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Revising Portfolio of Port Agency Services
Blueprint for the Service

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During the past year I have learned several things: one is that there is always something new and interesting to learn and do, it never ends no matter what I do or think. Another is that I believe I have what it takes to do them all! Applying to Metropolia University of Applied Sciences and Master's programme in Logistics was a decision made in one night but it was worth it. The past year has been one of the most complicated years in my life, and as there has been many obstacles to pass, one of the most educating as well.

There are few people that have given a tremendous input to my Thesis and helped me to make it possible. My main instructor Dr Thomas Rohweder has encouraged and given feedback and good ideas in multiple mentoring sessions and I never left his office with my head down. Another irreplaceable help and support has been our coordinator Zinaida Grabovskaia, who has read my scrawls and twaddle and convinced me that it can be turned into a Thesis instead of using it to light a fireplace.

I would also like to thank the stakeholders of the case company for contributing their time and effort to my research and offering their valuable knowledge to my study. During the Master's year I have met brilliant new people who have expanded my knowledge and perspectives, my classmates. In addition to previous, I have been taught by a group of tack sharp professionals, the teachers of the programme. They have shown a brilliant example of what can be achieved with persistence and diligence.

I want to thank my support network: parents, in-laws and friends who have offered their helping hands with practicalities such as babysitting or car loaning and made it possible for me to participate the lessons and writing clinics.

Last but not least, I want to thank my spouse, who has done a brilliant job taking care of the household and the most precious ones of all, our little boys, who will now get their mom back from sitting behind the laptop.

Linda Luoma
Helsinki
9 May 2016
This study focuses on designing a new service to include to the existing service portfolio of a port agency service provider. It explores possibilities to improve the current service offering of a port agency company that is seeking continuous improvement in their port agency services. The demand for a new service design is driven by a need to differentiate from the group of vendors and simultaneously aim to constant value creation. Differentiating from 'standard' enables to expand the customer base and secure the financial stability of the company.

This study is commenced by conducting the current state analysis of the company and the industry and identifying elements that have room for improvement. Legislation steers the industry fairly much, which causes limitations to elements that are suitable for new service design. Identified elements are then defined and narrowed in co-operation with the case company stakeholders. Existing knowledge on designing a new service is then searched from literature and best practice in order to find tools suitable for service design in this specific context.

The research design comprises five steps that include, first, a definition of the objective and, second, building a research design. Third, the study collected and analyzed data that mainly came from personnel interviews and company internal documentation. Fourth, it scrutinized the available knowledge on the problem, and fifth, built and validated the proposal for the new service.

The outcome of this Thesis is a new service design, which has been executed by utilizing a service blueprinting tool. The case company can benefit from the new design by utilizing the proposed service in a convenient form of a blueprint, coupled with a service manual for arriving vessels. If successful, the approach behind the designed service can also be utilized in other case company services.

Keywords
- Port agency
- Service design
- Service blueprinting
- Value adding services
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Acronyms

AREX  Arrival Exit Information
B/L    Bill of Lading
CTM    Cash to Master
C/P    Charter party
DWT    Deadweight Tonnage
FDA    Final Disbursement Account
FONASBA Federation of National Associations of Ship Brokers & Agents
IMO    International Maritime Organization
ISPS   International Ship and Port Security
(N)SD  (New) Service Design
NOR    Notice of Readiness
NT     Net Tonnage
PDA    Proforma Disbursement Account
P & I  Protection & Indemnity
SOF    Statement of facts
VTS    Vessel Traffic Service
1 Introduction

This Thesis focuses on improving the current service offering for a company seeking continuous improvement in port agency services. It explores possibilities to improve in both service wise and customer business area by increasing the value and quality of the existing service.

Currently, the service offering of the case company can be considered as “standard” when comparing to other operators in similar operational environment. Rivalry in the operating environment is currently fierce in Finland and differentiating in service and value can be seen as an asset and also a means of survival in the current international economic situation.

The current global economic state also requires that, in order to keep operating the customer satisfaction scores are high and the customer-base solid, improvements are done on continuous basis. Personal contacts in b2b-interactions are commonly used and very value adding, while improved customer service and notable additional services are almost a necessity in current business field. The latter are the ultimate trust-builders between the service provider and the client which can enable long-term contracts as offering value adding services benefit both parties in a contract.

This thesis explores the possibilities to improve port agency services from the point of view of better value creation for its customers. Value creation via improvements in customer service can be a differentiating approach in this business field and could create possibilities to increase the market share and visibility among potential customer base. Though value can be experienced and seen in multiple ways, services that provide financial benefits, time savings or other outstanding features, are an asset that need highlighting and constant development developed towards perfection instead of overlooking.

1.1 Case Company Background

The case company in this study is a Finnish, privately owned, maritime logistics company that was founded in the 1980s. The company currently has 4 employees working
in 2 office facilities in southern Finland. Headquarters are located in Helsinki. The primary business of the company is chartering full vessel cargoes and delivering full and part cargoes in combination transportation in both import and export shipments across Europe. In addition, door-to-door business is also recently introduced to the portfolio of the offered services. Secondary business area of the company is offering port agency services to cargo vessels and vessel operators.

In the early stages of the company, port agency was a solid supportive service, but in the early 1990s the port agency was outsourced to a sister company. Since 2013 the port agency has been returned to the mother company's service portfolio and it is currently a firm and slowly increasing area of business.

Other offered services of the agency department, besides port agency related compulsive duties, are e.g. arranging bunkering service, port agency and customs clearance documentation service. The case company has currently about 50 nominated vessel calls in a Finnish port per year and though the company operates in all Finnish ports, the main operating areas are ports of Hamina-Kotka in south-east of Finland and ports of Naantali and Turku in west-coast of Finland.

1.2 Business Challenge

Business challenge of this thesis is to explore ways to improve the existing port agency services and either to revise the existing services, or suggest a new service design to the portfolio of offered services. Improvements are done to create value to the customer and they are expected to benefit the case company.

The economy of Finland is transportation-driven as gross domestic product is heavily formed and influenced by import and export related companies. For example, in 2014 import was approximately 38.7% from gross domestic production and export 37.9%. Due to Finland's geographical location, transportations by water are crucial to the economy. According to the national Portnet system, there are over 40 000 commercial vessel port calls in Finland each year. As the export and import rates keep decreasing especially in Finland, several companies in logistics field are struggling to keep in business. This influences mostly the companies that operate in single field or are located in an area which has no longer industrial production facilities that uses their services.
Port agency and clearance is one of the areas where competition is fierce and new operators are rarely founded. It is much personated business and personal reputations and connections of the staff have a major role in gaining new business opportunities. The nature of the job makes the companies rather small or medium when measuring by the amount of personnel employed in the company. An average port agency enterprise employs 4 persons in the agency department. The number of personnel is not dependent from the company or department turnover; even the biggest multinational branches employ only few people.

Therefore, a competitive total port call cost plays an important role when customer companies are comparing agencies and offers and finally make a nomination for agent. The offered product is often quite similar which forces companies to compete with agency fees and additional service portfolios in addition to previous customer service experiences that the customer may have from the company. Therefore, the company needs to use all opportunities to differentiate itself and provide better value for the customer so that to stay competitive and be a preferred service provider for the clients.

1.3 Objective, Outcome and Scope

Objective of this thesis is to propose a new service offering in the current port agency services of the case company. This service offering aims to reach better differentiation from competition based on increased value for customers and renew the design of the currently offered port agent services. When developing this proposal, the researcher utilizes a case example of one selected key account (as a basis for improvement proposal) which serves as an example.

The target for improvements and the final proposal is to find ways to decrease the current gaps in port agent services and create value by improving the quality and range of offered services without deducting from the profit of each individual vessel clearance. In order to analyze segments and seek if some needs to change or improve, wide range of information is collected via few accepted data collection methods. The practical key information is very local and is based on personal experiences rather than literature or specially educated knowledge. The stakeholders have totally decades of experience from maritime logistics and their knowledge is captured and summarized in order to develop a proposal of improvements in the process. In order to maintain its market share and holding onto current customers, the company must stand out from
similar rivals. Value adding actions are a way to customize service design and create agile and personal solutions.

The target of this study is thus to find value adding solution which improves the current process. Company resources and current processes are taken into consideration as well as current strengths.

This thesis is written in 7 sections. Section 1 provides an Introduction. Section 2 describes research methodology. Section 3 discusses the results of the current state analysis of the current service and process. Section 4 discusses the findings from existing knowledge and best practice as for key findings from section 3. Section 5 contains the proposal for new service design. Section 6 includes the validation of the proposal and section 7 provides discussion and conclusions of the Thesis.
2 Method and Material

This section describes the methods and materials that have been utilized in this study. It also discusses about data collection methods and explains about data interpretation. The first sub-sections explain the specifics of research approach and design, and the second ones describes the data details and validity of this study.

2.1 Research Approach

The chosen research approach of this thesis is action research. Action research approach enables to get acquainted with the subject and to examine it from deep insight and to gain knowledge from ongoing processes and phenomenon's in action. As a research approach, its full potential can be reached when doing a problem solving or a research into practical issues and in co-operation with the customer. Rissanen (2005) defines action research as a method that is based on participation of the people related to researched subject. He also states that action research is emphasized most in solving problems of a social community. He explains that there are several alterations on the action research approach, but on the other hand, there are no clear views on how the participants participate or how is it possible to connect a scientific research approach and a problem solving action of a community that is in many cases formed by people.

In this thesis, as the challenge is more practical than technical or theoretical, action research is selected as a research approach in this study. Due to the nature of the business environment and business challenge, the thesis is executed in a qualitative research strategy. The researcher is in dense co-operation with the case company and the business challenge is examined s very practical way.

In many occasions, action research is described through its cyclical nature. The action research cycle includes stages or steps, that define the type of action each step contain. Figure 1 shows an illustration of the action research cycle.
As seen from Figure 1, the action research cycle includes the steps of *planning*, *acting*, *observing* and finally *reflecting*. As implemented in this study, though the starting point is planning, it includes identification of the business challenge or purpose of the research and getting acquainted with the case company before starting to utilize the research cycle. The cycle comprises three so-called meta-steps in addition to the visible 4 steps shown in Figure 1.

As suggested by Coughlan and Coghlan (2002), the first meta-step in action research is taken before any actual steps, and is called the *pre-step*. It helps the researcher to identify all key issues and gather sufficient background knowledge regarding the context. The first pre-step is typically driven by 2 questions: Why is this project needed? And what are the forces (for example technical or social) driving the need for this action. The second meta-step is called the *main step*. The term ‘main step’ actually includes 6 main steps (for example data gathering, data feedback, data analysis etc) which are utilized in data collection and in planning, implementing and evaluating action. Third meta-step, *monitoring* arises in all stages and steps, as every time one step is taken, another one takes place and a cyclonic phenomena is occurring. Monitoring
step comprises all stages as everyone who is participating into the process is constantly monitoring each other. (Coughlan and Coghlan 2002: 230)

When aiming to change or improve some existing processes and methods, which are seamlessly related to people who execute the processes in their daily work life, action research holds principles that help to involve also staff into research and development process. As the objective of this thesis is to improve services and the business is very people reliant, this chosen research approach supports the nature of the business and also the ways of working in the case company.

2.2 Research Design

In this study, research design identifies the phases of the study step by step and demonstrates the objectives, goals and means of actions of each individual phase. The first column illustrates the stage of research starting from stating the objective, ending in validation of the proposal. It also points out what kind of data is collected at each stage and what are the sources of these results. The last column presents the intermediate outcomes of each sectors. Research design of this study is shown in Figure 2 below.
As shown in Figure 2, the research design starts with problem identification which is executed by performing a current state analysis to case company and its processes. The utilized data for the current state analysis consist of interviews, company correspondence and internal documentation and benchmarking for vendor portfolios. The current state analysis is followed by the existing knowledge and best practice search, which consists of familiarizing with relevant literature on the core subjects that were discovered from the current state analysis. It also includes Data 2 stage, which is primary interview data with stakeholders of the case company. The planning stage and the diagnostic stage (current state analysis) is followed by the action stage (proposal building for the new service design). After discussing the proposed draft with the case company stakeholders, the proposal is validated and their feedback and improvement ideas are given to the researcher. After the final proposal is presented to the case company stakeholders and later possibly executed for practical usage by the case company, the process can be started again fully or partly for development and revising.
purposes. It requires new actions to be taken and starting the stages from the beginning.

In this research design, Data 2 mean input of the stakeholders into building the initial proposal, when the proposal is discussed, evaluated and altered based on the stakeholder feedback. Data 3 means the feedback that was received and alterations executed, for the final proposal to be prepared. The alterations between the initial and the final proposal are done based on given feedback from the stakeholders and the changes identified from the literature review. When the alterations are done, the final proposal is formulated based on all previous stages and data results.

2.3 Data Collection and Analysis

Data collection for the Thesis research was carried out in three rounds (see Research Design Flowchart, Figure 2). Data round 1 included basic information search in order to produce the current state analysis. Round 2 was carried out for building the initial proposal and it was related to designing the proposal and shaping it based on received feedback. Final round, round 3 was carried out to move from the initial to the final proposal and the outcome of the stage is the final proposal with detailed features and recommendations.

Data for this study was collected in three data collection rounds. The content of first data collection is overviewed in Table 1 below.
Table 1. Data collection 1 of this study.

<table>
<thead>
<tr>
<th>Data</th>
<th>Content</th>
<th>Data source</th>
<th>Data type</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data 1/Section 3</td>
<td>Process scoping</td>
<td>Key stakeholders</td>
<td>Interviews, analysis</td>
<td>Deeper understanding of visible and latent segments of the process</td>
</tr>
<tr>
<td>Data 1/Section 3</td>
<td>Identifying strengths and weaknesses</td>
<td>Company correspondence</td>
<td>Customer feedback and commentary on S&amp;W</td>
<td>Outside view of the process and its sections</td>
</tr>
<tr>
<td>Data 1/Section 3</td>
<td>Discovering challenges</td>
<td>Internal documentation</td>
<td>Memos / reports</td>
<td></td>
</tr>
<tr>
<td>Data 1/Section 3</td>
<td>Vendor portfolio</td>
<td>Web-based search, correspondence</td>
<td>National and international offerings and service portfolios</td>
<td>To compare systems in national and international level</td>
</tr>
</tbody>
</table>

As shown in Table 1, data 1 of this thesis is primary collected by interviewing stakeholders of the company and a few of their customers. The purpose of data 1 collection is to support the current state analysis and be a groundwork for conceptual framework. Interviews as data collection method enables to get deeper information and overall view of the current situation. It also minimizes the possibility of misunderstanding processes. The interviews were held in Finnish and later translated into English. Some of the face-to-face interviews were also partly recorded.

