

Master's thesis

Master of Culture and Arts

Leadership and Service Design

2016

Valtteri Wilén

CAPITAL COST REDUCTION OF ASSET PROCUREMENT AS A DIGITAL SERVICE

– For shipping and marine industry



MASTER'S THESIS | ABSTRACT

TURKU UNIVERSITY OF APPLIED SCIENCES

Leadership and Service Design

2016

Valtteri Wilén

CAPITAL COST REDUCTION OF ASSET PROCUREMENT AS A DIGITAL SERVICE

- For shipping and marine industry

This thesis study was made to develop a digitalized service concept of asset procurement for shipping and marine industry. Work was made with the service design, research and related theory. The service design case was to develop a digitalized on-line service concept from the commissioner's idea to improve the current procedure in asset procurement. The service itself was designed from "green field", from ground up and had no existing platform to build on. The commissioner of the thesis is Marinecycles Oy.

The study was conducted with the service design tools using co-creative working method with all the stakeholders, benchmarking existing digitalized services and competitors, using qualitative methods in research and user interviews. By using the service design process through the case, it became possible to give the service idea a framework, from where to build the concept. The service design process validated the concept together with end-users and created a foundation for prototyping and piloting the service.

The study concluded that there is an actual demand and interest for this kind of service in the market. This process also added new insights. The concept will be utilized by the commissioner as they will take it in further development and begin the prototyping and piloting with the service.

KEYWORDS:

Service Design; Service Design Thinking; Leadership and Service Design; Digitalized Services; Marine Industry

CONTENT

LIST OF ABBREVIATIONS

1 INTRODUCTION	1
2 MARINECYCLES OY	2
3 RESEARCH PROCESS	3
3.1 Research Subject	3
3.2 Research Questions	5
3.3 Frame of Reference	5
3.4 Thesis Process	6
4 SHIP PROCUREMENT	9
5 SERVICE DESIGN	13
5.1 Competitors and Other Digitalized Services	13
5.1.1 Shipsu.com	13
5.1.2 Valtra tractors	20
5.1.3 Venuu.fi	28
5.1.4 Shipserv	34
5.2 Co-Design / Co-Creation	38
5.2.1 Stakeholder Map	42
5.2.2 Business Model Canvas	44
5.2.3 Personas	45
5.2.4 Service Blueprint and Customer Journey	47
5.3 Operator Interviews	51
5.3.1 Interview Analysis	53
6 PROTOTYPING	60
6.1 Agile Development	60
6.2 Testing	71
7 CONCLUSIONS	72
SOURCES	76

FIGURES

Figure 1. The Theoretical Frame of Reference.	5
Figure 2. Thesis Process Chart.....	6
Figure 3. Shipsu.com – Analysis.....	20
Figure 4. Valtra Tractors – Analysis.....	28
Figure 5. venuu.fi – Analysis.....	33
Figure 6. Shipserv – Analysis.....	38
Figure 7. The Stakeholder Map.....	43
Figure 8. The first version of the Business Model Canvas.....	44
Figure 9. The second version of the Business Model Canvas.....	45
Figure 10. The first vision of the Personas.....	46
Figure 11. The second version of the personas.....	47
Figure 12. Customer Journey Map. First attempt to visualize the service.....	48
Figure 13. First draft of the Service Blueprint after the Lahnajärvi session.....	49
Figure 14. Iteration of Service Blueprint & Customer Journey.....	50
Figure 15. Customer Journey Map – Owner / Operator (imaginative)	51
Figure 16. Comments on the Service Blueprint Draft.....	57

PICTURES

Picture 1. The Double Diamond. (Thecreativeindustries web).....	7
Picture 2. Double Diamond, by Koishin Chu. (Service Design Vancouver web)	8
Picture 3. Marine lifecycle today, ABB. (ABB web).....	10
Picture 4. Maersk Interim Report Q2 2016 (Maersk web).....	11
Picture 5. APAC Cruise Market Capacity Growth 2008–2016 (Cruiseindustrynews web).....	12
Picture 6. The main view of Shipsu user interface. (Shipsu web)	14
Picture 7. The registration page of Shipsu service. (Shipsu web).....	15
Picture 8. Buyer side of the user interface. (Shipsu web).....	16
Picture 9. Provider side of the user interface. (Shipsu web).....	17
Picture 10. User interface for Project Inquiry tool. (Shipsu web).....	18
Picture 11. User interface for Market place. (Shipsu web).....	18
Picture 12. User interface for list of Providers. (Shipsu web).....	19
Picture 13. The main view of Valtra user interface. (Valtra web)	21
Picture 14. The tractor menu by model types. (Valtra web).....	23
Picture 15. Starting point of tractor configuration after the model is selected. (Valtra web).....	24
Picture 16. The second step. Configure the framework options. (Valtra web)	24
Picture 17. The third step. Configure the drivetrain options (Valtra web).....	25

