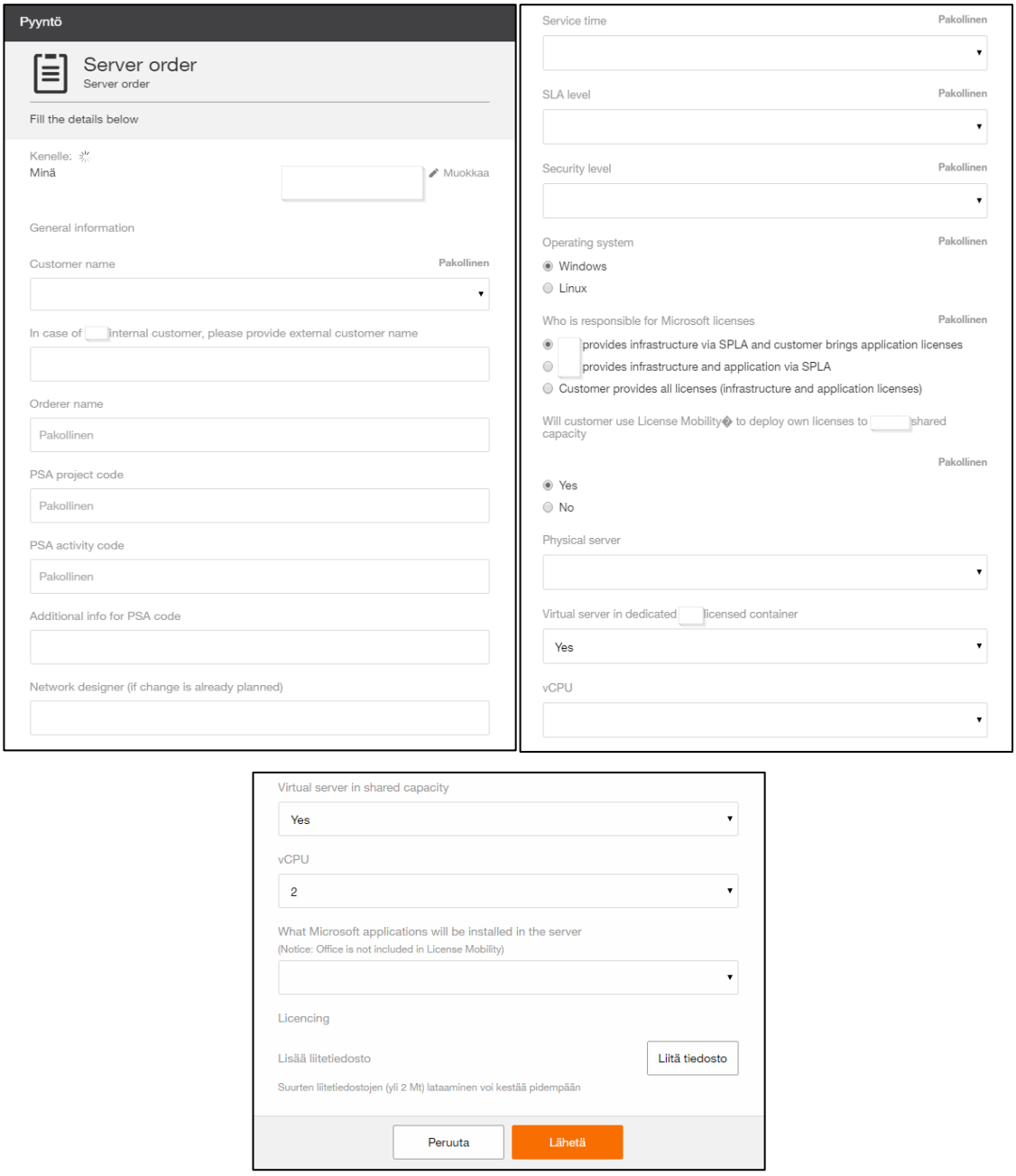


Figure 23. The version 1 of the server order form in the MyIT self-service portal