Data 2 was collected by conducting interviews with the stakeholders. In the meetings, the progress of this study was reported to stakeholders and the current state analysis was reviewed several times in order to assure that major pitfalls or confidential data was not included.
Table 2. Data collection 2.

<table>
<thead>
<tr>
<th>Data type</th>
<th>Participants</th>
<th>Description</th>
<th>Date and length</th>
<th>Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2F interview</td>
<td>Key stakeholders</td>
<td>Summing up CSA</td>
<td>April 2016</td>
<td>Field notes</td>
</tr>
<tr>
<td>Telephone conversation</td>
<td>CEO</td>
<td>Possible options for proposal</td>
<td>April 2016</td>
<td>Field notes</td>
</tr>
<tr>
<td>F2F Interview</td>
<td>Agency Manager, CEO</td>
<td>List of possible themes for proposal, decision for proposal.</td>
<td>April 2016</td>
<td>Field notes</td>
</tr>
<tr>
<td>F2F Interview</td>
<td>Agency Manager</td>
<td>Double-checking the relevant regulations</td>
<td>April 2016</td>
<td>Field notes</td>
</tr>
</tbody>
</table>

As shown in Table 2, the interview round 2 was primary held in April 2016 and consisted of reviews of achieved data and double-checking the relevant details (regulations). As shown in Table 4, there were several rounds before the decision for design subject was made. Due to a small number of staff in the company, all interviewees from rounds 1 and 2 were included in all data collection rounds to collect maximum possible data. The key stakeholders of the case company all have years of practical background and experience from maritime logistics and port agency. Therefore, their wide knowledge and knowhow with several case examples from every day agency working field ought to be captured to written text in order to gain in-depth understanding of the strengths and weaknesses of the process. The data was analysed by utilizing Thematic analysis of qualitative data.

In data 3, the validation round was collected by evaluating a draft of proposal with the stakeholders for feedback purposes. The feedback was given in discussions about alteration possibilities as well as some features that were corrected in the draft. Data 3 consisted of discussions and telephone interviews with the case company stakeholders. Below is a detailed Table of data 3 collection.
As shown in Table 3, the data collection 3 included several interviews and discussions regarding the final proposal and the thesis process in general. The graphical presentation of the proposal and the content of the manual were also discussed and some changed and additions were specified.

Each type of data used in the study is detailed below.

**Interviews**

Data collection for round 1 was mainly conducted by face-to-face interviews. The interviews were executed in Finnish, in order to avoid misunderstanding and to get the deepest possible insight from the company, the port agency process and all related features. These features include details which helped to discover the strengths and weaknesses of the case company and their processes. Field notes with main details in bullet points were taken from each interview. Questions were not given beforehand but the researcher had some core themes which brought up new details and were followed...
up by pre-defined open-end questions. Questions are viewable in Appendix 1, which contains a collection of questions utilized in data rounds.

Table 4. Interviews of data collection 1.

<table>
<thead>
<tr>
<th>Data type</th>
<th>Participants</th>
<th>Description</th>
<th>Date and length</th>
<th>Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2F interview</td>
<td>Agency Manager</td>
<td>PA process</td>
<td></td>
<td>Field notes</td>
</tr>
<tr>
<td>Telephone conversation</td>
<td>CEO</td>
<td>Interview of the company background and current state</td>
<td>March 2016</td>
<td>Field notes</td>
</tr>
<tr>
<td>F2F Interview</td>
<td>Agency Manager</td>
<td>Details of PA process, including legislation and additional services</td>
<td>April 2016</td>
<td>Field notes</td>
</tr>
<tr>
<td>F2F Interview</td>
<td>CEO</td>
<td>Vendor portfolios</td>
<td>April 2016</td>
<td>Field notes</td>
</tr>
<tr>
<td>F2F Interview</td>
<td>Stakeholder</td>
<td>Company communication methods</td>
<td>March, 2016 1 hrs 30 min</td>
<td>Field notes</td>
</tr>
</tbody>
</table>

As shown in Table 4, first round interviews and discussions for this thesis were conducted with the company CEO and Agency Manager. It was primary executed in the main office in Helsinki. Shipping manager was also interview mainly about the utilized correspondence methods and IT-systems used in the company. The staff was interviewed several times during the CSA, proposal building and validation stages as single interviews and also group discussions as the CSA process proceeds forward and the big picture starts to clarify. Data 1-3 is collected from the interviews in voice recordings, which are in transcript mode and utilized directly to data results in question. Part of the interviews and in field notes can be found from Appendix 1. Discussions are not in transcript, as they were directly taken into bullet points and used as input for further discussion.
**Documentation**

Since the objective of the study is to find ways to further develop the existing services which are not restricted by legislation, both internal and external documents were analysed, with a special goal to identify and separate the unchangeable and mandatory parts from the parts that can be revised.

Table 5. Documentation analyzed in the data collection.

<table>
<thead>
<tr>
<th>No.</th>
<th>Data round</th>
<th>Name of the document</th>
<th>Amount</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1</td>
<td>Memo</td>
<td>6 pages</td>
<td>Customs AREX-instructions</td>
</tr>
<tr>
<td>2.</td>
<td>2</td>
<td>Correspondence</td>
<td>25 pages</td>
<td>Process descriptions, case examples</td>
</tr>
<tr>
<td>3.</td>
<td>1,2</td>
<td>Correspondence</td>
<td>8 pages</td>
<td>Additional service orders</td>
</tr>
<tr>
<td>4.</td>
<td>1</td>
<td>VTS-regulations</td>
<td>5 pages</td>
<td>Piloting law</td>
</tr>
<tr>
<td>5.</td>
<td>1,2</td>
<td>Benchmarking / Finland</td>
<td>8 websites</td>
<td>Finnish vendors – service portfolios</td>
</tr>
<tr>
<td>6.</td>
<td>1,2</td>
<td>Benchmarking / International / Europe</td>
<td>15 websites</td>
<td>International operators, from Europe</td>
</tr>
<tr>
<td>7.</td>
<td>1</td>
<td>Benchmarking / International / Outside Europe</td>
<td>7 websites</td>
<td>International operators, from outside Europe</td>
</tr>
</tbody>
</table>

As shown in Table 5, documentation was analyzed in rounds 1 and 2 of data collection. Documentation was related to the company’s internal communication and processes, external regulations and also benchmarking the international vendors’ portfolios. Benchmarking was utilized in CSA section 3.4.1.

Another type of documentation that was utilized was through familiarization with the files and documents of previous abnormal shipments, meaning the cases of the company that required actions beyond the "normal" content of service. It could be, for example, a vessel turnaround that demanded exceptionally large amount of human resources from the case company to fulfil the required tasks, or some very unconven-
tional services required, such as visa arrangements or private doctor service arrangements resulting to a special arranged transportation to another country for after-care, etc. This type of documentation included e.g. correspondence between the agency manager and ship owners as well as other operators involved. Due to the nature of the documents and professional confidentiality the data is not available for public reviews.

Table 5 overviews the documentation that has been utilized for this study. From column number 4 and onwards the information was available online. Data sources 1-4 were examined in the company premises, within the company infrastructure and systems, and were given to the researcher as partly anonymous.

In Table 5, the first column is an ordinal number and does not imply the order or importance in this study. The second column points to the data round(s) to which this data belongs. The third column reveals the extent of data in question. The fourth column explains the motivation for the data analysis.

2.4 Validity and Reliability Plan

In any academic paper, the evaluation of validity and reliability is a chapter that discusses if the paper meets the quality requirement for its results, and addresses the initially set goals and expectations. The first steps to ensure the quality in validity and reliability in a study is to plan and define the starting point and the steps covering every phase from the beginning to the end.

When assessing the quality of the results and research process, one ought to evaluate whether the research fulfils the requirements of internal and external validity. The internal validity shows whether the researcher really studies and measures what it was originally meant to be studied and measured. Quinton and Smallbone (2006:127) describe the core idea through the question of "Was what was found a response to what was originally asked?" It evaluates, in other words, if the research is coherent in studying and measuring what it initially promised to search.

External validity is an assessment that reveals whether the results could be relevant in other contexts and if it would be useable, whether it would be widely or narrowly used. (Quinton and Smallbone 2006). In other words, it evaluates if and to what degree the
study is generalizable to other contents. It evaluates whether the study is done in a versatile way, including enough details, and if it elucidates the research process.

In order to evaluate whether the research methods and results are reliable and interpreted without a researcher bias, the study ought to be commenced by defining the desired outcomes and clearly specifying all stages of the research design and research process, with a special focus on unbiased data collection and its meticulous documentation. Reliability, in other words, questions if the study would have been executed by someone else than the present researcher, yet under a similar circumstance, would it bring about the same results.

Validity of this Thesis will be ensured by, first, focusing on the quality of the research process. The chosen research approach for this Thesis is action research, which was considered as the most suitable because of its practical approach. A research design was prepared based on the chosen approach and it was followed throughout the study, also ensured by stating realistic challenges and objectives. It means also that the study plans to utilize scientifically proved tools, and theoretical details are applied from the well-established best practice and high quality business and academic literature.

In this study, reliability is assured by utilizing the in-depth and extensive amount of data that will come from primary data collections from knowledgeable informants for all data collection rounds. The oral genres of interviews and discussion will be supported by the analysis of the written data, mostly from company correspondence, archives, etc. To ensure the rate of credibility, the researcher has personal working experience from a similar field of business as a port agent.
3  Current State Analysis

This section discusses the results from the current state analysis of services and process in the case company. The purpose of this section is to create a solid ground for the service improvement proposal. In order to improve service levels the strengths and weaknesses ought to be explored and analyzed. This way the suggestions and finally the proposal have a valid ground.

3.1  Overview of the Current State Analysis Stage

The goal and outcome of the current state analysis is to get a clear and yet detailed understanding of the current port agency services, and the related features and their phases. This comprises, first, the analysis of the current range of services that are currently offered, and examining which of those services are compulsory by legislation and which are additional services that are adding value to the customer. After the process and services start to clarify, the discovered elements are compared to similar processes and service portfolios offered by vendors in Europe, US and Australia, with main focus to Europe due to EU legislation.

Next, the key function areas of the company are introduced. Key function areas include shipping and port agency, where the operational functions can be divided into more shipping oriented and more port agency oriented. In the current state analysis the operational process was examined by separating tasks into compulsory and additional segments which were again examined in order to limit out areas with room for improvement. This part of the current state analysis focused especially on the agency clearance process. It analyzed compulsory and additional duties that are common in general daily agency work. It also explained what features are found to be challenging or restricted by legislation. The current state analysis ends in understanding the current strengths and weaknesses of the process and the company’s existing port agency services.

The current state analysis stage was conducted in firm collaboration with the key stakeholders of the case company. The staff was interviewed several times during the CSA process as single interviews and also group discussions as the CSA process proceeds forward and the big picture starts to clarify. The goal for the interviews was to get acquainted with the entire process starting from the beginning (proforma disbursement
amount request, clearance, etc.) and ending to final closure (final disbursement account) of a single vessel port call in Finland.

3.2 Case Company and Its Current PA Service Portfolio and PA Process

The case company is a SME logistics company that was founded in 1980s and has been operating in cargo brokering and port agency ever since. The port agency segment was outsourced from 1994 to 2014 to another limited company which was operating in collaboration with the case company.

The core business area of the case company is firmly in maritime logistics. The leading business area of the case company is dry cargo chartering which forms their service portfolio of chartering and port agency services and operations related to those core functions. The company is operating in tramp shipping trade mode, which means that the company operates with vessels which do not sail in certain routes and schedules as liner vessels but are fixed for single or short-term contracts and shipment.

The agency unit primary consists of the same personnel as chartering. Some are in the office during office hours as some are mobile in ports attending vessels. Agency unit is working in 24/7 basis as vessels are arriving and departing at any time of the day. Also many stevedoring companies and terminal are operating "around the clock" -basis especially with oil, chemical or cement tankers. It means that loadings and unloading’s are done at any time of the day and vessel arrivals and departures are outside "office hours". The same policy is applied with the port agencies as well.

Generally, port agency companies have a circulation which means that there is a duty agent who is in charge for e.g. one week during evening/night time and weekend operations and has 24/7 telephone support to all relevant parties regarding port call.

The case company offers a 'full range' of PA services which is considered standard within the PA field. This consists of a range of compulsory and additional services. The mostly requested and used additional service is assistance in crew change formalities either inbound or outbound. Inbound crew change requires assistance from airport/ferry port via customs (and in some cases via hotel if the vessel has not arrived simultaneously as the crew member) to the vessel. Another frequently used service is arranging
repair and maintenance services such as machinery and engine repairs and food supply refills.

Customer base of a port agency company varies mostly when operating with container vessels who do not often know the actual receivers of goods that are being transported in the containers loaded on board. Container liners mostly operate with other transportation companies and communicate with them via agent and ship owners. With bulk shipments the customer is often a factory or a producer of primary production. It may for example be a mill with a need to have seed or a factory needing raw timber. If the customer is located outside berth vicinity, the customer arranges transportation from berth alongside to the final destination.

In oil and chemical shipments the customers are often manufacturers of chemical industry or petroleum products. In Finland the receivers of the unloaded cargo have a solid landline (pipeline) to the shore tankers. The line is located at oil/chemical berth and its location cannot be changed as it has been built-in to berth infrastructure.

In this study, the perspective to improvement is the customer value perspective. Generally in both fields of core businesses, chartering and port agency, customer satisfaction studies are uncommon and many non-regularly visiting (port calls in Finnish ports) company tend to tender out each port call regarding the agency fees and the fees regarding additional services. This is the reason why the company and staff reputation is crucial, since bad experiences and a poorly run company affects the customer and business very fast. To improve services, a value perspective can point to the areas where, even within the same range of services, a better service delivery can bring significantly more value to the customer just by improving the accessibility, visibility or delivery of a service. These areas for improvement are identified and analysed next.