Picture 18. The fourth step. Configure the hydraulic options (Valtra web)	25
Picture 19. The fifth step. Configure the three point lift options (Valtra web)	26
Picture 20. The sixth step. Configure the cockpit options. (Valtra web)	26
Picture 21. The seventh step. Configure the tire options. (Valtra web)	27
Picture 22. The main view of Venuu user interface. (Venuu web)	29
Picture 23. The view from first page of space provider user interface. (Venuu web) ...	31
Picture 24. The user interface view for space seeker after some selections made. (Venuu web)	32
Picture 25. The landing page of the Shipserv service. (Shipserv web)	35
Picture 26. The supplier sign-up page of Shipserv user interface. (Shipserv web)	36
Picture 27. The operator page of Shipserv user interface. (Shipserv web)	37
Picture 28. Facilitated co-design session at Lahnajärvi.	39
Picture 29. The SWOT-analyses and the four-field task.....	41
Picture 30. The “Silo” tool.	42
Picture 31. The installed test server.	60
Picture 32. First, un-modified installation of WordPress.	61
Picture 33. General settings.....	62
Picture 34. Writing settings.	62
Picture 35. Reading settings.	63
Picture 36. Discussion settings.	63
Picture 37. Media settings.....	64
Picture 38. Permalink settings.....	64
Picture 39. Askismet settings.	65
Picture 40. Site Origin Page Builder settings.....	65
Picture 41. Pre-installed themes that were removed.	66
Picture 42. Chosen theme installed and ready for build.	66
Picture 43. Clean, unmodified theme look, this is where the design begins.....	67
Picture 44. Internet usage per device. (Smartsights web)	68
Picture 45. Device form factor comparison. (Flurry analytics web)	68
Picture 46. First edition of website in desktop / laptop view.....	69
Picture 47. First edition of website in tablet and mobile phone views.	70

LIST OF ABBREVIATIONS

Abbreviation	Explanation of abbreviation (Source)
CRM	Customer Relationship Management (searchcrm web, Wikipedia web)
SRM	Supplier Relationship Management (searchsap web, Wikipedia web)
BMC	Business Modell Canvas (Stickdorn & Schneider 2011, 212–213; Tuulaniemi 2011, 175–179)

1 INTRODUCTION

The asset procurement in Marine Industry has been similar for years. Marinecycles had an idea to change it with the digitalized service with connections to the current offering. The aim of this thesis study will be to develop a concept and first on-line mock-up of this service. In future this service would become a digital brokerage to bring together owner/operators and suppliers. The service would offer business intelligence, possibility to compare prices and feature of products and services. In the future development versions it is possible to introduce options for consumer relation management (CRM) for suppliers and supplier relations management (SRM) for owner/operators.

In the discussions with the commissioner it became obvious that they did not really have a frame for their idea. Too much info was missing or it was undefined with too many open-ends. The service design tools with co-design working method would allow to accomplish this task and deliver validated results. Co-design will be used with all the stakeholder groups, with Marinecycles who has knowledge of the supplier side of end-users and also with end-users in owner/operator side.

Service piloting, user testing and evaluation as well as CRM and SRM option development were excluded of this thesis work and left for the commissioner to execute. This work will end on the first version of the on-line mock-up. The results of this study will offer the commissioner also a possibility to have conversations with investors.

2 MARINECYCLES OY

Marinecycles Oy is a maritime sector transform leadership and management support company. The company is a start-up and it was founded in 2015 in Helsinki, Finland. The clientele of the company is on one hand shipping companies with active capital expenditure programs and marine operational needs. And on the other hand the clients are marine industry companies focusing on shipping and oil & gas offshore sector. These can be both established actors and newcomers into the maritime. Most of the clients are mid-cap companies with strong growth focus, but selected corporations and start-ups are also served. Operation is around northern hemisphere, currently activity is in the USA, Finland and Japan. (Personal communications: V. Marttinen, 2.8.2016, 22.8.2016)

What directs the companys daily activity is bringing supply and demand together in shipping and maritime industry. This includes analysis of supply and demand future development on different maritime segments and weekly support to actors that value the support served by the company. Currently the service is based on face to face activity, phone calls and e-mails. In order to boost the efficiency, increase the created value and to secure the capture of this value, a digital service is planned as tool for that in the companys future. (Personal communications: V. Marttinen, 2.8.2016)

3 RESEARCH PROCESS

3.1 Research Subject

The research will be made within marine cluster, among the relevant stakeholders who participate in shipbuilding process. Stakeholders such as owner/operators and suppliers. The research will be conducted by using benchmarking, co-design process with the service design tools, contextual interviews as well as desk research with literature and internet sources. Study will start by getting familiar with the context, to understand the basics of the asset procurement in shipping and marine industry with desk research of literature and internet sources.