The different parties take in part the testing to provide enough knowledge so that the form will be as good and complete as possible. This form will be automated so that when choosing the customer from a drop down list, it automatically fills in the PSA invoicing details, the security restrictions, the network segments and the possible combinations of server environments and the licenses. The development of the internal use MyIT self-service portal form is ongoing and the goal is to get the first version ready for production use during the summer 2017. In the first phase, the filled in MyIT self-service portal form creates a change request ticket into ITSM DR2. The created ticket is assigned to the change management

team for starting the deployment process and for coordinating that it will flow smoothly from phase to phase. If more details or comments are needed for the order, they can be easily asked from the orderer via the ITSM DR2 and orderer can answer via the MyIT.

Making the servers decommissioning orders as an agile process is another development project ongoing in the FI CM and the server deployment teams. The purpose is to develop this ordering process so, that it takes into account the exit-projects and decommissioning of the continual services servers of the customers and services in a manner that flow of the value will be same like server deployment process has nowadays. The ways of achieving that are for example the MyIT self-service portal form for server decommissioning, re-scheduling later the BMC Atrium Discovery and Dependency Mapping (ADDM) decommissioning scanning of the data centers, which leads to better shape of the asset data and in that way improves the profitability of the commissioner. The leaned optimized server decommissioning will improve the quality of the asset management and the records management accuracy and these improves the profitability.

A lot has happened during the last year in the organization of the commissioner. The Nordics infrastructure services has come stronger and the common processes and procedures are agreed. The development of the electronic tools and the automatization have grown a lot after the interviews were held for FI CM team and for the client service representatives. The boost from the needs and demands of the clients will give IT service provider even more desire to develop the automatization to be more efficient.

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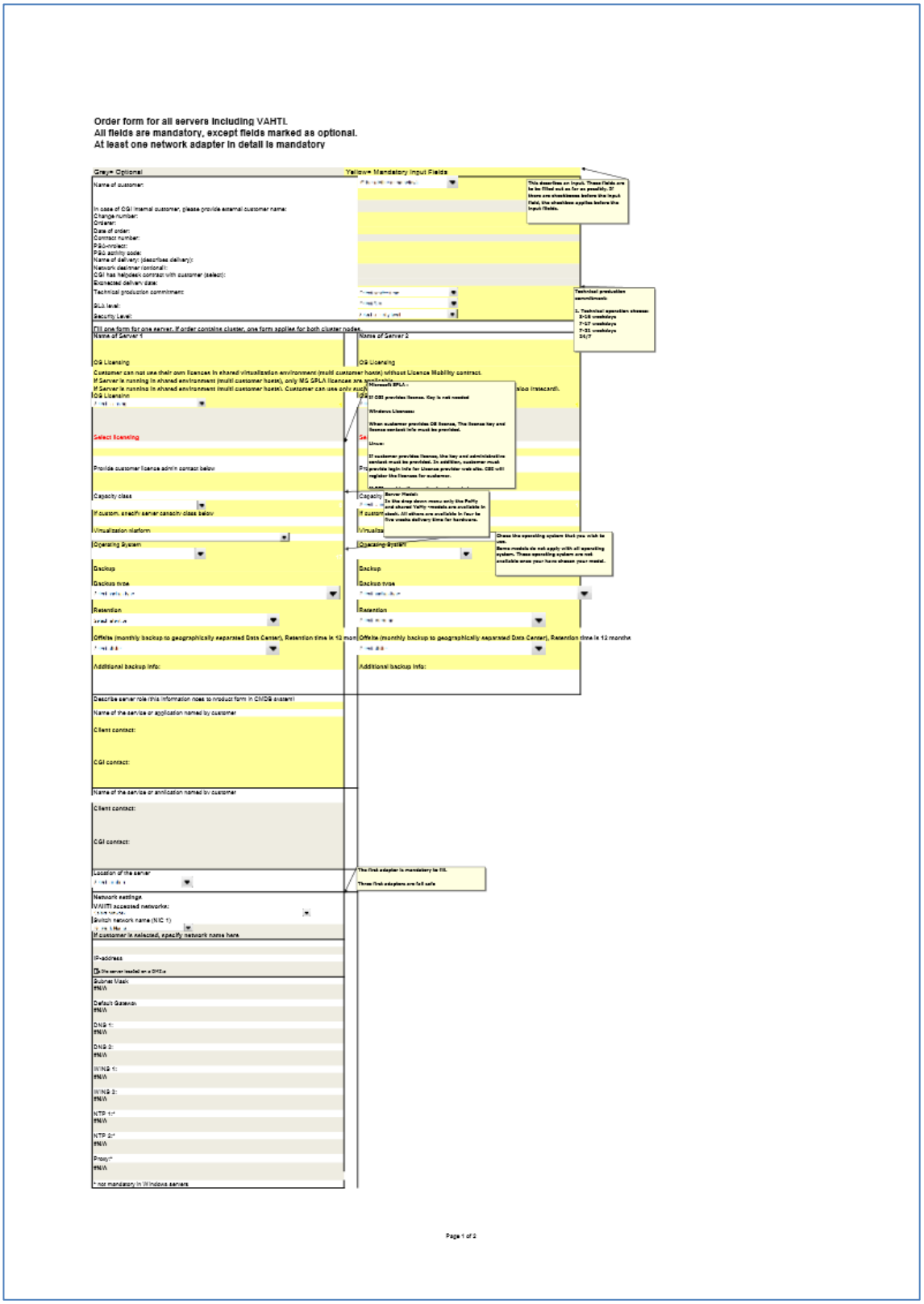
APPENDIXES