3.2.1 Port Agency Process for Unloading Vessels Sailing within EU

In the port agency field, the two basic types of port calls are the clearance of loading vessels and the clearance of unloading vessels. In the case company, currently, the main focus is on unloading vessels. The vessels carry mostly dry cargoes in bulk, which means the cargo is either loose or packed to cargo holds. When the cargo is in powder state or liquid it's loaded to tanks.
Unloading of the vessel always includes at least the ship staff, the agent and a shore representative who is for example a foreman of stevedoring company or a terminal. Depending on the cargo type, a crane operator is also required to perform the physical unloading to a shore belt or to a truck. The shore facilities are often similar in both means of operating a vessel which means that berth restrictions apply due to cargo type which is the only restrictive feature when planning berthing and operations. Loading or unloading action alone is not a restrictive factor in cargo operating process and berthing. Restricting features often occur when operating tankers which carry oil products or chemicals. Their specific regulations define what is allowed during cargo operations and what is forbidden.

Table 6 below illustrates the single phases of the port agency process from the agent point of view. First, it explains the stage of action in numerical order and in the next column it defines the special features related to the designated occasion.

**Table 6. Current port agency process for unloading vessels.**

<table>
<thead>
<tr>
<th>No</th>
<th>Steps in the process</th>
<th>Time limits and special features related to action.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A Deal, a contract to ship product XY from destination 1 to destination 2 has been made</td>
<td>Consignor + Consignee</td>
</tr>
<tr>
<td>2</td>
<td>Chartering the goods, agreement about a vessel to be used and terms of shipment</td>
<td>Consignor + shipbroker</td>
</tr>
<tr>
<td>3</td>
<td>Agency proposal (mainly seller’s choice)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>A proforma d/a request, the agent provides an offer</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Accepted proforma d/a - &gt; nomination for the port call and ETA</td>
<td>Starting point of port call (agency perspective)</td>
</tr>
<tr>
<td>6</td>
<td>The agent contacts all relevant authorities, port, stevedores, customs and other port call related parties and inform them about the upcoming port call and receive preliminary estimations about berthing prospects</td>
<td>As soon as ETA known / confirmed</td>
</tr>
<tr>
<td>7</td>
<td>The agent informs the client and the vessel about arrival information</td>
<td>As a reply to nomination confirmation</td>
</tr>
<tr>
<td>8</td>
<td>The vessel/ship owner provides the agent compulsory documentation and receives pilotage instructions</td>
<td>Agent requests</td>
</tr>
<tr>
<td>9</td>
<td>The Agent receives departure documentation from previous port of call</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>The agent is obligated to fill vessel and arrival details (and documents)to following systems prior arrival: Portnet, (cargo manifest, ISPS, IMO documents: NSW crew, NSW security, NSW waste) Arex ,manifest, (general arrival notice)</td>
<td>Minimum 24 hrs before arrival, unless otherwise nominated</td>
</tr>
</tbody>
</table>
Table 6 shows the single phases of the port agency process from the agent point of view. The process contains many small items, which are highly relevant and important to the entity. These kind of elements are, for example, pre-arrival data from agent / vessel to the authorities such as pilot center and port (8, 10). Here it is important to be correct and exact as most of the Finnish ports and pilots follow the "first come, first serve" rule. This applies unless stevedores or terminal have given opposite directions due to their operating schedules or inventory levels which can cause changes to arrival order in case of a simultaneous arrival time. Correspondence towards customers and authorities is at present in between almost all segments of a port call (especially 6, 7, 10, 11, 12, 14, 15, and 17).

From the customer perspective, the planners of the vessels next orders and voyages are often located in another country the accurate data and information is highly praised. The optimization programs and preliminary sailing plans may not always consider some details that are locally well known here in Finland. These are for example forecasts of weather (if weather sensitive cargo)/water level, restrictions during the winter time or emerging delays if port arrival prospects state that another vessel is coming at
the same time and is aiming to the same berth. These kind of specialties are the agent duties to inform.

*In a small company, where the resources are very limited, the bottlenecks develop very easily which causes challenges. But on the positive side of the small amount of staff is that almost all data is common and shared, so everyone is quite on track on everybody’s businesses which makes the team very agile and adoptable.* - Agency Manager

*In general, the nature of the business is such that one either succeeds or fails in port call performance, “the grey area” for performing does not exist.* - Captain of a vessel

The citations above are highly descriptive to PA working environment. As the agent is the link between the vessel and its captain and the shore, the responsibilities and also sanctions are relatively harsh. If the agent fails to e.g. order the pilot after completion of unloading on time, vessels departure delays and it may miss the next loading port time frame that has been clearly defined in the contract. In general, the updates and prospects that are given by the agent, ensure that the owners/operators of the vessel can make accurate plans for vessels forthcoming loadings and unloadings and also scheduling repairs and docking can be done.

### 3.2.2 Port Agency Process for Loading Vessels Sailing within EU

The basic frames of the port call are mainly the same in both directions of operation, loading and unloading, but they have variations in the amount of information for authorities, documentation, etc. The duration of paperwork after completion of loading is different, as well as they have slightly different procedures in departure formalities. Loading is often slower than unloading and e.g. with tanker loading the speed of pumping depends also on the capacity of shore pumps.

Even though *Loading* of vessels are in a minority role within the case company’s current regular operational types, loading clearances are not exceptional. Cargo handling areas vary and depend on the vessel type. Tankers load their cargoes in chemical or oil ports or berths, container vessels are handled in container berth and bulk vessels are being operated in their designated berths which depend on the type of cargo to be loaded. The loading of bulk cargoes is sometimes very weather sensitive and the
loading operation might last for days if there are for example stoppages due to rain or dampness.

Table 7 below illustrates the phases of loading process from the agent perspective. First, it appoints the step in the process, and in the next column it defines the related features.

Currently, the port agency process for loading vessels include the following elements.

Table 7. Current port agency process for loading vessels.

<table>
<thead>
<tr>
<th>No</th>
<th>Steps in the process</th>
<th>Features &amp; Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A Deal, a contract to ship product XY from destination 1 to destination 2 has been made</td>
<td>Consignor + Consignee</td>
</tr>
<tr>
<td>2</td>
<td>Chartering the goods, agreement about a vessel to be used and terms of shipment</td>
<td>Consignor + Shipbroker</td>
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<td>Accepted proforma d/a - &gt; nomination for the port call</td>
<td>Starting point of port call (agency perspective)</td>
</tr>
<tr>
<td>6</td>
<td>The agent contacts all relevant authorities, port, stevedores, customs and other port call related parties and inform them about the upcoming port call and receive preliminary estimations about berthing prospects</td>
<td>As soon as ETA known / confirmed</td>
</tr>
<tr>
<td>7</td>
<td>The agent informs the client and the vessel about arrival information</td>
<td>As a reply to nomination confirmation</td>
</tr>
<tr>
<td>8</td>
<td>The vessel/ship owner provides the agent compulsory documentation and receive pilotage instructions</td>
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</tr>
<tr>
<td>9</td>
<td>The Agent receives departure documentation from previous port of call</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>The agent is obligated to fill vessel and arrival details (and documents)to following systems prior arrival: Portnet, (cargo manifest, ISPS, IMO documents: NSW crew, NSW security, NSW waste)</td>
<td>Minimum 24 hrs before arrival, unless otherwise nominated</td>
</tr>
<tr>
<td>11</td>
<td>Constant updating between vessel (eta info) and port parties and pilotage</td>
<td>A couple of times during the port call</td>
</tr>
<tr>
<td>12</td>
<td>Arrival of the vessel, AREX entry declaration is obligated to fill within 30minutes from arrival. All related parties are informed about arrival data. Cargo inspector is informed.</td>
<td>Arex within 30min from arrival. Arrival data in portnet within 1hrs.</td>
</tr>
<tr>
<td>13</td>
<td>Cargo operations and additional services ( oily waste delivery, bunkering, ship handler, crew change, etc)</td>
<td>Upon arrival if cargo ops allow, if not, before or after ops/terminal decision.</td>
</tr>
<tr>
<td>14</td>
<td>Updating systems and clients about procedures and estimated sailing details</td>
<td>A couple of times during the port call</td>
</tr>
</tbody>
</table>
Table 7 shows the phases of a vessel port call and the required scheduled actions from the port agent. As the agency is located in Helsinki and the vessels are along the coast line of Finland, simplicity in actions and correspondence are necessity for satisfactory performance. Many actions are performed from mobile office facilities (12, 13, 14, 16, and 17) which causes a risk if system crashes or lines are down.

"Arex-updates (10, 12) are especially stressing factors as the time limits are very tight and possible penalty is a fine that exceeds the value of a single vessel call." - Agency Member

Above citation describes one of the bottlenecks of the process. The stressful factor develops as the arrival port visit and first information upload are simultaneously.

3.2.3 Port Agency Services Currently Offered by the Case Company

Port agency services, in an international shipping industry, are a necessity for a foreign vessel to enter and exit a port for cargo operations smoothly and obeying regulations. The agent is a local representative and is acting as a link between local shore operators and the vessel.

The case company is currently offering all compulsory port agency services needed in all Finnish ports. Their current regular vessels operate in ports of Naantali, Kotka and Hamina. The port agents on duty are using mobile offices when needed and are able to prepare all relevant documents including cargo documents, operational statements and different receipts as well as offerings for new port calls from their "mobile office". The company is specialized in small or mid-size vessels which are primarily carrying bulk cargoes.
The case company is currently offering standard required services and several additional services. The case company currently operates primarily with bulk vessels which means that special features vary heavily and always depend on the type of cargo being carried. Additional services include crew change assistance, arranging bunkering service, arranging ship chandlery, spare part and repair assistance and cash to master deliveries. Cash to master service has lately been considered as a service of high risk regarding tax evasion but so far it has remained in the service portfolio of the case company. The warning is given in Finland by Nordea bank, but case company is determined to keep CTM in their portfolio of services. The additional services are not very visibly advertised or offered as the services require an excessive amount of resources in order to complete and successfully manage the service.

The case company is currently participating in all generally acknowledged additional services that are offered by all agency service providers. The case company agents participate and assist on crew changes to both EU and non-EU citizens, handle medical cases by arranging first aid help to crew member who is in the need of medical attention and arrange maintenance and spare part deliveries as needed. In addition, also money deliveries are arranged upon request of the owners.

Next section explains the details of tasks that are required by law. Authorities oblige the port agency service providers to fill certain compulsory tasks after the agency has accepted nomination of a vessel. As this thesis is about port agency and its services, the compulsory ones are crucial to understand and analyze.

3.3 Compulsory Services Offered by Agency Service Providers Nationally

*Compulsory port agency duties* include a range of services which are performed in the "background" meaning the services are not visible or noticeable to the customer. More visible required services include communication with relevant parties concerning the port call and preparing the documentation regarding the port call and cargo operations. Prepared documents are for example Notice of Readiness (NOR), which is mostly prepared by the vessel but in some cases also by the agent. It is tendered by the Captain and received by shore representative who is usually the foreman of stevedores or the agent. The document is relevant to port stay duration calculation and it is related to the contract (1,2). The document that is often prepared by the agent is Statement of Facts
(SOF) which includes the relevant factual data (16) regarding the port stay i.e. arrival and departure times, notice of readiness times, cargo operations (when e.g. a tanker with several parcels, each parcel has its individual SOF) with commencement and completing times including possible stoppages. This sheet is always approved (signature and stamp) by the captain or ship representative, the agent and if possible shore representative i.e. stevedore foreman.

There are multiple sources of rules, regulations, instructions and directions regarding required duties and task to be commenced regarding a port call of an international commercial vessel. Generally, each vessel over 24 meters of length is required to apply the national VTS (Vessel Traffic Service) law. A port agent has several required obligations to take care prior the vessel's arrival, during the port call and upon departure. The agent is obligated to fill several electric notifications and forms to different authorities in Finland and in the EU. As legislation is constantly changing and new rules and regulations are added annually, the agency unit ought to be alert with the obligated time limits of certain notifications as there is a pecuniary penalty for over dues or neglecting the regulations.

Presently, nationwide, most of the communication between the agency, authorities, port service and the vessel is made either by phone or e-mail. E-mail is being used when receiving and updating ETA of the vessel to relevant contacts in port and authorities. Phone is primary used if the time between nomination and a port call is short and the info is needed soon.

The agent needs to receive several documents from the vessel or the ship owner by e-mail prior the arrival. International Maritime Organization (IMO) documents include: crew list, crew effects declaration (a list of the crew's belongings on board), ship stores declaration (everything from fuel to food) and waste notification. In addition, International Ship and Port Facility code obligate the agents to fill an ISPS notification prior arrival. It includes the ten last port calls with very precise details, such as: security level (generally, level 1), port segment (EU-wide list of port for each country, that includes a code to each individual port section e.g. Port of Hamina: container depot XCVB, oil jetty: XVBB etc.), duration and date of stay.

The agent then delivers the relevant documents to customs (Marine center) and to Vessel Traffic Services which operate under Finnish Transport Agency. The delivery is
done via Portnet which then moves uploaded data to correct recipient. As many vessels sail intercontinental voyages and across Europe to the coast of Africa, the captains sometimes need to be advised which documents are compulsory in which area and state of arrival.

In addition, each port call related authority publishes and controls their own regulations which all base on the legislation that steers the sector of the authority in question. It means that, for example, the documents which are obligated to be delivered prior the vessel's first annual arrival to Finland are delivered to Transport Agency, in order to verify Finnish-Swedish ice class and fairway dues. Another regulation regarding ship documentation is based on the legislation for determination of ice-class (Finlex 1121/2005). After delivering required documentation, the ice-class is confirmed to the national Portnet-system by authority Transport Agency. The confirmed ice class is a permanent classification until a vessel circumstance or another matter which is related to confirmation of the ice class changes.

In addition to obligatory data provision for authorities, an agency provider who is operating in Finnish ports is obligated to be aware and to inform the client of the technical peculiarity when arriving to a Finnish port during the winter season. The challenge in winter-period is the freezing sea, which on typical winter, affects to all Finnish ports. If the winter is past average, restriction are ordered to ports or sea areas. Restrictions of navigation may be applied to e.g. northern ports and exclude any vessels under a certain tonnage size and ice class to enter the ports in question. The restrictions apply 5 days from releasing and may be strained when needed. Any vessel that tries to enter but does not meet the restricted terms, is not offered any ice breaking assistance or other services. Appendix 2 illustrates average restrictions in detailed mode (dates, specifications port-by-port) in Finnish winter ports during the past decade.

Next sub-section describes authorities related to agency process and commercial vessel traffic. It explains the role of the certain authority and specifies the given requirements of each authority/organization. It also refers to Tables 6 and 7, when discuss the unloading and loading processes.
3.3.1 Portnet System and AREX

Portnet database is a joint system, which is maintained by Finnish Transport Agency and used by Transport Agency, customs, pilots, coastguards, ports, agents and other marine traffic stakeholders. The database contains data that is related to vessels, ports, cargoes and port calls and has over 1000 users daily. The Portnet system is used as invoicing base by the Finnish customs.