In the beginning of the process the first versions of the service design tools will be filled based on the discussions with the commissioner. The tools were chosen so that they would give the best possible input for this research work. It became obvious that the information that was gathered from the meetings with commissioner had deficiencies. The story was not there, and nobody could exactly pinpoint what was necessary for the service and what was not. Commissioner had no clear idea of the business model of the service. They only had the main idea of what the service could possibly do, and who would it possibly benefit. Finding these undefined supplier needs will give a definition of the problems that need to be solved in this process first. When these uncertainties in many aspects of the service will be surfaced, it will be crucial to find the best way to find the answers and solutions to solve them. Facilitated co-design session will be arranged for this purpose, as the commissioner needs someone to coach them through their thought processes. The tasks for this session will be planned to define the business model of this service and to fill in the blanks still left open in other service design tools. This session will help to pinpoint the key factors for the supplier side of the service and also will allow to cut the useless data from any further research.

Based on the results of facilitated co-creation and analysis of it, the research could proceed. Workshop surfaced new subjects that were lacking definition in the owner/operator side of the service. Interviews will be needed to deliver the lacking

information. One more co-creative session will be arranged with the commissioner and it will be held to create the interview questions for the owner/operators. Contextual Interviews with owner/operators will be the second subject for this research.

Contextual interviews with users and desk research will deliver the answers to subjects that were left undefined after the facilitated co-design session. The interviews will validate the results that were discovered with co-design. Useful information will be gained from three different stakeholder groups, that all represented the different Personas (Figure 7). Interviews will also surface new insights from the users. The entire service design process from the first discussions ending up to the facilitated session and stakeholder interviews was an iterative process. How the process developed with all individual service design tools is demonstrated in Chapter 5.

Benchmarking will be used as a research method in this research to study the competitors, to understand better how the existing solutions and industry best practices have been used in asset procurement generally. It was also needed to study what kind of user interfaces are being used in other digitalized services and it was included in benchmarking as well.

After all the research will be made and analyzed, it will become possible to create a framework for concept and begin the agile development of the prototype. First prototype will be built directly on-line, so it would be agile to continue the development based on the user feedback. The features in the first on-line concept will be completely based on this study and the development of it will be continued based on the feedback received from the users. The research work also validated that there is a market demand for this kind of service. The agile development of prototype was the third subject for this research.

3.2 Research Questions

1. What are the needs for the owner/operators in ship procurement?
2. What are the needs of the suppliers when they offer their products/services to owners/operators?
3. Which actors would benefit the service?