Appendix 1.	The server order form, picture of Excel form
Appendix 2.	The group interview material, Microsoft PowerPoint
Appendix 3.	The business model canvas poster from group interview, picture
Appendix 4.	The individual interview questionnaire, Word document

Appendix 1. The server order form, picture



Order form for all servers including VAHTL
All fields are mandatory, except fields marked as optional.
At least one network adapter in detail is mandatory

Grey= Optional
Yellow= Mandatory Input Fields

Name of customer:
In case of CGI internal customer, please provide external customer name:
Change number:
Orderer:
Date of order:
Contract number:
PSO-project:
PSO activity code:
Name of delivery (describes delivery):
Network designer (optional):
CGI has helpdesk contract with customer (select):
Contracted delivery date:
Technical production commitment:
SLA level:
Security Level:

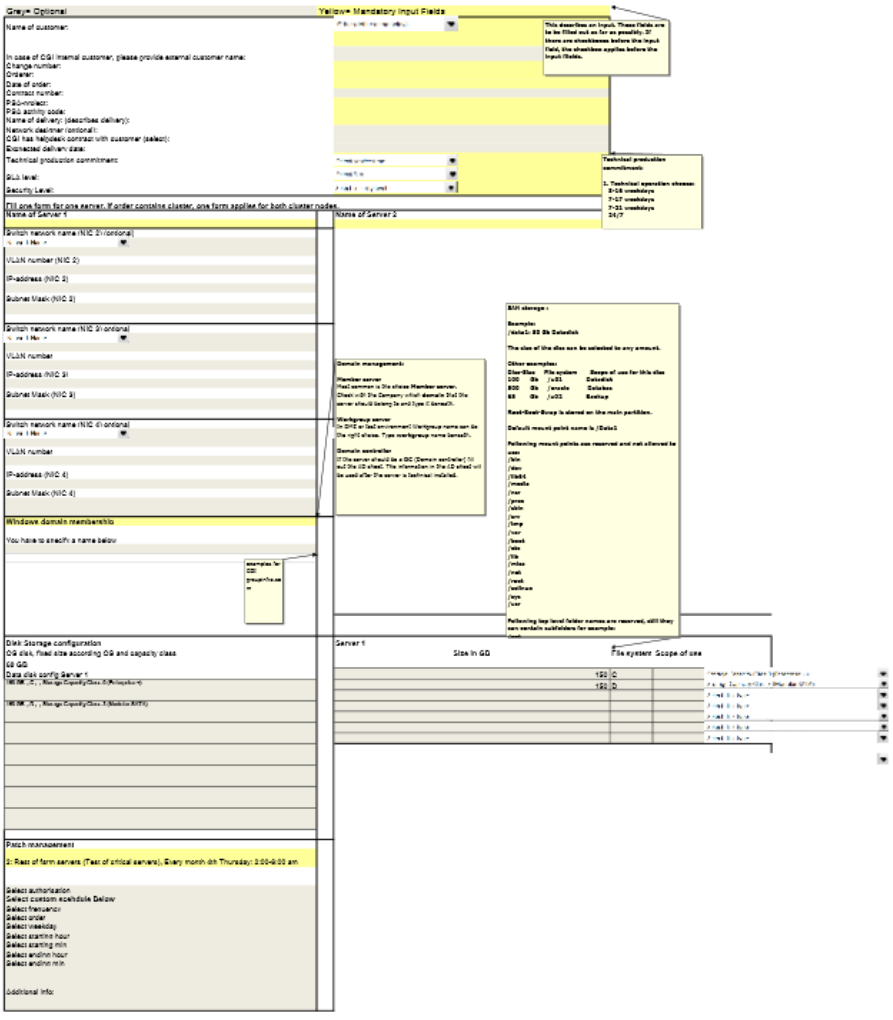
Fill one form for one server. If order contains cluster, one form applies for both cluster nodes.