As a new vessel is entering to a Finnish port, the agent fills all basic information that is available at the time to Portnet (Table 6, column 6), then requests needed vessel documents from the captain or from the owners and loads them to Portnet (pre notice to Marine center) who then inspects the documents (Column 8), verifies the ice class if needed and adds the complete vessel details to the database. Then the agent creates a port call by selecting the vessel from the database, adding the available arrival information such as port of call, specific port segment that is needed for individual cargo operations (e.g. container berth, oil berth etc.) and estimated arrival and departure times (10). Another needed detail to the port call is cargo details as an electric manifest is done via Portnet. As the info is filled properly, the agent confirms estimated arrival details, ISPS-security details and arrival manifest which is then confirmed by the customs. As the vessel arrives, the final arrival details are filled by the agent and confirmed by customs via Portnet. (12)

When unloading, the details of manifest can be confirmed upon arrival but when loading, the actual details are uploaded only after completion of loading in order to confirm the exact amount of and type of cargo loaded. If the agent fails to notify according to regulations or is confirming incorrect details the penalty may be even as high a fine as 3000 Euro.

3.3.2 Pilotage and Port Service

Pilot service in the Finnish territorial waters is another compulsory service that is controlled by legislation of Finnish Maritime Administration Regulations. The obligation is defined in pilotage law and it is supervised by the Finnish Transport Safety Agency. Pilotage is required to apply unless the captain has a special lease from pilot obligation for the fairway in question. A lease is only issued after the captain passes a specified test that has been supervised by a deputy from Trafi. The lease is typical to regularly
visiting vessels but only applies to fairway(s) that has been approved after participating into the test. In the case company's regular vessels and port none of the frequently visiting captains are holders of this special lease.

In Finland, the piloting service is offered and operated by state owned company Finnpilot Pilotage Oy. The company offers pilotage to all Finnish sea ports and to Saimaa area with winter restrictions. Pilot physically comes on board from the shore for departure or from offshore pilot stations upon arrival but communication with pilot service center is done by phone or email. Pilot orders and foreknowledge terms have been stated very clearly in Pilotage Service Terms (related to columns 6, in tables 6 and 7)

Upon arrival to a Finnish port, an agent and/or the captain gives a pre-arrival notice to the ordering center minimum 12 hours before arriving to the pilot station. In a case where a vessel nomination has been given with a shorter notice, an agent informs the pilots as soon as the information is available, but it is not guaranteed to get a pilot in desired time. The final order before arriving to the pilot station ought to be done via phone, order template online, e-mail or fax 3 hours in advance. Upon arrival the pilot informs the port service via VHF-radiofrequency about the upcoming arrival in order to make a final order for mooring (11).

Upon departure, the estimated departure time is given as soon as it is available (14) and the final order for departure must be done 2 hours prior departure (15). Ports require a similar pre-arrival information and order procedures as the pilots and it is generally done one after the other, with a difference that port orders are not obligated by legislation.

3.3.3 Cost Structure of a Typical Port Call to a Finnish Sea Port

Cost structure is a part of any port agency service. The typical cost structure of a port call in Finland is a summary of a range of costs that are caused by vessel's port stay. The costs are addressed to the port agency service provider, but the costs are charged from the vessel's owners in the final disbursement account. Agency fee is the money that agent charges from the ship agency services including commitment to the invoicing receipt for all port related costs. Agency fee generally includes all agent's vessel visits during the port call and 24/7 telephone service and documentation. The amount of agency fee varies and depends on various factors such as vessel size, purpose of
the port call (loading and/or unloading, type of cargo and amount of different grades of
cargo and other characteristics). As project loadings and unloading often take time and
have rather complex features for the agency to arrange, the agency fee is often high
even if the vessel would be small in size.

Table 8 shows the basic structure and features which determine the amount or vicinity
of the agency fee which is the charge of basic agency service provided. This fee does
not include additional services, only compulsory duties related to port call.

Table 8. The formulation logic of an agency fee.

<table>
<thead>
<tr>
<th>Agency fee</th>
<th>Vessel size /nt</th>
<th>Exp Duration</th>
<th>Type of call</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>Upto 5000 nt</td>
<td>1-2 days</td>
<td>Basic / 1 pcs</td>
</tr>
<tr>
<td>Level 2</td>
<td>5000- 10 000 nt</td>
<td>2-5 days</td>
<td>Multi / 2+ pcs</td>
</tr>
<tr>
<td>Level 3</td>
<td>Over 10 000 nt</td>
<td>5 days</td>
<td>Project cargo</td>
</tr>
</tbody>
</table>

As shown in Table 8, the "logic" of building the agency fee includes the money that
agency service provider earns from a port call. Other charges of the port call which are
showed in the final disbursement account are charges which are compulsory and
charged from the agent after the agency service provider accepts nomination.

As a vessel enters a Finnish port, it has already gathered several compulsory fees col-
lected by the state and port service provider. These fees are for example fairway dues
(10) which are carried 10 times each calendar year. If the vessel is a regular visitor in
Finland, voyages number 11 and forward from a certain year are free of charge. Fair-
way dues vary and depend on a vessel type, size and features (e.g. Finnish-Swedish
ice class classification). In 2015 the maximum fairway due for single entry to a Finnish
port for a cargo vessel was 53 875 euro. Discounts and reductions to fairway dues can
be given based on partial used cargo capacity and reductions are plead through agents
and need to be proven valid by cargo documents.

Another regular expense is pilotage service (Table 6 & 7, columns 12, 15), which is
compulsory to any captain who has not received a waiver for a certain fairway within
Finnish territorial waters. Pilotage service fee depends on the area of use which deter-
mines the length of piloting needed.
Port costs are also fees that depend on vessel type and size. Port fees cover mooring and unmooring, ice breaking during winter time, garbage fee and also oily waste fee (13) as Finland is one of the countries that include compulsory oily waste fee to port call costs. It encourages vessels to dispose their oily wastes to arranged containers and tanks instead of the sea. The oily waste fee allows vessels to dispose maximum 10 cubic meters of waste to port premises. If more, the agent calculates the additional fee and informs the port about bigger amount to be disposed. Some Finnish ports oblige tug assistance during enter and exit to harbor area if certain vessel qualities are not met, which increases the total port call costs.

Finnish government together with the EU have stated rules and regulations regarding vessel, port and sailing legislations. Shore services (6), that include agency service providing, are not limited or restricted by law and do not require special training or education in order to operate as agent. Nevertheless, knowledge and understanding of the local circumstances and specialties is crucial in order to be able to offer service range sufficient enough for the owners and vessel captains to have trust and confidence in the agent's ability to fulfill requested needs.

The average port agency fee alone is one of the smallest individual cost elements of a total cost of port call in Finland. As the economic situation drives ship owners to cut costs, the agency fees have gone down during the past years, even if the general annual costs are getting higher. The biggest operators in the field dominate the agency service fees and push them to minimize the rates in order to gain maximum amount of port call nominations each year. As a result, some port calls even hardly make any profit. In order to keep the fees in a satisfactory level, the service providers are expected to be able to ground their charge and offer some value adding features and/or services in order to be able to charge additional fees and still keep the customer happy and satisfied. The possible services and value adding features can save time which can save money from both the vessel's owners and the local agents. It can also enable savings in resources and excessive tasks.

Or it can save unnecessary effort which saves resources, or improve the quality of cargo operations which requires that grounding of key features related to the vessel and cargo is duly updated.
3.4 Additional Agency Services

Additional agency services mean a range of services that agencies provide outside the compulsory ones. Typical and “traditional” additional agency services are e.g. arranging re-fueling aka 'bunkering' of the vessel where the ship or ship owners pre-order a certain amount of fuel (Heavy fuel, Gas oil, Diesel) and the agent arranges the bunkering service and checks if there are any limitations with bunkering and cargo operations (especially with oil product and chemical tankers simultaneous work is restricted), ordering ship chandler to fill up food supply of the vessel, arranging spare part deliveries and purchasing and even arranging health care services for the crew. Additional service that is frequently requested by tankers is disposal of oily sludge and tank wash waters, which is often more than 10 cubic meters which is included in port fee.

However, the most common additional service that is used is assisting in crew change and crew change formalities. Currently, most of the trade vessels entering Finnish ports are sailing under international flags and therefore have international crews. Vessels that are sailing mainly in Europe, have commonly western officers and often non-western crew. Crew members, ‘ratings’ are often from Asia (The Philippines, Myanmar, India and Bangladesh). When crew changes are needed, the agent is informed by crew change specialized travel agency who checks the flight schedule with the owners and the agent. Details are requested well before vessel's arrival in order to arrange formalities such as arrival visa for arriving crew and departure visas for released crew member due to non-EU nationalities. As documentation is arranged, the agent coordinates or assist with transportations from the vessel for example to the airport or to an airport hotel and also arrange visa meetings with local customs officers for transit visa admin.

The vessel that is operating in a Finnish port may request some inspections to be carried out for numerous reasons. The agent ought to arrange inspections as without a duly validate certificate the vessel may not be allowed to sail. The ship may have a certificate that is getting out-dated and is in need to check again, as some certificates such as Ship Sanitary Certificate must be re-newed every 6 months. Ship Sanitary Certificate inspection is performed by the local health inspector of the municipality. In addition, Ship Medical Store Inspection makes another regularly performed inspection. The Ship Medical Store certificate is issued by inspecting pharmacy representative and it is valid for 3 years from issuing.
3.4.1 Service Offerings of Local Operators

Many Finnish vendors in port agency field are very locally operating companies. Some are also offering stevedoring and forwarding services in their local sea ports. Other additional services offered by some vendors are crane operating services, palletizing, and forwarding & custom clearance duties. Dry dock services, for example, are offered by some biggest operators nationally.

In addition to the fact that most of the vendors which are operating in Finland are operating locally, they are typically small or medium size companies with average of 4 agents working. Even the biggest international operators in Finland employ only average amount of agents. Multinational vendors offer highly specialized additional services, for example, P & I (Protection & Indemnity) Correspondence which is serving users in the matter of claim situations. This kind of value adding service serves well the big liner shipowners which are operating with massive volumes and high capacity vessels that sail either intercontinental voyages or are in feeder traffic (move full loads from ocean ports to areas where the big vessels are unable to enter, e.g. containers from Rotterdam to Helsinki). While local operators specialize in more detailed and customized service that has a scope in vessel level operations (small repairs, crew issues, money deliveries), the big operators with high volumes focus on service for the entire organizational level and offer assistance in law services, shipyard arrangements and ship registration services.

Many locally operating port agency service provider are in co-operation with local 3rd party operators regarding value adding services. Services are related to maintenance and repair services and also to other services that require either special equipment or special knowledge. Such services are e.g. diving services for inspections under the water surface, towing services and maritime electrician services.

Finland's location as a border country between Europe and Russia, creates a possibility of specializing in shipments that are designated to outside the EU area. Shipments that are sent outside EU require special documentation which required a special knowledge and training. Similar service opportunity is widely utilized in other international border countries, such as England. Many vendors in the UK offer similar services to shipments that are designated to the US and require special formalities in order to be able to ship goods.
3.4.2 Service Offerings of International Operators

Port Agency services are globally offered services. The agents are needed all around the world as merchant vessels are transporting goods across the seas. The EU has stated a port state control directive and its regulations and it's supervised by EMSA (European Marine Safety Agency) along in co-operation with each state. The port state control directive allows local authorities to carry out multiple inspections both to port infrastructure and to visiting vessels. Many of vessel-related check-ups and audits are carried out with port agency assistance. The audits may concern, for example, the maintenance of vessels, a random check of salary payments, inspection of working environments, compliance with working safety regulations on board, etc. Other, operationally additional, services are, for example, specialization in a certain type of project cargo operations or vessel types. Dry-docking and repairs make another type of common additional services in an international scope.

Importantly, some services which are either compulsory or regular services in Finland are classified as additional special services internationally. For example, in the UK, the slop reception can be done only at certain facilities or by barge. If the cargo documentation requires special tasks to be done or permissions, such as some shipments to USA, it is often specially mentioned as the specialties are not considered standard.

Another interesting specialty visible in some international vendor portfolios is that some UK vendors, for example, offer the research services. The research services mean that the experts provide reports of trade sectors and market studies and also specifically prepare analysis that help their customers to evaluate ways to improve or complement their current processes. If needed, the port agent service providers who offer analysis also offer the consultancy services in many shipping sectors. Research as an additional service is a major investment as it's carried out by analysts and commercial experts. These kind of services add value in both profit wise and commitment wise as the customer is heavily tied with the service provider. By providing these types of services the port agency aims to commit their customers to use their services long-term by offering excessive, and often long time and expensive, value adding services.
3.5 Summary of the Current State Analysis (Data Collection 1)

The current state analysis of this thesis was executed in the chosen SME case company that is operating in maritime logistics and especially in ship brokering and port agency in order to reach deeper understanding and vision of the port agency work and vessel clearance process. The current state analysis section is divided into chapters which each have an individual role in the entity of the chain of the clearance phases. The analysis revealed that the agent is bounded to fill several obligations and acts as a link between the local or national authorities and the represented vessel. These obligations are categorized and explained in the segments. Some key findings are illustrated in Table 9 below.

Table 9. Obligated and additional key tasks of the clearance process.

<table>
<thead>
<tr>
<th>Obligated</th>
<th>Additional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-arrival notifications</td>
<td>Crew change formalities</td>
</tr>
<tr>
<td>Documentation</td>
<td>Ship handler arrangements</td>
</tr>
<tr>
<td>Uploads to systems</td>
<td>Repairs and maintenance</td>
</tr>
<tr>
<td>Port call procedures</td>
<td>Crew related needs (doctor etc.)</td>
</tr>
<tr>
<td>After departure operations</td>
<td>Cash to Master</td>
</tr>
</tbody>
</table>

As shown in Table 9, the key findings from the CSA regarding clearance process are separated into obligated and additional tasks. The division between the two categories, obligated and additional is clear as obligated are strictly specified by regulations and the additional ones are not controlled by others than the customer, who is the captain and the service provider, the agent. The CSA also explains the structure of the clearance process with its special features including general additional services that are commonly offered and are a part of case company's existing service portfolio. The company offers secondary services in order to raise the value of customer's supply chain and company's profit for the port call in question. It is noted that the company has limited resources due to its size and that the company utilizes very light IT-systems. The staff gave well-grounded reasons for the IT-choices that have been made during the past years, which made the possibility to suggest updated ERP somewhat unnecessary.
The data collections revealed that in port agency process there are different value adding actions to each participant of the process. From ship owner perspective the best value is received when received details are correct and accurate, constant updates are given regarding procedures and estimations about duration of cargo operations and the total port call. This enables the owners to plan following shipments, port calls and their schedules. From the vessel perspective the most valuable features in the agency service are the accessibility of the duty agent, proficiency of the agent (getting correct information's and fluent service) and fast reactions to sudden incidents which vary from engine explosions to sudden attacks of sickness. The experience and connections of the duty agent becomes emphasized when something that is not foreseen happens and fast reactions are required.