3.3 Frame of Reference

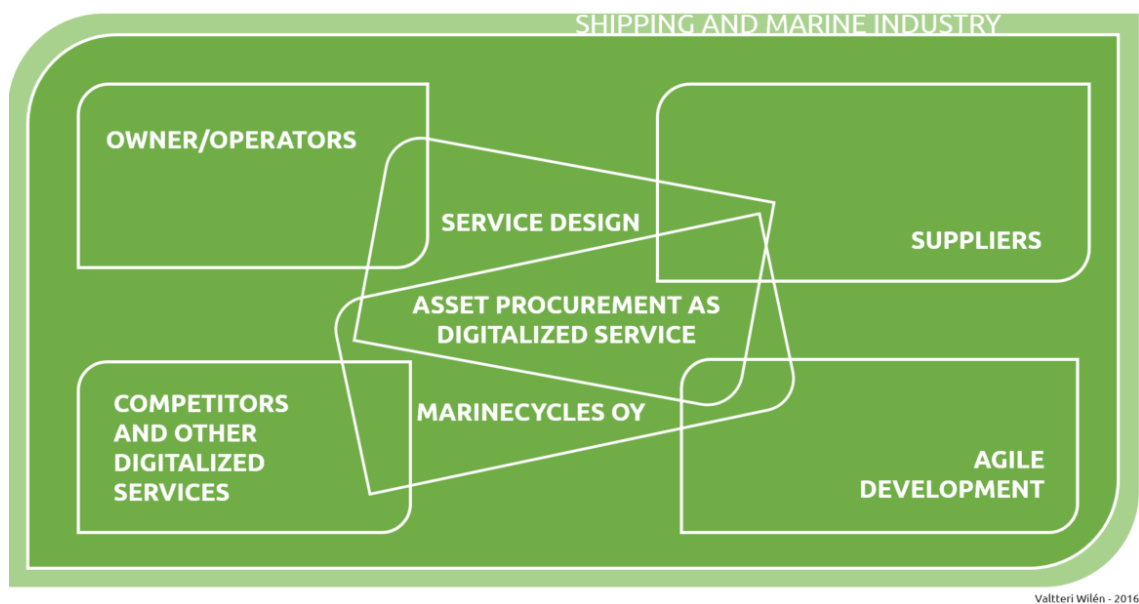


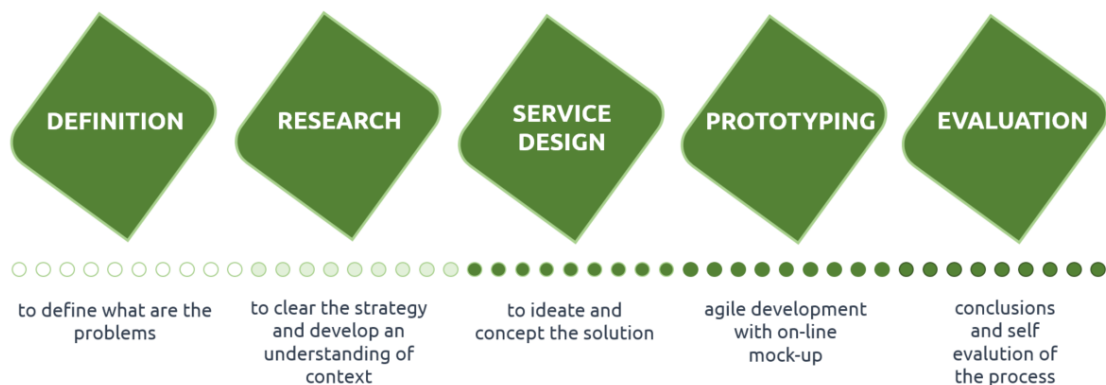
Figure 1. The Theoretical Frame of Reference.

The main context of this work was asset procurement in shipping and marine industry. The service itself, Asset Procurement as Digitalized Service (Figure 1) constitutes from the following five aspects: 1 – The users of the service, which are the owner/operators

and suppliers. 2 – The provider of the service: Marinecycles Oy. 3 – Competitors and other digitalized services that have similarities with this service. 4 – The process and tools that were used to developed this service: Service Design. 5 – The method it was prototyped with: Agile development method.

3.4 Thesis Process

PROCESS CHART

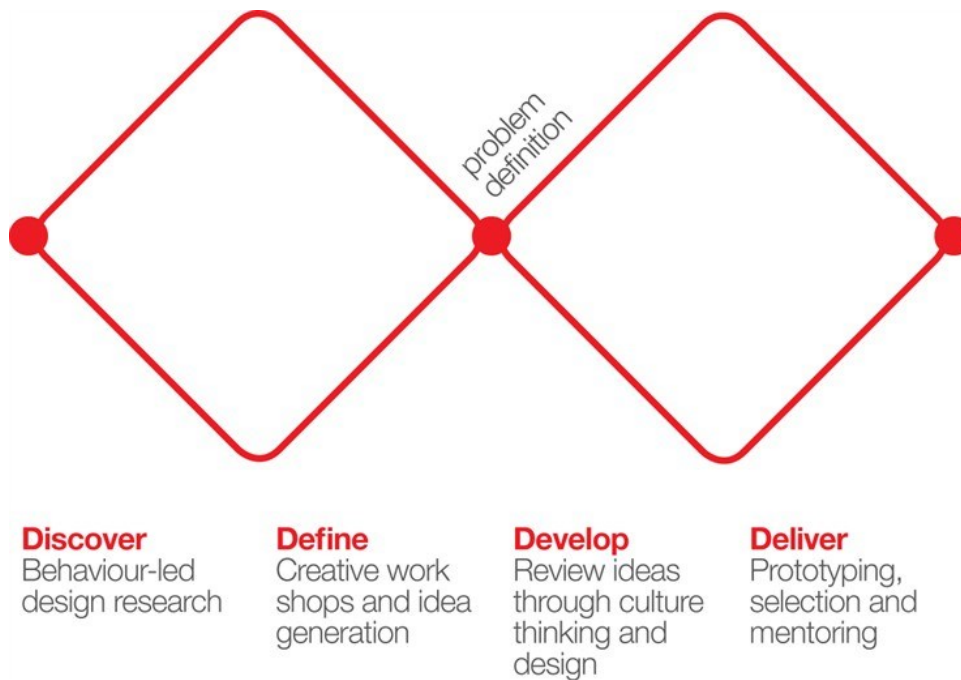


Valtteri Wilén - 2016

Figure 2. Thesis Process Chart.