Name of Server 1
OS Licensing
Customer can not use their own licences in shared virtualization environment (multi customer hosts) without Licence Mobility contract.
If Server is running in shared environment (multi customer hosts), only MS SPLA licences are applicable.
If Server is running in shared environment (multi customer hosts), Customer can use only such
OS Licensing
Select licensing
Provide customer licence admin contact below
Capacity class
If custom, specify server capacity class below
Virtualization platform
Operating System
Backup
Backup type
Retention
Offsite (monthly backup to geographically separated Data Center), Retention time is 12 mon
Additional backup info:
Describe server role (this information goes to product form in CMDB system)
Name of the service or application named by customer
Client contact:
CGI contact:
Location of the server
Network settings
VAHTI accessed networks:
Switch network name (NIC 1)
If customer is selected, specify network name here
IP-address
Is the server located on a DMZ-s
Subnet Mask
#N/A
Default Gateway
#N/A
DNS 1:
#N/A
DNS 2:
#N/A
WINS 1:
#N/A
WINS 2:
#N/A
NTP 1:*
#N/A
NTP 2:*
#N/A
Proxy:*
#N/A
* not mandatory in Windows servers

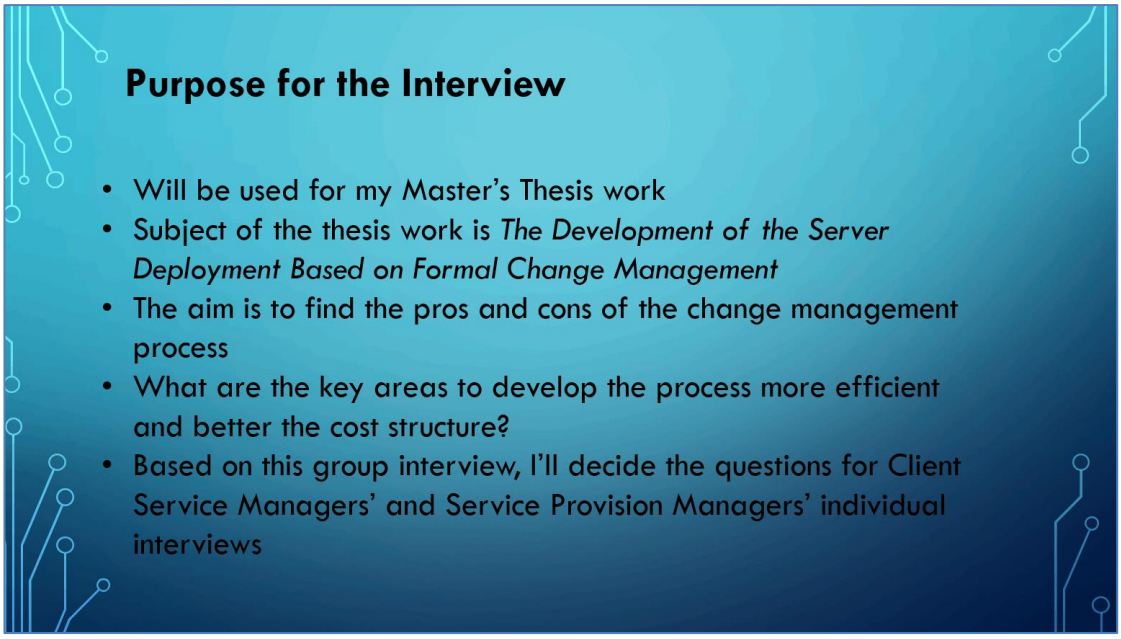
Name of Server 2
OS Licensing
If CGI provides license, Key is not needed
Windows Licenses:
When customer provides OS license, The license key and license contact info must be provided.
Linux:
If customer provides license, the key and administrative contact must be provided. In addition, customer must provide login info for License provider web site. CGI will register the license for customer.
Capacity
If custom
Virtualiza
Operating System
Backup
Backup type
Retention
Offsite (monthly backup to geographically separated Data Center), Retention time is 12 months
Additional backup info:
Name of the service or application named by customer
Client contact:
CGI contact:

Page 1 of 2

Order form for all servers including VAHTI.
All fields are mandatory, except fields marked as optional.
At least one network adapter in detail is mandatory



Appendix 2. The group interview material, Microsoft PowerPoint



Business Model Canvas

Order to fill in the building blocks and some definitions, what every block means

First has to be filled in the **Customer Segments**

- Who are the key customer? The internal customers (teams)

What are the **Value Propositions**?

- What is promised to customers
- Is there different propositions for different customers
- Satisfying customers needs

What are the **Channels** how Customers use the services you provide?

What kind of are the **Customer Relationships**?

- Continuous / one time / formal method / repeatable

How your service makes **Profit** (Revenue Streams)?

- Results of *Value Propositions* successfully offered/done for customers

The **Key Resources** who makes it possible to meet the *Value Propositions*

- The assets/tools required to offer and deliver all the earlier described elements

Key Activities of your service

Key Partners/-ships to make your service possible

The **Key Resources** who makes it possible to meet the *Value Propositions*

What kind of is the **Cost Structure** of your service?

Business Model Canvas

You will use different colors of post-it notes to write down issues under each building block in BMC poster (is in wall)

- Model the **"as-is"** state and what you want to or plan to build the **"to-be"** state (Color-coding can help achieve this distinction)
- You are free to combine words and pictures
  - Our brain processes faster the pictures than the words
- Remember too many details hide the big picture
- You have max. 30 minutes time for this

After each one has listed issues in BMC poster, we'll go these together through and point the most critical ones / building block