Is has also become visible, that previously listed and described elements make the structure of the current service during a port call. Some of the most time-consuming segments of the agency process can be seen to be in the starting section, providing proforma disbursement account (4 and 5), which requires accurate calculations for fairway and port cost in addition to agency fee calculations. Following by preparation steps which include the documentation and data uploads to various systems.

National vendors offer similar services when compared to the case company’s service range, with small exceptions. International vendors offer more specialized services as often the volumes are bigger and contracts are long-term instead of short ones. Table 10 below illustrates some of the differences between national and international vendor service portfolios.
Table 10. Differentiation in national and international vendor service offerings

<table>
<thead>
<tr>
<th>National</th>
<th>International</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mostly local services, small scale operating</td>
<td>Some small operators, more big corporations offering services to similar big operators</td>
</tr>
<tr>
<td>Crew change assistance</td>
<td>Crew change assistance</td>
</tr>
<tr>
<td>Repairs and maintenance – basic level</td>
<td>Repairs and maintenance – often basic level and beyond, including research and consulting</td>
</tr>
<tr>
<td>Customized offers, given by request</td>
<td>Long-term maintenance and shipyard agreements</td>
</tr>
<tr>
<td>Local 3rd party co-operations for small scale operations</td>
<td>National chains and major co-operation</td>
</tr>
</tbody>
</table>

As shown in Table 10, the levels of operations are often significantly different when comparing national and international vendors. National vendor offer local co-operations with local 3rd party service providers such as engine repair services. International vendors often offer long-term contacts in shipyard and docking services. An explanation to such major differences lies in most cases in volumes and in the amount of annual port calls.

The case company's port agency portfolio includes a number of services performed by the duty agent. The services such as documentation, berthing arrangements, immigration and customs clearance assistance are so called regular and standard port agency services nationally and generally offered also by vendors in Finland. Additional agency services are mainly standard nationally, but some room for improvement ideas can be found.

During the CSA, challenges of the current PA process were investigated and mapped out. Some of the current PA service make a special challenge both to the customer and to the agent and as the segments of correspondence and data transfer are very important and time-consuming tasks in the process, it definitely forms a cause of improvement consideration. The limited resources also create limitations to upcoming proposal. As seen from below table, most of the issues occurred can be classified un-
der theme "operational issues". As those are practical issues and relate to concrete service performance.

Therefore these operational issues are selected for closer examination.

**Table 11. The key findings summarized**

<table>
<thead>
<tr>
<th>No. of elements</th>
<th>Especially challenging elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Limited resources / small amount of staff -&gt; vulnerable process</td>
</tr>
<tr>
<td>2.</td>
<td>Constant changes of legislation and time-consuming compulsory tasks (IT)</td>
</tr>
<tr>
<td>3.</td>
<td>The compulsory system is only fully known and operate by 1 staff member -&gt; vulnerable process</td>
</tr>
<tr>
<td>4.</td>
<td>Time-consuming tasks, that occur repeatedly in certain extension. Tasks are manually performed and there are no instructions or manuals to support the performance.</td>
</tr>
<tr>
<td>5.</td>
<td>Narrow visibility and therefore customer base limited.</td>
</tr>
</tbody>
</table>

As seen from Table 11, certain challenging elements are internal, some external. Elements 1 and 3 are internal challenges, element 2 external. Element 4 is a bit of both.

Limited amount of staff hence limited resources are an issue that effect the operational functions because it makes the functionality and operational smoothness at risk in a situation where an employee is absent or otherwise unavailable.

It has become visible during the analysis of the process and its elements, that certain features which need special attention to communication (more visibility, better explanation) typically complicate the whole process, if not done in a certain order and within a certain time-limit. These processes have not been summed up or collected into one gathering. A collection of instructions performing as a guideline for masters would explain what is needed, why and in which time frame when arriving to a Finnish port.

During the CSA, on a more general level, strengths and weaknesses of the company in general, their supply chain and process and also previous in related to agency services
offered were investigated and mapped out. Below full list of discovered strengths and weaknesses.

Table 12. Discovered strengths and weaknesses of the company and process

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipbroker co-operation</td>
<td>Limited number of employees</td>
</tr>
<tr>
<td>Stable customer base</td>
<td>Distances between locations</td>
</tr>
<tr>
<td>Personal connections/networks</td>
<td>Visibility in field - next step, marketing</td>
</tr>
<tr>
<td>Efficient &amp; Low cost infra</td>
<td>Time consuming additional tasks</td>
</tr>
<tr>
<td>Experiences staff</td>
<td>Obsolete channels, repeated communications with customers, no guiding materials for customers</td>
</tr>
<tr>
<td>Applied applications are light</td>
<td>Applied applications are light</td>
</tr>
<tr>
<td>Mobile connections</td>
<td>Mobile connections</td>
</tr>
</tbody>
</table>

As seen from Table 12, some findings are duplicated and marked on both sides. The reason to that is that the findings can be considered as both strengths and weaknesses, depending on the situation and point of view. For example, as the used applications as "light" and rather simple, such as basic office tools, which usually work very reliably and are compatible with most customers, their implementation in a small company can be considered as a strength. The company is not exceptionally vulnerable to any system crashes or maintenance breaks due to updates or upgrades. What makes it also a weakness is the increasing amount of available software and applications that could be implemented in the ERP-system of the company and therefore increase efficiency of available resources. Another duplicate is marked on the bottom 'mobile connections'. The staff spends a lot of time on the road due to distances between the most frequently used ports of the regular vessels that are being nominated to the company. Mobile connections enable the communication between the agent and agency office and also with the customers involved with the shipment/vessel. Customs legislation also re-
quires that the agent updates all arrival details to two different databases within 30 minutes from vessels arrival to berth. This would not be possible without wireless connections and possibilities. Downside of the dependency of mobile connections is the vulnerability of the connection/signal, which can cause a delay in updates and either a fine or a long and time-consuming written investigation and a plea with grounds to dismiss the fine.

During the analysis, a certain character was clearly noticeable in many phases of the process, namely the value and importance of communication and information flow between the customer and the agency. After interviewing the stakeholders about the noted segment it was mutually agreed that there is an opportunity to improve the existing system and create a new service to support the smoothness of the early part of the process. This gap for new design emerged from discussions with the stakeholders and as the discussion proceeded it was identified as a business opportunity.

The importance of a certain data and information has become visible during the analysis of the process and its elements, since certain elements need special attention to communication (more visibility, better explanation) because the whole process may complicated, if not done in a certain order and within a certain time-limit. Thus, this detailed process analysis pointed to the need for a crystal clear communication with the customer. The agent needs to receive and dispatch by uploading and resending numerous of documents and details prior vessel's arrival and during the port call. Some of the documents are received from the vessel, some from the owner, and some from the previous agents in the last port of call. Information updates ought to be given to the relevant authorities, port and stevedores. Mobile connections are frequently used to fill in electric forms and notifications. During the data collection rounds and discussions with the stake holders it has become visible, that there are not general manuals or instructions for the entering vessels regarding national procedures and additional services that the company can offer. The data requests are currently done by rather obsolete way, manually in written, for each port call which consumes an excessive amount of time and resources from the staff. In addition, as the tasks partly recurrent in each port call, the instructions in printed or written mode, would be a tool that releases some resources to operational usage.

As a result of numerous interviews and discussions with the case company representative, a collection of subjects were chosen to be highlighted in order to commence the
design process of a new service. Subjects are: obsolete channels, repeated communications with customers, and no guiding materials for customers, time-consuming additional tasks and small amount of workforce. When focusing on previous elements a new business opportunity idea emerged and was mutually chosen for further examination in this study.

As the importance of communication and instruction as value adding elements, including a need for new service design, has arisen in the current state analysis, the following state of literature search is focused around these elements.
4 Existing Knowledge on Service Design, Continuous Improvement and Value Creation for Customers

This section discusses the available knowledge from a theoretical perspective on segments of value creation for customers, ways to create value by new service design, utilizing blueotyping technique as a tool to new service design and their implementation possibilities. It also reviews ways to create effective process improvements, including improvements in the quality of service. Chosen exploited materials are based on the current state analysis of the case company's processes and functions and when combined a base is created for the frames of which target the chosen themes of utilized literature for new service design proposal.

4.1 Creating Value for Customers

Good service can play a major role in aiming to increase profit and gain maximum advantage. In this scenario, good service is a factor that increases the value in the process or chain. It is mentioned that though previous has been widely recognized, the implementation within the company structure and strategy is often inadequate and is only on theoretical level instead of practical. (Lusch et al. 2007) This causes a vicious circle where the problem is recognized the perhaps even planning is done well but the implementation stage is either inadequate or insufficient. The result is that the problem is present and people related are aware of it but no actions are made in order to revise the situation. As "Value drives everything we do" (Ng 2011: 22) without action, there is hardly value.

Valuable service can be described as actions that meet three criteria. The criteria's are maximizing the benefits to the consumer, minimizing the financial and sacrificial costs to the customer and minimizing the costs to the organization. All of these criteria's are not easily met, as there are many different criteria's, which are always depending on whose criteria is being examined and evaluated. (Clark et al. 2012: 51) Valuable service to one might be a total failure to the other. It depends heavily on the wanted outcome of the service phenomena.

In defining value, there are two different dimensions that can be identified. One is emotional value and another is practical value. These claimed dimensions can be proved by examining a practical example that can be applied to many daily situations: if a per-
son goes out and buys a kilogram of potatoes paying 25 Euro for one kilo, the purchase has been driven by emotional value as in current trading and grocery price level the potatoes are seldom worth 25 euros per kilo, so an emotional driver must have been behind the purchase. (Ng 2011:22) Another criteria is practical value. It can be described as concept more than anything else. An example of practical value is an image of a car which is also simultaneously an image that is most likely related to driving and moving around from place A to B.

When building a value adding services or products, the starting point is to search and figure out what does the customer really want? Without knowing and understanding the wanted outcome, it's not possible to deliver desired results. (Bettencourt et al, 2014) Before the building stage, ought to be a planning stage, to ensure the correct objective and outcome. When aiming to create advantage, the first task is to evaluate the company strategy. There are several options and ways to interpretive and create "value" and the strategic options are for the company to evaluate (Lusch et al, 2007).

Figure 3. Elements of customer's needs & wants (Grönroos 2011: 10).

As seen from the Figure 3, the triangle of a process that illustrates the basic elements about customers' needs and wants, includes angles that are very precise and when the triangle tool is implemented correctly, an objective can be defined with high accuracy. Grönroos states that even if the measurement and research methods remain to be somewhat imprecise, basically "Everything is value creation" (Grönroos 2011: 14).
Market exchange value creation can be shown and pointed out; as one offers to another something, the other can purchase it and thus gain something that creates value to them. Ulaga (2003) states that many studies tend to consider value as only a material or monetary concept which can be measured by either from material value or money transaction value perspective. As a result of research, his own view about the matter is quite the opposite as he thinks that in customer relationship value, one gives something, and the other gets it. He takes into consideration that customer value is a subjective concept which measurement tools are not yet as well developed and formed as other measurement elements for value creation are. He summarizes customer relationship value to be a trade-off between the benefits and sacrifices.

When aiming to value creation and its additions, it is often neglected that cost cutting and efficiency are not synonyms. It is relevant to take into consideration when building concepts or creating new designs that are intended to increase value. Haun et al (2006: 26) argue that many make plans to create value and thus save money but do not take into consideration that if the process becomes for example 10% faster or more effective, it does not automatically cut the costs the same amount,10% if the structure of the whole company or division is not changed.

When creating value propositions the developer estimates and forecasts the future state of the developed issue and make a clear statement how the present situation varies from the estimated future situation. This means that the desired results in value creation development ought to be able to forecast.

When discussing about the improvement of value, there are many misleading assumptions. Not all improvements cause money savings. If the implementation of improvement suggestions are completed and there is no evidence of money being saved, it does not mean the improvement has not succeeded or worked. Another commonly misleading assumption is related to the results of successful implementation and its results. Many seem to believe that when a part of a chain has been put under improvement actions, it automatically starts improving itself and other tasks related to it. According to Haun et al (2006), that is not the case. It is incorrectly believed that implementation automatically causes added value or benefits. Of course it may happen, but generally, it needs a great amount of work behind it.
When creating proposals that are done with a desire to add value, the planning of the proposal is in a key role when forecasting the results. The planning ought to be exact and accurate about the expected changes and their impacts on subjected process.

Value can be defined as many ways as there are people. Especially among consumers, the immaterial features (brands, trademarks etc) are often the most value adding items when discussing about the value of daily consumer goods. But in comparison, for a technical engineer of a metal company, manufacturers’ decision for using first class quality parts in assembly of an engine, may be a value adding feature. Rouvinen et al. (2013: 4) This example repeats the meaning that all have different mean of interpretation what is value adding in each service or product.

Edvardsson et al. (2004) state that previously or 'traditionally', especially in market-oriented companies, the main focus has been on satisfying the expressed needs. Organizational learning is described to be very useful strategy as it emphasizes the latent needs and focuses on searching and exploring the real need of a customer beside the details that are received through e.g. immediate feedback or customer satisfaction surveys. It is argued, that in many cases, where an organization drives changes and improvements in order to gain value, they focus on the obvious or previously physical elements that have been involved to improvement processes. These kind of elements are e.g. headcount reductions or process designs. (Hunter & Saunders, 2009) The latent needs for change or improvement are overlooked.

Each value adding project is as individual as its actors are. The goals and desires vary from major financial value to ethic values. The chosen tools for value adding actions vary and depend on the characters and elements of the business in question. Material-oriented value adding has a lot more technical features and ways of measurements than in customer service oriented value adding. The joint features for both are the importance of gathering the basic information in order to understand the current state of operation and for being able to forecast future development needs and possibilities.