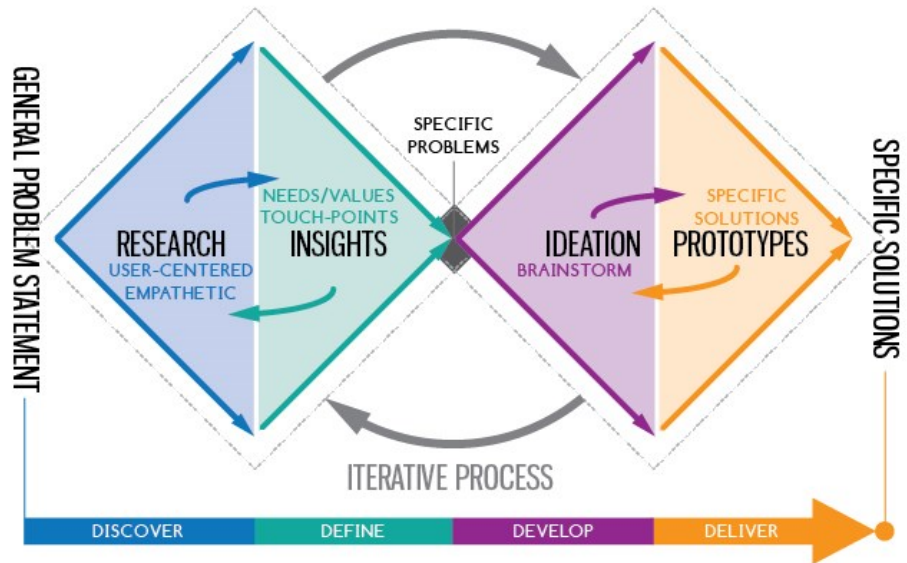
In the *Palvelumuotoilu* (2011), Juha Tuulaniemi describes the service design process containing five steps. 1. Specification: To define what the problem is that needs to be solved? 2. Research: To clear the strategy and develop an understanding of context. 3. Service Design: To ideate and concept different solutions. 4. Service Production: To take the service to the market for customer testing and piloting. 5. Evaluation: To evaluate the success of the development process. Using Tuulaniemi description, this study concentrated on the first three steps of this Tuulaniemi service design process, while number four; Service Production (piloting and customer testing) and number five; Evaluation, were excluded from this thesis work. (Tuulaniemi 2011, 127–131)

However, even if the structure of this study did not follow Tuulaniemi description, it still had five steps in it. There are other ways of describing the service design process also. A description called Double Diamond (Pictures 1 and 2). Neither of these descriptions were directly equivalent to this study process (Figure 2), but it was a type of combination of these two descriptions. The service design as a process compared to industrial design does not proceed in straight path. It does not have processes as typically in product design. Comparing these two further in generalizations, the service design discourses with intangible subjects, where the industrial design deals with tangible. The service design is user centric, co-creative process which participates all the stakeholders in the design process when industrial design is more designer driven and designer centric process. (Stickdorn & Schneider 2011, 124–127)



Picture 1. The Double Diamond. (Thecreativeindustries web)

Double Diamond DESIGN PROCESS



Service Design Double Diamond Process by Koishin Chu is licensed under a Creative Commons Attribution-Non Commercial-No Derivatives 4.0 International License. Based on a work at <http://koishinchu.com>. Permissions beyond the scope of this license may be available at <http://creativecommons.org>