Business Model Canvas

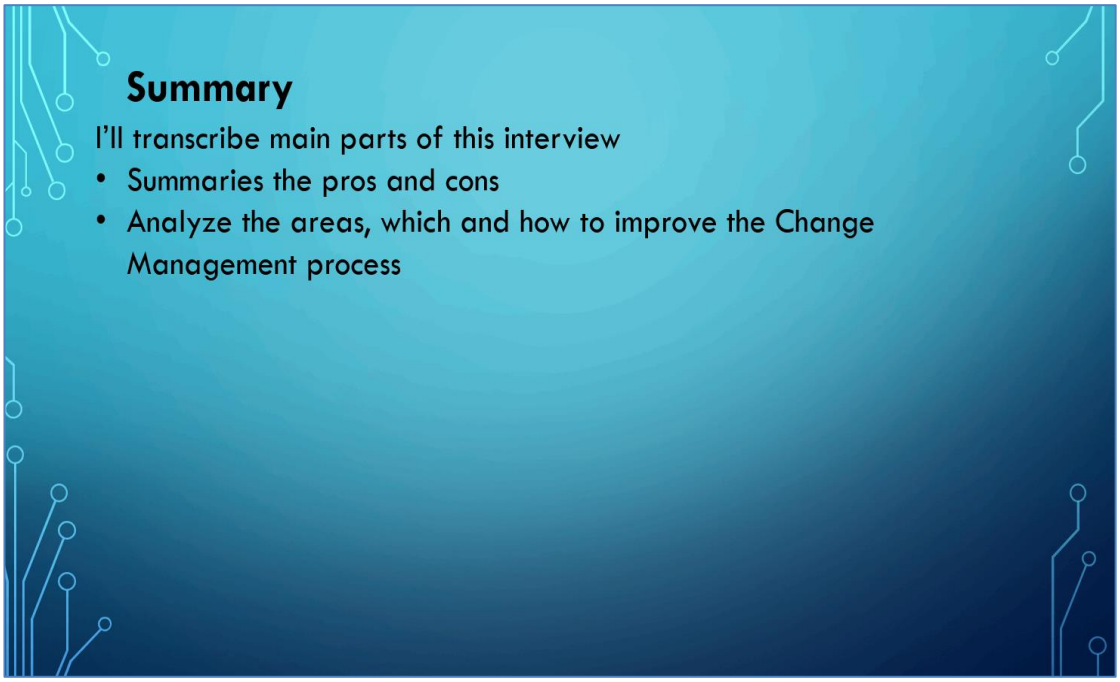
Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
	Key Resources		Channels	
Cost Structure			Revenue Streams	

Bibliography
www.strategyzer.com and