Value adding can be taken into practical level by implementing a technique or a tool to create value or develop existing elements of current process, product, service etc. Some of the tools are reviewed in the next chapter.
4.2 Service Design Practices

An excellent service is like a tailor-made suit, it is measured exactly and precisely to meet customers' needs, wants and expectations. Good service can be described as a service that meets customers' minimum requirements and fulfill their needs but do not create any excessive value or benefit. Most of the service providers aim to reach the level of good service, either by coincidence or by intent. Excellent service level is not often met, not even in half of the service phenomena's are beyond good. In order to reach "good service level", a deep exploring to the process is a useful tool in order to reach exquisite level of service. (New) service development has been considered as one of the key elements of the process when creating competitiveness factors and tools for keeping ahead of rivalry.

Compared to general commodity design, the service design mainly focuses on developing existing services and manners and procedures of the business process. It has a fast pace and it is seldom pre-tested unlike physical commodities. Testing would require major economical investments without giving guarantees of any profit to investment. (Menor et al. 2002) Wide testing in customer surface would also enable copying innovative ideas directly to rivalries as the copyright is not yet valid for incomplete product. Kinnunen states that service design is often done "in the side" as secondary priority opposite to main business. It is also mentioned that often there is no regular structure in new service design, it is non-systematic compared to a design of a physical product.

An overview of the service design phenomenon starts with a concise description of some of the key elements and characteristics that can be individualized from the terms 'service' and 'service design'. As the service itself can be described as producing intangible assets and benefits to consumers, service design is a series of development actions that are carried out via trials of new innovative ideas putting into action.

A service package can be described as a primary service that is heavily supported by a numerous of surplus serviced which add the total value of the service experience and also serve the primary needs of a customer. The structure of a service package is shown in Figure 4 below.
As seen from Figure 4, there are three layers of service surfaces, according to Rissanen (2005: 22). The core layer is the primary product or service of the company. The primary service is the main reason why the customer is contacting the service provider in the first place. The customer is seeking a product or a service which could either solve the customer's problem, add value to the customer's value chain or benefit them otherwise. Second layer 'the midlayer' in the image demonstrates the visible section of services. The visible section represents e.g. features or the service, price, quality, image, trademark, brand and also marketing. The third, outer layer visualizes the final part of a singular service event. It represents the aftercare, guarantees, and possible repairs and in some occasions the final delivery of the product or service. (Rissanen 2005)

As a customer chooses the service provider, there are, depending on the nature of the service, many critical choices to be made. If the provided service obliges the customer into taking large e.g. financial risks or commitments beforehand, the customer most likely relies to the image (of the service provider) that the customer may already have from previous experiences with the same provider, or from firsthand knowledge and experiences that may be heard from friends or colleagues. Situations, where large commitments or investments are at stake the reputation is what counts.

Many service providers form a network or even a supply chain with similar secondary benefit producers. This enables offering a wider range of services and also categorizing offered services to two separate categories; actual services and secondary, often supportive services. When assessing the quality of given service, these elements need to be taken into consideration in evaluation, as shown in Figure 5 below.
Figure 5. Assessing the quality of given service (Kinnunen 2003: 10).

As seen from Figure 5, the quality of service, according to Kinnunen (2003), is formed and discovered after 3 phases of the process. The phases are final results, technical results and financial results. As those three have been evaluated and the feedback already been given, the result of previous data summarizes the quality of given services.

Reportedly, the customer is the uncontrollable factor in any service-related matters. However, overlooking the customer’s role is not recommended. A company can improve its research and development of new services or innovation by letting the customer into the process and also interview the customer, as in the role of the final user the customer can help and be a major benefit in locating flaws and errors. This kind of data creates value both to the service provider and to the customer, as it enables customization of services to fit the individual needs of each user of the service.

There are numerous of service design practices and many arise. Equally, there is a wide range of tools to help utilize the practices. Some of the tools are presented in the next chapter. The tools were chosen based on their nature and suitability for the theme.

4.2.1 Tools in New Service Design

New service design process cycle is considered as a non-linear and iterative and it illustrates the key elements of the new service design process.
Johnson et al. (2009) represents phases and logic of NSD (New Service Design) cycle in Figure 6 that represents the process step by step. The phases include many objects in the process such as technical possibilities, staff working in the company and tools that are available. The circle mode represents constant improvements that can and is be done after launching the new service and receiving the first feedbacks and user experiences.

Figure 6. New Service Design circle (Johnson et al. 2009: 18).

As seen from Figure 6, there are several layers around the highlighted triangle (service, elements, and concept) which is the core segment of the design process and defines the baseline of the new service design process.

Fitzsimmons & Fitzsimmons (2000) also describe ways to make the NSD cycle more agile by adding other, innovative and customized effects to the cycle. This enables creating services specialized and tailored to customer's needs. It is explained how the cycle starts with phases of design and analysis which indicates as the first stage of the process. This first stage which includes for example planning, defines the resources and capabilities of the participating organization which makes the definition of the new service design outcome clearer. The second stage which contains development and finally launch of the new service is referred as execution phase. The execution phase is
said to be more valuable and critical when compared to the first stage. The reason to higher value and importance is according to

As Johnson et al (2009) created a new service design cycle and split the process into separate segments with a circle running through them over and over again, service blueprinting has been lately recognized as a similar tool, with the exceptions that the blueprinting process shreds the whole process into small pieces action by action and then searches for clarity to the process and possible improvements.

4.2.2 Service Blueprinting

Blueprinting can be described as “a picture or map that accurately portrays the service system so that the different people involved in providing it can understand and deal with it objectively regardless of their roles or their individual point of view” (Fließ and Kleinaltenkamp, 2004: 4)

Blueprinting is considered as highly customer-based and customer-oriented method of process examination. It highlights the customer’s actions during the service phenomenon and underlines the role of the actual user of the examined service. As this method illustrates each step of the service process it helps to discover essential defunct and bottlenecks in the process as well as latent flaws and ineffectiveness of process segments that could otherwise be overlooked.

When designing new services, the designer benefits from being able to visualize the new service design and a tool called service blueprinting is a useful ancillary in making something that has previously been unseen and invisible in service phenomenal, a visual action. Blueprinting breaks a regular service phenomenon into individual, linear parts of the process and examines them one by one (Keogh (2009). Five categories are utilized in compartmentalizing the single parts of a service action. The categories are customer actions, onstage visible actions, backstage actions, company support process and physical evidence of the service. Service blueprinting tool can be utilizing especially in service design as it helps to reveal the process in a very throughout way. It also can be used when aiming to make a certain process or service understandable and fully clear to persons involved in it. Blueprinting eases analyzing the linear process and helps to grasp a certain phase or section of the procedure for a closer examination and possible modification by splitting the service into a path of actions. The paths cre-
ate "boxes" that define each action a certain category from previously explained five categories. The result is a matrix with a clear linear logic both in time-wise and action-wise. (Youngjung, Yongtae 2011)

Below an illustration and explanations of the five fragments which are utilized in service blueprinting.

Table 13. Service Blueprinting levels (Keogh 2009: 1).

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>CLARIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer actions</td>
<td>Customers active phases in a service event</td>
</tr>
<tr>
<td>Onstage/visible actions</td>
<td>Customer server, customer contact</td>
</tr>
<tr>
<td>Backstage/invisible actions</td>
<td>Company background support personnel</td>
</tr>
<tr>
<td>Physical evidence</td>
<td>Premises / visible tools, machinery</td>
</tr>
<tr>
<td>Support processes</td>
<td>E.g. web applications</td>
</tr>
</tbody>
</table>

As shown in Table 13 above, the logic of five categories utilized in service blueprinting is not complicated and can be adjusted to most circumstances. It shows that each category has a notable and independent role in the blueprinting process and each category is clearly separate from another. Therefore e.g. direct customer contact such as a customer service personnel is separated from indirect, more invisible personnel, such as a technical support or a warehouse worker in logistics, even though, in a sense of the final result (successful service event) the previous elements play an equal size role in terms of meeting the goals.

4.2.3 Blueprinting Segments and the Phases of Blueprinting Process

When the final desired outcome is a new service design and the chosen tool to reach the goal is blueprinting, the final process figure is very rich in details and explores deeply into the process, including the smallest and simplest phases that in “traditional” service design would most likely to be neglected. When utilizing blueprinting in the new
service design, the developer ought to be fully aware of the correlations and dependencies that the process parts posses with one another.

The outcome of blueprinting process when utilized in new service design is a chart that illustrates the whole process from the customer perspective. The chart includes all supportive tools that are otherwise considered as backstage actions. Regardless the term, the backstage actions are often crucial supportive actions that make the process possible and when not functioning desirably, would in worst scenario, cause a defunct of the whole process. (Hollins & Shinkins, 2006)

This paragraph discussed about the elements of service blueprinting method in new service design. It was also viewed in the respect of value adding tool. It revealed the main principles and techniques on how to form a service blueprinting design.

4.3 Continuous Service Improvement

As pilot or a trial of service development has been run through the first time in the desired system, it is important to create a plan for continuous improvement actions that keep the development phenomena going. Edvarsson et al. (2004) describes service development to be an action that is done with the customer and by learning from the customer. The significance of understanding and anticipating the latent needs of the customer is highlighted. The latent needs are the ones that the customer has not necessarily even noticed or perceived as needs.

"Instead of focusing on how customers can be engaged in co-creating with the firm, service providers should rather focus on becoming involved in the customers’ lives." Grönroos & Voima 2012:2

Continuous improvement may also require some new innovations in order to keep on developing better and better procedures and systems. Nicolajsen & Scupola bring out some issues and challenges that are noticeable when continuing development and improvements. The continuous development requires dense co-operation with the customer, but before started, there must be designed frames on how and what conditions are needed for the co-operation. The user-involvement ideology includes strategic planning, personal training and test marketing. On the opposite side there are also several challenges. When in co-operation with a customer for development project, few
major challenges are being brought up as an example of challenges. As co-operation requires contacts, getting in contact with the customer in a cost effective manner requires resources. It also increases un-certainty of the project and causes a need for further control.

As the new innovations are designed and invented, the old ones are abandoned or customized to fit the new strategy or developed system. Aurich et al (2006) list a few benefits of a method that is called life cycle engineering. It is a way to stand out from a crowd of rivals, meets the demand through individualization, and enables sustainability (for example technical services).

Next, the conceptual framework highlights the most useful topics and tools to be utilized in the next section of this Thesis. It demonstrates the sources of literature and identified relevant topics.

4.4 Conceptual Framework of This Thesis

This section presents identified relevant themes from available knowledge and best practice as a summary which ties up the main elements of themes from theoretical knowledge. These themes point to the results of search from relevant available literature. Themes for conceptual framework were chosen based on the focus of this study, specified from the results of the current state analysis as a ground material.

The core idea is to create a service design that could create more value to customers and allow for continuous improvement, and be applied to improve the value adding services of the case company. It could help the case company to save resources, present the basic pieces of the puzzle regarding the port call and also serve as a possible marketing item for the company to improve visibility in the business field. The conceptual framework of this Thesis is visualized below.
As shown in Figure 7, the conceptual framework of this study includes a selection of core elements of a new service practices, as in order to reach the objective which is the improved service design, the phases of basic service design create a good ground knowledge. After the core elements and features of service and design were presented, the object "service models" is separated from the selection of elements. Service models were also viewed in order to find the most suitable tool and method for the improved service design.

From the service models, the conceptual framework moves to the selected service modeling tool, which is service blueprinting. The literature of service blueprinting is collected from sources that utilize mainly social service design, instead of improving production-oriented service design. Ultimately, the conceptual framework describes the relevant features related to ways to create value by executing continuous improvements.
The proposal for improved process and a design for improved service tool for further development is defined in the next section of this Thesis. The current state analysis and conceptual framework ground the proposal and define the content, extent and frames of the design.
5 Building Proposal for the Case Company

This section merges the results of the current state analysis and the conceptual framework and brings them towards the building of the proposal.

5.1 Overview of the Proposal Building Stage

In this stage, the data that comes from the current stage analysis was reinforced with the findings from the literature and best practice, and then discussed with the stakeholders for proposal building for the service design. Thus, the proposal brings together the results of the current state analysis and the conceptual framework into practical suggestions, and suggests the essential new elements. Figure 8 shows the logic of the proposal building stage.

Figure 8. Proposal building logic.

<table>
<thead>
<tr>
<th><strong>Strengths</strong></th>
<th><strong>Weaknesses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipbroker co-operation</td>
<td>Limited number of employees</td>
</tr>
<tr>
<td>Stable customer base</td>
<td>Distances between locations</td>
</tr>
<tr>
<td>Personal connections/networks</td>
<td>Visibility in field -next step, marketing</td>
</tr>
<tr>
<td>Efficient &amp; Low cost infra</td>
<td>Time consuming additional tasks</td>
</tr>
<tr>
<td>Obsolete channels, repeated communications with customers, no guiding materials for customers</td>
<td></td>
</tr>
<tr>
<td>Experiences staff</td>
<td>Stiff/changing Legislation</td>
</tr>
<tr>
<td>Applied applications are light</td>
<td>Applied applications are light -next step</td>
</tr>
<tr>
<td>Mobile connections</td>
<td>Mobile connections -next step</td>
</tr>
</tbody>
</table>

In the results from the current state analysis, some general issues were brought up regarding the needs for the new service design proposal. From the current state analysis (Table 9 & 10) the total of four relevant results came up. The results showed that the service design that could be executed for improvements is related to the few most
time-consuming parts and communication, and especially in resource saving perspective.

After the current state analysis was executed, the relevant literature was searched for tools and methods for service design. Among them the service blueprinting tools were found to be suitable for the case company’s challenge. Another idea was related to the concept of value and how value can be considered and gained. These two findings form the conceptual framework of this thesis which results to the final proposal of improved service design.

The goal of stage 5, Proposal building, is to revise the key findings from the CSA, enrich them with findings from existing knowledge and best practice, and then discuss and suggest improvements for the current service design with the stakeholders. The criteria for the improved service design is that the chosen improvement should benefit the company’s current PA process. Details of data 2 (for proposal building) provided by the stakeholders are summarized below.

5.2 Findings of Data Collection 2 (Input from Stakeholders)

The current state analysis and meetings with the stakeholders created ground for the improved service design proposal. The drivers for the improved service design are primarily limited resources and the need for improved visibility, adding value for customers by improving the presentation of the offered service portfolio that is not in use by rivalry.