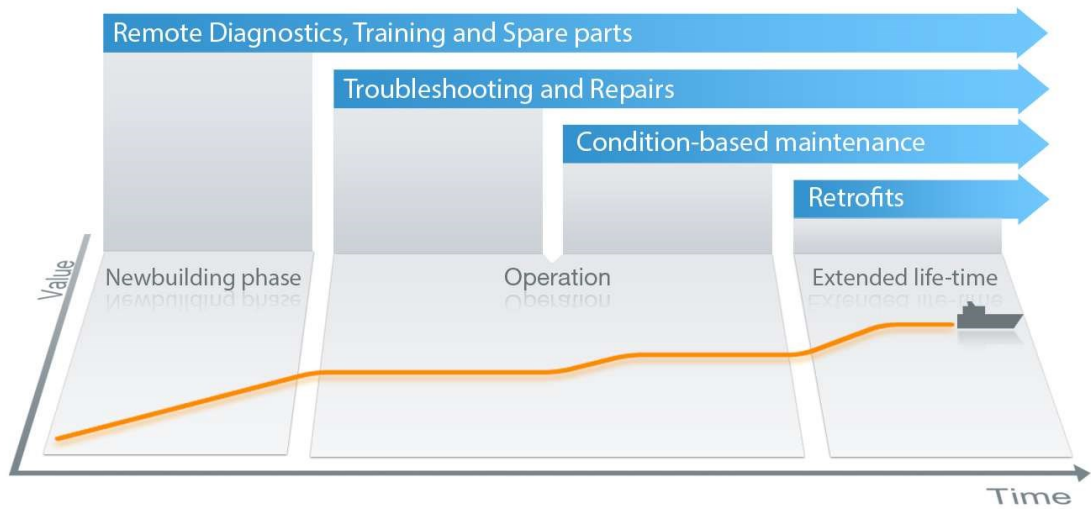
Service Design Vancouver
building innovation + value for businesses and people

Picture 2. Double Diamond, by Koishin Chu. (Service Design Vancouver web)

4 SHIP PROCUREMENT

The current way of ship procurement is shipyard driven. The shipyards control the whole process from design, financing, subcontractor management up to the actual building process. The cost structure of the current process is not transparent for owner/operators and the shipyards have multiple ways to manipulate the costs and processes. Because of this the shipyards prefer building ships in series. That way shipyards could use the same design for all the ships and use all their existing production processes without the need to re-design them in between production of ships. (Räisänen 1997, chapter 31 1–9; Räisänen 1997, chapter 32 1–4; Personal communication: M. Harki, 28.4.2016.)

The current activity in the market for cargo ships has been stagnant for few years. This is a result of an investment boom in the Europe that happened in beginning of the 21st century, approximately during years 2003–2008, for traditional dry cargo ships. All these ships were built in China and there were several new shipyards established only because of this. This rush was result of banks and common citizens from higher income class in Central Europe financing a great number of ship procurements. Especially in Germany where there was a system that gave taxation reliefs for ordinary citizens when they invested in ship procurement. This taxation relief was utilized tremendously by the citizens. All the while the costs were low, the market was rising strongly as were the prices along with the demand. All these ships which were built during this boom were based on old technique from 1980's. Ships were manufactured with old designs, blueprints and plans in order to keep the expenses as low as possible. No-one invested into new, not even updated or improved the old plans and designs. This led to situation where no new innovations were made for the whole industry for several years. And all these multiple investments happened also without anyone actually following or controlling the actual demand on the markets. No one was aware of the real need for cargo arsenal and what was the real demand for freights and cargo capacity on world markets. In this situation all these stakeholders increasingly invested in cargo ships without having any information of what others were doing. Situation was unbearable in long run and it led into massive oversaturation of cargo vessels in markets during years 2007–2014. And all that tonnage was built based on old technology. Normally a lifecycle (Picture 3) of cargo vessel is 30 years before wreckage.