Ojasalo, K., Moilanen, T. & Ritalahti, J. 2015. Kehittämistyön menetelmät: Uudenlaista osaamista liiketoimintaan. Helsinki: Sanoma Pro Oy.

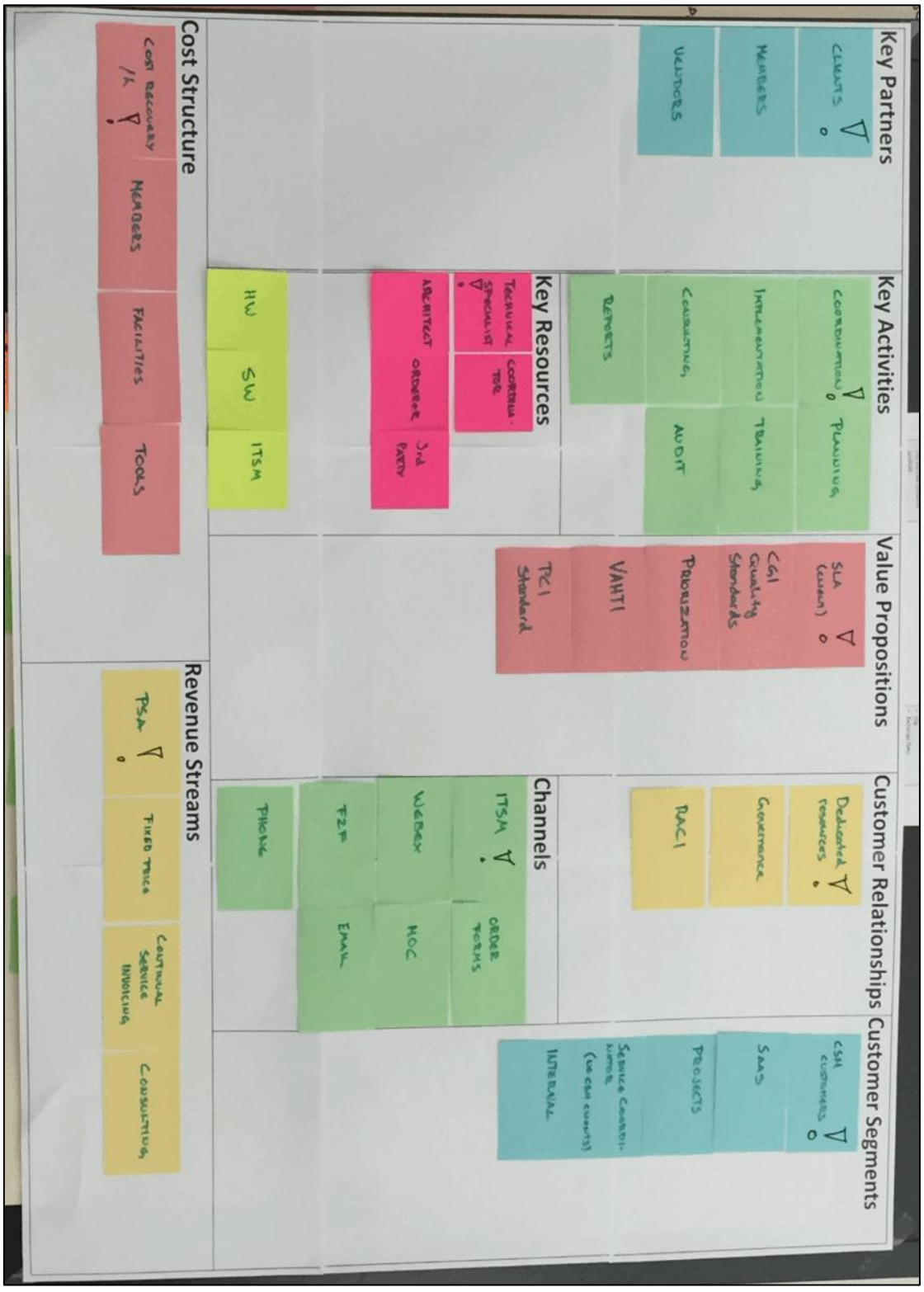
What are the key areas to develop the Change Management?