Data collection 2 was conducted by interviews and discussions and resulted in the following suggestions from the stakeholders for the proposal building.
Table 14. Raised issues in data 2

<table>
<thead>
<tr>
<th>Issues, categories (coming from CSA and CF)</th>
<th>Suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Vessels arriving are not familiarized with Finnish procedures.</td>
<td>Creating a manual for arriving vessels including the basic procedures in a Finnish port regarding entering, operating and exiting.</td>
</tr>
<tr>
<td>2. The available resources</td>
<td>Improvements to time-consuming tasks which could save available human resources.</td>
</tr>
<tr>
<td>3. No service manuals for operational purpose</td>
<td>Blueprinting tool is enough detailed to be utilized for the design of revising the current service</td>
</tr>
<tr>
<td>4. IT-system</td>
<td>Utilizing an agile ERP with which would combine all utilized systems under one platform</td>
</tr>
<tr>
<td>5. The authority connections are much personated. If the AM is absent, the challenge would arise.</td>
<td>Detailed introduction to Portnet and Arex systems from agent perspective.</td>
</tr>
<tr>
<td>6. Familiarization with the service for a new employee.</td>
<td>The CEO of the case company suggested that the design would include another section with emphasis on the company’s internal processes.</td>
</tr>
</tbody>
</table>

As seen from Table 14, the results from data collection 2 point to six key improvement suggestions. These suggestions also include, for example, such proposals that show the need for streamlining the port agency services that are currently done in a somewhat manual and personalized manner in the company:

"If X is absent and we need to upload something, we will be in trouble...I have no idea how this works or what to do with it." - Employee X of case company

"We need to create a back-up system for this (authority communication systems)." - CEO
The CEO of the company suggested as an additional improvement to external process, the outcome of this thesis could be implemented to improvements of internal communication as well. As the utilized systems regarding authorities are complicated and time-consuming, the Agency Manager has the main role and responsibility of their control and updates. In case the Agency Manager is not available for a longer term of time, the problems occur as no one else fully handle all of the systems. Therefore an internal value adding can be gained by altering the external guide which is the result of improved service design.

As the port agency service is a highly customer-oriented and specialized field of service, the pieces of the proposal relate to a wide area of improvements, as the proposal design was commenced. As one of the biggest challenges that play a major role in the process is requirements which are determined by legislation. These requirements are constant element in the process. Another candidate for new design is the IT and ERP system that the company utilizes but as has been found out, the current system is light and there is a clear motivation of keeping it as it currently is. Therefore, the suitable candidates for the new service design were limited to operational improvements.

Next, after revising the options, the most suitable and useful tool was discussed for building the proposal. The tool is the service blueprinting and it was chosen as the most practical tool because, first, it illustrates the process very clearly (for both customers and the case company internally), and second, makes discovering bottlenecks easier than by other similar tools.

Blueprinting breaks the process into small pieces stating from who is the "actor" for each piece, and in which level the action happens, and what other features it possesses, and if there are any dependences with another simultaneous action. Blueprinting also presents and creates visibility to the "invisible tasks" that are seldom otherwise noticed. Implementing the blueprinting for improving the current service design is fairly common and therefore was selected for the improvement proposal.

To adjust the idea of blueprinting the service to the case company context, the researcher conducted numerous personal discussions with the stakeholders of the company. The stakeholders presented various suggestions for value adding options and their implementation. Some options are examined later for further development and
their implementation possibilities as those go beyond the scope of the blueprint suggested in this Thesis.

It was also requested that the proposal would include the process parts split into very detailed level so that the company would be able to utilize the design not only with the vessels but with a possible new recruit familiarization. This request from the stakeholders again reinforced the idea of using the blueprint as a suitable tool for the needed improvement.

Finally, in addition to the blueprint for the new service design, it was suggested to create a manual as a guideline for a port call. It was also proposed that this manual should start from a thorough search for ideas from the external collection of documents. Based on that, an internal manual for the company internal purposes can be created by editing some segments of the external manual into form that serves the need.

5.3 Building the Proposal Draft

The proposal draft of new service design is built by utilizing the blueprinting method that was discovered from best practice and available literature. Designing a service blueprint also requires a background information that can be found from Section 3, current state analysis. In the blueprint design, tables 6 and 7 and their explanations (all available in CSA) were used as a support tool in the draft building stage. As shown previously in Figure 2, Research design flowchart, the proposal building is a combination of all previous elements which result in the Proposal Draft and afterwards the Final Proposal.

The foundation of the proposal draft is a service blueprint model, which is explained below. The boxed details are chosen based on the current state analysis and cooperative meetings with the case company stakeholders.

First line: Physical evidence

Chosen steps for first line, physical evidence, include steps which can be physically recognized. Box offer refers to the request for proforma d/a (table x, section 4), required documentation & data refer to pre-arrival data (8), box pre-arrival prospects refer to data that is given by the agent to the customers (7). Box arrived vessel means physically the moment the vessel is moored (12), Updates to customers mean that up-
date mails are sent frequently. Additional services are placed in the middle of the port call, though the service need can occur at any stage of the duration the vessel is moored. Next box, departure pilot on board (15), proves the stage of commencement of departure formalities. Departure documentation (16) is prepared just before the vessel sails. Unmooring states the stage when the vessel departs. The final physical evidence of the port call is the final d/a which states the economical data of the port call (18).

Next line in the service blueprint is customer actions. The fist box of customer action line is proforma d/a request and nomination (4). It illustrates the stage where the customer requests and nominates their chosen agent. Next step from the customer side is required eta & details (5), which is relevant to agency preparations. This box is followed by arrival of the vessel & formalities (12), next box is Additional services requested, which makes is easier to perceive the slot of additional services. Second last is departure info from the vessel. The last box, preparation of departure docs, refers to NOR+SOF signings (16).

The middle line, front stage actions illustrates the actions that are performed by the port agent. First box, calculating the proforma (4), is the reply to customers quotation request for the port call costs. After the nomination has been received the instructions for arrival formalities (6 are sent. Next box is arrival data to customers and authorities after the arrival of the vessel (12). The box is followed by updates, which refers to both updates to the customer and to authorities. The next box states requested additional services performed. Next box includes the departure vessel visit (16). It is the last time the agent is physically on board of the vessel during the port call. During the visit, the content of next box, preparation of departure docs (16) is current. The final front stage action is departure message + updates. It refers to column 17, where the final data is filled and sent to relevant recipients.

The next line contains fewer details as in pot agency the parts of the process are operational and rather visible. Line is: backstage actions. The first box is updating the arrival details to authorities (6). It includes many of the tasks that relate to the actual outcome of this study. The next invisible action is ordering the departure port service & pilot (15). The last box is receiving of the invoices and issuing the final d/a (18).
The last line: support processes, illustrates tasks that are not performed in the front line, but are so important that the core functions related to port call would not function properly without these tasks. The first box includes preparing of the proforma d/a offer (4). It is followed by document and data uploads (10), which is also a major driver for this study. Next box is Portnet & AREX update (14), which is stated in regulations. System updates refer (14) to the authority data upload. The next box contains the departure data uploads departure data / Portnet (17). The final box is Invoicing software (18) which ensures the money transactions are done in due time.

The service blueprint design in a port agency port call is illustrated in the next section.

5.4 Blueprint of a Port Agency Process
Figure 9. Initial proposal for a service blueprint of a port stay in Finland.
As seen from Figure 9 above, the port stay in Finland contains many elements on customer actions level and onstage / visible actions level. The service blueprint illustration of a regular port stay in Finland shows the elements of a conventional port stay and the levels of actions that each parcel in the line is related to. The arrows visualize the relations between simultaneous tasks from different levels and shows the order of performing them.

The blueprint illustration shows all the levels of action that are related to one port call from agent point and vessel of view. It does not demonstrate the levels of actions within the execution of additional services as the variations are on case-by-case basis.

The proposed blueprint shows the process as a whole, from the first step which is a quotation request by a possible client to the final invoicing which finalizes the service process. The blueprinting chart can be converted to different versions depending on viewer’s perspective and position. In internal use, the whole chart is required, but in external usage, it can be altered to visualize the section of the process that is adequate and serves the purpose and needs of the viewer.

5.5 Draft of the Proposed Manual

When a vessel is sailing without a regular schedule or line, the changing countries, ports and regulations are constantly changing and some vessels visit more than 3 ports a week. Therefore the studied data needed for each country/area/port is large. The master's of the international vessels have numerous of tasks to be done in port and on the sea, therefore the details and specifics regarding a certain port call are preferred to keep precise and short instead of over detailed and too long.
As seen from Figure 10, the chosen themes in the table of content are selected to serve the situation where a certain info in needed fast. It is divided into stages of Arrival (including preparations), Port, Operations, Departure and General.

Before the first section "Arrival instructions" the general info is given related to nominated agency and the port of arrival. Then in the arrival section, the instructions about documentation, pilot ordering and possible ice breaking (during winter season) are given. In the second section, "At port / berth" the general data is given about the availability of services that are often requested during port stay. These include possibilities to perform maintenance shores when berthed, fresh water supply, garbage disposal and oily waste disposal. 3rd section, "During the operations" advices weather there are some restrictions for maintenance or crew exercising and moving around ashore. 4th section "Upon departure" clarifies the local formalities that are done upon departure. Last section "Security/general/support" includes port safety information, agency duty details and national safety regulations that relate to port operations.
6 Validation of the Proposal

This section discusses and presents the stage where the validation of the final proposal was done. It describes the feedback received from the case company after presenting the draft of the proposed service design. Finally, it presents the recommendations for further actions.

6.1 Overview of the Proposal Building Stage

Before taking it to validation, the proposal was built in four phases. First, it collected all relevant details from the study and findings from available literature. After all challenge related and problem solving tools were gathered, the study involved the stakeholders of the case company into the proposal building. After their comments and suggestions, the initial proposal was prepared. The proposal included elements from the discussions with stakeholders, requests about the outcome and researchers own conclusions about the content. As soon as this initial round of proposal building was finished, the proposal was taken into validation for gathering further, final feedback.

When planning the final proposal for improved service design, the co-operation and communication between researcher and the case company was frequent. The findings of the current state analysis and literature review were examined with the stakeholders again, in order to choose further possible improvements. Since the current state analysis contained a significant amount of elements that relate to authorities and are controlled by legislation, therefore it was crucial to scan the study several times in order to avoid mistakes.

During the time of validation discussions, the same stakeholders were present and, direct comments and opinions about the proposal collected.

6.2 Findings of Data Collection 3 (Feedback)

The final proposal for the new service design was presented to the case company stakeholders in a meeting. Before presenting the final proposal, the stakeholders revised the earlier stages in order to ensure all participants of the discussion had the same information to start with and opinions did not change.
The proposal was evaluated and some strengths and weaknesses were identified and the findings were discussed together with the stakeholders. Stakeholders’ evaluation of the proposal, in terms of its strengths and weakness, is shown in Table 12 below.

Table 15. Strengths and weaknesses of the proposed service blueprint.

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factual</td>
<td>Maybe too detailed?</td>
</tr>
<tr>
<td>Includes a lot of data in a summary mode</td>
<td>Is it short enough to be interesting and useful for reviews?</td>
</tr>
<tr>
<td>Opportunity to increase satisfaction among the clients</td>
<td>If needed to alter, how much of the company resources it requires?</td>
</tr>
<tr>
<td>Opportunity to increase visibility</td>
<td>Is the design process requiring special equipments?</td>
</tr>
</tbody>
</table>

As seen from Table 15, some positive and some possibly challenging arguments were discovered after data collection 3. The arguments were discussed and grounded together with the stakeholders. Examples from the validation discussion are shown below:

"Do the captains really have time and interest to view this if it's too thick or detailed? How can we avoid going too detailed?" - Port Agent

"We will utilize the regular captains for trial. They are in dense co-operation with us already and are surely willing to assist." - CEO

Most of the identified challenges are such that they can be tested and trialed after the manual is done and then perform some fine tuning to detail the levels and entities of information segments. The layout was also discussed when evaluating possibilities to utilize in increasing visibility.

Summing up, the following corrections and additions were suggested to the initial proposal: (a) clear segmentation of the process, (b) extent of data applied in the manual,
(c) additional information relevant to crew amusement and spare time was included to the end of the manual. As an essential addition to the initial proposal, the detailed overview of the manual was suggested.

6.3 Final Proposal

This section presents the final proposal corrected based on the suggestions by the case company stakeholders. Data collection round 3 was held to explore some fine-tuning and more specific features that are included in the final proposal.

Figure 11 below shows the final proposal for the service blueprint for a port stay in Finland. The marked areas point to the feedback received from the stakeholders and improvements to the initial proposal done according to this feedback.

The stakeholders provided suggestions to be added to the final proposal. The stakeholders included following additions to be implemented.

*Clear division of stages*, which is designed to make the layout clear and easily readable to anyone reading the manual. All stages and the data related to them from pre-arrival stage to departure stage are in clear order. Another addition was to include relevant information from crew perspective. The manual includes information whether it is allowed to move around in port premises or if they are able to go to local towns.

*Safety information*, which is necessary to the vessel in case of emergency. The manual includes port safety regulations and also national emergency contacts and instructions.
Figure 11. Final proposal for a service blueprint of a port stay in Finland.
As shown in Figure 11, the alterations in final proposal are especially centered on certain segments of the port call process. The segments are on the pre-arrival stage and on port stay related stages. They refer to information exchange and on additional service stage. The stakeholders of the case company provided improvement suggestions and clarification comments to the initial proposal. The received suggestions pointed out that "arrival instructions" are rather large entity and contain a great amount of required and given information.

The arrival instructions were divided into 2 segments, pre-arrival and arrival. This will avoid confusing and make the sorting of the information clearer. The ship handler information was added to port stay area which is called "at berth" in the manual. During the operations segment was altered by adding data that is related to crew and their rights to e.g. move around, visit local tows etc. This type of data is expected to be useful as the matter is frequently requested and enquired during the port stay.

The last segment "Security and general" was broaden by adding subtitles with specified content. The safety segment is partly conducted by terminal foremen who often provide vessels with a documentation collection about safety. It includes e.g. fire safety rules.

Additionally, for the final proposal, some changes were made to the table of content of the manual draft. The segments were made clearer to illustrate the pre-arrival stage, port stay stage and departure stage. The security stage was remained and kept to include general port security details as well as national & local emergency and security details.

The revised table of content is shown in Figure 12 below, changes are highlighted in red.
As shown in Figure 12, in the revised table of content, the changes marked in red were grounded by the need of making the manual structure more logical and easily readable. The last segment was added to provide the vessels some useful details regarding e.g. seamen's mission, possibilities to utilize services of the nearest cities.