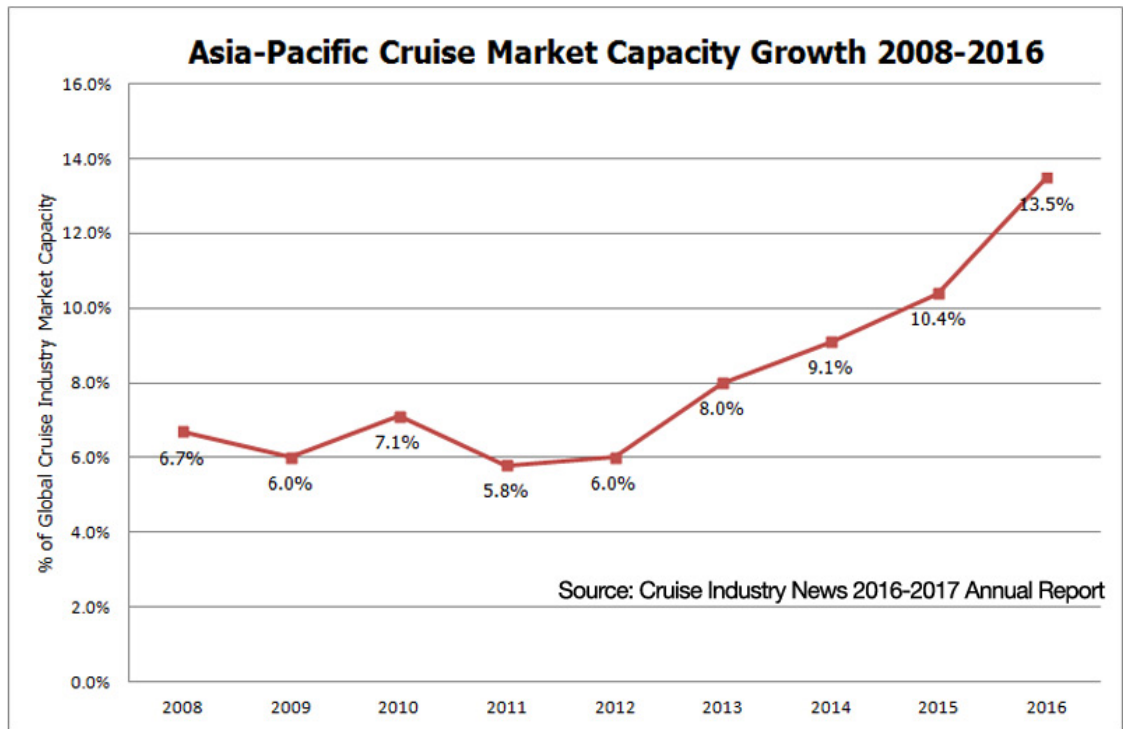
Picture 3. Marine lifecycle today, ABB. (ABB web)

Today, with excess capacity of past years, there is also lots of 30-year old and even older tonnage still operative. This tonnage is not cost-effective to operate anymore, but it was built during high world economic cycle and because of that they were expensive as procurements. That connected to the stagnating need of cargo capacity and the low value of wreckage today when steel prices have dropped rapidly, they are needed to keep operational still. (Personal communication: J. Mälkiä, 9.5.2016; Business insider web)

	USD million		
	2016	2015	Q2 Change
Revenue	8,861	10,526	-16%
Profit before depreciation, amortisation and impairment losses, etc.	1,779	2,631	-32%
Depreciation, amortisation and impairment losses, net	1,294	1,223	6%
Gain on sale of non-current assets, etc., net	111	68	63%
Profit before financial items	656	1,539	-57%
Profit before tax	502	1,459	-66%
Profit for the period	118	1,086	-89%
Underlying result	134	1,099	-88%
Cash flow from operating activities	940	1,777	-47%
Cash flow used for capital expenditure	-614	3,075	-120%
Return on invested capital after tax (ROIC), annualised	2.0%	10.2%	

Picture 4. Maersk Interim Report Q2 2016 (Maersk web)

The world largest shipping company, Maersk released its latest interim report from Q2 2016 during this study and it shows how the world market is declining currently and how it influences in shipping business (Picture 4). All this is a result of trade slowing down between the EU and China and also between the USA and China. In reference to the state of the current tonnage of cargo ships, which is outdated and needs to be modernized, it can be forecasted that approximately within three to six years there is going to be high demand on well operating and modern tonnage of cargo ships. The cruise ship market is active at the moment and it is forecasted also to remain that way in near future (Picture 5). (Personal communication, J. Mälkiä, 9.5.2016; Business Insider web; cruiseindustrynews web; cruisemarketwatch web)



Picture 5. APAC Cruise Market Capacity Growth 2008–2016 (Cruiseindustrynews web)