Last but least, we'll go through this

- List the key areas to develop the process to be more efficient and better the cost structure
- You should list the key issues, which need to develop even more, in each building block
- Describe why these areas should be developed


Summary
I'll transcribe main parts of this interview
• Summaries the pros and cons
• Analyze the areas, which and how to improve the Change Management process

Appendix 3. The business model canvas poster from group interview, picture



Appendix 4. The individual interview questionnaire, Word document

Individual Interview

Master of Engineering studies, Henna Ekonoja

This questionnaire is a method to collect data for Henna Ekonoja's Thesis work. Training program is Master of Engineering studies in Lapland University of Applied Sciences in Technology, Communication and Transport. The study program is Technology Competence Management. The subject of the thesis work is ***The development of the Server Deployment Based on Formal Change Management.***

The individual interviews are part of my data collection in my master of thesis work. I have hold a group interview for Nordics Infrastructure Services Finnish Change Management team's Change Coordinators and these interviews are the other data collection method I am using.

The interviews will be recorded via WebEx or via smartphone and after recording the results will be transcribed and used in thesis work. The questionnaire will be sent to interviewees few days before the interview and the names of the interviewees will not be shown in the thesis work.

BACKGROUD OF THE INTERVIEWEE

- How long have you worked for Commissioner (include also the years before company acquisitions) (mark the closest full year)?
- Your position, choose the suitable: Client Service Manager (CSM) / Service Provision Manager (SPM) / Project Manager (PM) / Product Manager (PrM)?

QUESTIONS RELATED TO SERVER ORDERING AND CHANGE MANAGEMENT

- Have you used the server order form? It can be found from Nordics Infrastructure Services' sharepoint under processes and change management and Finnish change management.

  If you have used it, roughly how many orders have you done?
- How do you estimate this form? Is the form usable? Does it have enough guidance to fill in the order form?
- After filling in the server order form, do you know where you forward it or how to get it into change management process?
- What kind ideas do you have to improve the server order form?
- Do you know that you have possibility to contact Nordics Infrastructure Services Finnish Windows and Finnish Linux change team and/or Finnish Change Management team and get Change Coordinator to help you with the order form?