6.4 Recommendations

In order to take the proposal to a practical level, the case company staff will need to plan the implementation in details. The researcher suggests some recommendations that help to implement the proposed service blueprint and the port call manual into practice.

First, the planning of the manual, clarifying the frames of the level of details that is utilized in the manual is important. The planning team ought to ask from each stakeholder: "Where is the limit that we don't want to overdo in detailing".
Second, time-wise the best period to start implementing the manual is the summer season as many ports are slowing down and factories are on the summer leave which deducts the amount of regular work.

Third, the layout of the manual is recommended to be designed in such a way it meets following criteria illustrated in Table 16.

Table 16. Features of the proposed manual.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Size</td>
<td>A4 or A5, max</td>
</tr>
<tr>
<td>2. Structure / inner layout</td>
<td>Very clear, precise, shortly described</td>
</tr>
<tr>
<td>3. Graphic features</td>
<td>Company logo clearly visible</td>
</tr>
<tr>
<td>4. Mode of delivery</td>
<td>Print or electric</td>
</tr>
</tbody>
</table>

As shown in Table 16, there are certain features to be considered when taking the proposed manual into the next level, implementation stage. Some details are recommended for practical reasons e.g. size and layout which are preferred to be small and very clear.

Fourth, the practical level of proposed manual can be reached by utilizing same tool that has been presented in this study, service blueprinting. It can also be used in company internal purposes for preparing an internal manual for securing the clearance process from legislation (AREX, Portnet) perspective.


7 Discussion and Conclusions

This section discusses about the results and methods of this study. It summarizes the findings and evaluates whether the desired outcome was reached. It also reviews the meaning of reached practical results.

7.1 Summary

The objective of this study was to create a service design in order to add value to the case company and its customers. The case company of the study is a small shipping enterprise located in Helsinki. The main business segment is cargo chartering but port agency is currently secondary business segment supporting the company operations. The study was executed in co-operation with the agency department. The main repositories were the company CEO and the agency manager from operational segment.

This study focuses on designing a new service to include to the existing service portfolio of a port agency service provider. It explores possibilities to improve the current service offering of a port agency company that is seeking continuous improvement in their port agency services. The demand for a new service design is driven by a need to differentiate from the group of vendors and simultaneously aim to constant value creation. Differentiating from 'standard' enables to expand the customer base and secure the financial stability of the company.

This study starts by conducting the current state analysis of the company and the industry and identifying elements that have room for improvement. Legislation steers the industry fairly much, which causes limitations to elements that are suitable for new service design. Identified elements are then defined and narrowed in co-operation with the case company stakeholders. Existing knowledge on designing a new service is then searched from literature and best practice in order to find tools suitable for service design in this specific context.

The research design comprises five steps that include, first, a definition of the objective and, second, building a research design. Third, the study collected and analyzed data that mainly came from personnel interviews and company internal documentation. Fourth, it scrutinized the available knowledge on the problem, and fifth, built and validated the proposal for the new service.
The outcome of this Thesis is a new service design, which has been executed by utilizing a service blueprinting tool. The new service design was agreed to be a manual that includes all relevant data that is related to port call. The objective of the manual is to provide clear collection of information to captains regarding port of arrival, required procedures and the time frames required from the agency point of view, and additional services that are available in the certain port of call.

The driver for the proposed manual was to improve service and reduce the excessive amount of constantly repeated manually performed work that is done each time a (new) vessel is nominated for entering a Finnish port. The core idea of the manual is to function as a mean of communication that offers the reader the required and relevant information about a certain sea port in Finland. In addition, the last sub-title, useful links & contacts, includes value adding surplus information that benefits the crew members of the vessel when the shore operations are running. It includes useful details about local seamen's mission, shopping possibilities and sports premises.

The case company can benefit from the new design by utilizing the proposed service in a convenient form of a blueprint, coupled with a service manual for arriving vessels. The case company gets advantage from the manual by saving human resources in the pre-arrival stage which includes several obligated tasks related to vessel documentation and arrival details. It also gets more secured internal system by utilizing the service blueprinting in the company's internal process for legislation obligations.

If successful, the approach behind the designed service can also be utilized in other case company services.

7.2 Practical/ Managerial Implications

The purpose of this study was to discover ways to improve the current service portfolio of the case company. The study aimed at suggesting the value adding proposals that could be taken into practical level and modified when needed.

As the outcome of this study presents an improvement to the preparation stage of the port agency process, in a form of a new service design, the objective and outcome meet each other.
7.2.1 Recommendations for Further Actions

The thesis also suggests to think about the next possible steps:

First, co-operation with a third party service provider from an area that is close to stakeholder’s special knowledge and strengths is an area with a wide range of possibilities. The agency service provider can stand out by offering exquisite services that are offered as a combination with a competitive price.

Second, the biggest companies keep dominating the field by pulling the agency fees down, which is a risk to smaller companies because they often can't compete with volumes against the big operators. The smaller companies ought to combine their knowledge and know-how and offer first-class quality service which could exceed the value of lower prices and work as a benefit to the smaller operators that use good service quality as a driver.

Third, if the company wishes to continuously improve and develop value adding services, a customer satisfaction survey ought to be taken. From the customers ashore who are the vessel owners and from the vessels and especially the captains. The services are built in benefit purposes for the company but they are aimed to the customer surface which is worth listening.

Fourth, based on the data collections of this thesis, and the initial and final proposal stages, the researcher recommends some immediate actions and some more long-term changes in order to maintain value creation and constant development of processes. The challenges discovered in the current state analysis (section 3) ought to be taken under examination in order to be prepared in case of an abnormal situation within the company.

Finally, the immediate proposed actions refer to visibility and securing the sustainability of the initial clearance process. The suggested steps regarding securing the process and productizing the manual are followed by marketing strategy for wider visibility.
7.3 Evaluation of the Thesis

This section evaluates the thesis process and research. In the beginning of the study, the objective and a goal was set to develop a new service. The next step was a research design, following by the current state analysis and conceptual framework.

The results of the current state analysis revealed some operational issues that have room for improvements. Some of the revealed issues were related to practical improvements such as utilized mobile and computer programs and software’s and some were more practical such as staff resourcing and time-consuming additional tasks related to clearance.

The discovered element to be improved was mutually chosen, with the stakeholders of the case company, to be the preparation stage of the clearance process and the proposal was related to communication between the agency service provider and nominated vessel which is about to arrive to a Finnish port. Prepared proposal enables to meet the requirements that were given in the beginning of the study. Methods for building the proposal were clear, precise and adaptable and well backed up by literature. The stages of proposal building method, service blueprinting, were explained throughout and it was discovered that the method was very useful in finding bottlenecks from the process.

During the study a surprising element was the bounding significance of the legislation and authorities. The rules and regulations restrict the amount and nature of the elements that could be highlighted as suitable options for improvements. An improvement was suggested for communication between the nominated vessel and the agency. The suggested improvement can be implemented also in internal process after small alterations which can improve the process sustainability and increase the tolerance towards changes in the organization. This increases the long-term relevancy of the Thesis results and proposal.

After a mutual agreement was reached about the strengths and weaknesses (Table 12) as well as key findings (Table 11) the plan for initial proposal was quite straight forward and proceeded well especially after a useable tool was discovered from the literature review. This enabled and required a deeper insight to the process and the plans for initial proposal were satisfying to both the researcher and the case company stake
holders. The initial proposal which was followed by the final proposal were grounded and executed in co-operation with the case company in order to ensure the full accuracy and proper scope.

Overall, the service blueprinting method was discovered to be a suitable solution to revising the portfolio as it clearly served the need and split the complicated and bounded process into smaller segments where the suitable candidate for new design was discovered.

7.3.1 Outcome vs Objective

The main goal of this thesis is to revise the current methods and means of actions in the case company and thus create value. The desired outcome was a revised service design that would increase value for the case company and create a new service design that would differentiate the company from national vendors.

During the study and data collection rounds, a secondary motive and goal was brought up. It was to find a way to make the case company more widely known and thus gain some more visibility in potential customer circle in order to increase the number of annual port calls and vessels.

The outcome of the study was a revised method of communication, a manual including relevant data for arriving vessels. It is called a new service design as even if the process was revised, the essential outcome is a new service design to the case company.

7.3.2 Reliability and Validity

Reliability and validity plan of this thesis was presented earlier in Section 2.4. This section reviews the methods and results in respect of details stated in 2.4 and evaluates the phases of the study.

In an academic paper, validation and reliability aspect is a part of the transparency of the study nature. Being transparent, a thesis ought to include evaluation of internal and external validation. Internal validity assess whether the objective that was set in the
beginning till remains. The objective of this thesis was to create a new service design. In evaluation of following segments, was notable that the given objective was filled.

External value assesses e.g. the usage of available data, and if the study included a sufficient amount of data. During the study, many of available external sources were unitized in order to write coherent text with an academic credibility.

In the same stage, the research approach was chosen to be action research as the business challenge was more practical business challenge than a theoretical one.

For ensuring the validity of this study, the available data sources were utilized as broad as possible within the case company extent. Utilized data was interviews with the stakeholders, documentation and benchmarking the national and international service portfolios of similar service providers.

After the company data was collected, the relevant literature was reviewed. For validation and reliability purposes there was a wide range of sources utilized for building a sufficient theoretical ground for the tool to be utilized in the proposal stage. The conceptual framework (section 4) was collected to support the results of data collection 1, the current state analysis. It gathered some relevant theoretical background and several academic sources were utilized in the literature search. The sources were chosen based on the authors and subjects but also based on reference lists of some other author.

When evaluating whether the study was reliable, and filled the planned goals, evaluation if the objective of the study meets the outcome is essential. In the beginning the objective was set to be a new service design that could support the company need to gain and create constant value by helping to improve the process. The outcome is an instruction manual that in not prior in use in the field, which makes it a new service design. The stated challenge was related to time-consuming additional tasks which was suitable challenge to be tackled with a proposal. As the framework for the study was rather narrow, a wider comparison to vendors in national level and e.g. in Scandinavian level, which has similar conditions, would be worth to consider.

The researcher role during the study kept as a researcher in order to avoid compromising with the stake holders. Though the researcher had a background from the port agency business, the knowledge that the researcher had about the current procedures
was somewhat outdated, which minimized the risk of personal bias to be interpret to the study. Due to the narrow and very specified framework the study, some data that has been utilized in this study is not available for viewing. Part of previously mentioned data is classified as company secrets and some are related to persons who are not present in this study. This causes a risk of errors but as the extent of unviewable data is small, it does not compromise the study.

Based on characteristics listed above, the 7 sections of the Thesis are designed and utilized the way that the concept of a valid academic research is filled. The reliability and validity of this Thesis is evaluated one more time in the last section of this study (Section 7.3.2) after the final proposal stage is completed.

Descriptions of validity and reliability in this Thesis, refer to the aspects of reached results and used research methods. As the results were relatively clear, with practically no room for interpretation, in this study, the same result would have been discovered if the research were conducted another researcher. Therefore can be interpret that the study is executed in a valid means.

The utilized method, service blueprinting, for revised portfolio was very unequivocal and clear, which ensures that the same results would come up in case the study ought to be repeated.

7.4 Closing Words

This study was commenced as a small company wanted to expand their service selection and create a service that would help them stand out of the crowd and thus create value by offering valuable additional services to offer to their customers. Therefore the study has been very current and relevant to the case company. The port agency business is framed by the legislation thus a notable care had to be taken in order to stay within the unrestricted area when searching for elements that had room for improvements.

This study also revealed a need for internal process alteration since during the data collection rounds was discovered a gap in internal process sustainability, which can be altered with the same tool that has been utilized in the initial and final proposals. The
tools presented in this study have been considered useful and have been adopted to the company practises.
References


## Interview questions and answers (excerpts).

<table>
<thead>
<tr>
<th>Topic/section</th>
<th>Questions</th>
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</table>
| **Basic Information / Introduction** | Backgrounds / positions of the Interviewees?  
- CEO  
- Agency manager  
- Combination transportations - manager  
- Agency member |
| **Tell about the Case Company background/history information?** | Details in 1.1 |
| **Tell about the company operational field?** | The company is currently in 2 lanes, one is chartering cargoes and the other is port agency. |
| **Tell about the current business situation (from the agency point of view)?** | The global economic situation has struck to logistics and it hits us from 2 directions, 1 is industry which doesn’t need large cargo spaces anymore and the other is a regular consumer who does not but stuff because the situation is uncertain. |
| **Describe the company’s current position and if You foresee any major changes in the future?** | In main areas the trend is stable and basically the agency branch is working well and stable, but it never hurts to improve. |

### Current state analysis

*Replies inserted to section 3*

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<tr>
<td><strong>Describe the port agency clearance process?</strong></td>
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<td><strong>What is the role of the agent in a port call?</strong></td>
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<td><strong>What are the required tasks? And the additional?</strong></td>
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<td>(Describe the most important additional ones)</td>
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<tr>
<td><strong>Tell about the cargo operations.</strong></td>
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</table>
Are there any special features related to "classic" port call?

### Initial Proposal

| Are there any first hand opinions? Feedback? | CEO: To me it looks good, I am quite confident we can get real benefit from this after we start to plan and build it forward. |
| Are there any immediate change requirements? | Staff member: It has potential but I fear that it is lost in spam box or similar. |
| Any immediate challenges regarding the proposal? | Staff: Nothing comes to mind now, but I’m sure we are able to modify to fit us best after we get used to it and acquainted. |
| Well, we are a small company, and we do not wish to make the current process more complicated as it already is. | CEO: We just have to sit down and plan the time to start working with this and name the responsible person to make sure it won’t be buried into piles. |
| It would be practical to be able to get a tool which could solve both of the problems, internal and external. | Unfortunately, there is only a small number of options to choose for the study. |
|  | We tend to keep the systems simple, that way we can assure the usability. For example, when we send data, which is in a form of an excel file, we know that most can read our data. Many if not all can open it, but if we would utilize a ready-made application, we cannot be sure the recipient can open the file we sent. |
## Average dates of setting Restrictions to Navigation 2003-2015

<table>
<thead>
<tr>
<th>Country</th>
<th>Average Date</th>
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<tr>
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<td>North Sea</td>
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### Notes
- The average dates are calculated based on historical data from 2003 to 2015.
- The data includes various regions within the Baltic and North Seas.
- Specific dates may vary based on regional and international agreements.