5 SERVICE DESIGN

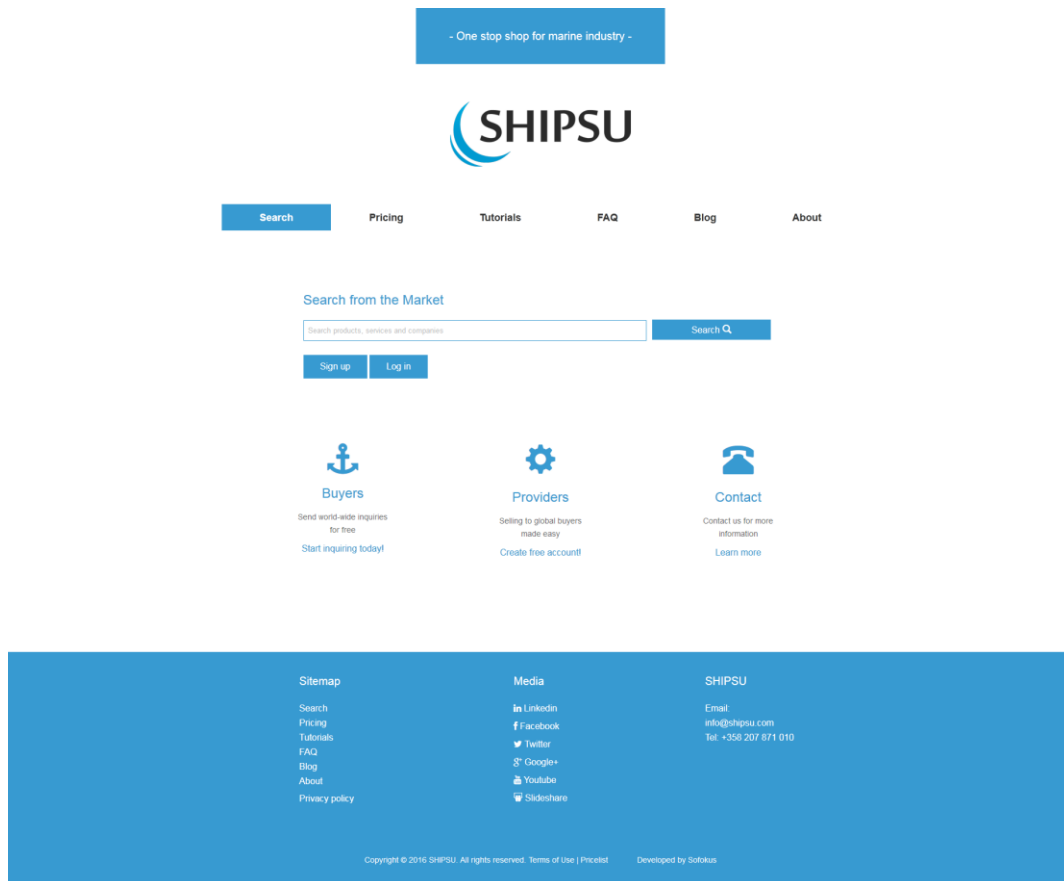
5.1 Competitors and Other Digitalized Services

Benchmarking was chosen as a research method, because it allows learning from the best solutions and industry best practices that are already available and perhaps allow to validate the made decisions. It also helps to learn and understand the operating environment where service is developed to. Benchmarking could lead into finding of a “blue ocean” for the service and it allows to better understand the strategic choices that needs to be done. These services were chosen for benchmarking from existing direct competitors and from other digitalized asset procurement services. On-line services that had similar kind of two-sided user interface qualities (with two separated customer journeys) that was planned to be developed in this service were also benchmarked to understand how they deliver their services. Things that were analysed and learned from in these benchmarks were the how the user interface functioned, general usability of services and the structure of the customer journey of the service. (Tuulaniemi 2011, 138–139; Lahti UAS web)

5.1.1 Shipsu.com

Shipsu is digital service to sell and buy products and services for marine industry and it deals with industry sales and sourcing. The service is divided for two sides, buyers and providers. And the provider side further to Provider Lite and Provider Premium for which the latter gives you all the benefits of the service and Lite is more limited and recommended for new provider customers of the service. With benchmarking it was found that the main difference with Shipsu and the service under development is that where Shipsu is a platform to buy and offer marine industry products and services in

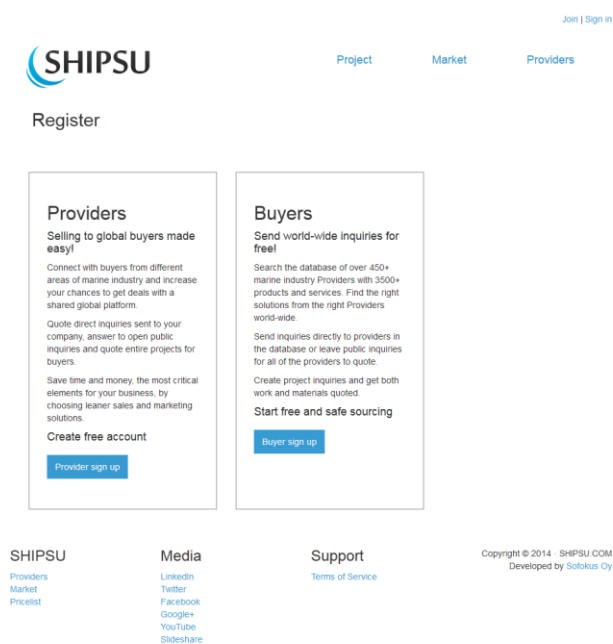
project basis, our service is a platform to buy the whole ship or refurbishment project of a ship, not separate parts of it. (Shipsu web)



Picture 6. The main view of Shipsu user interface. (Shipsu web)

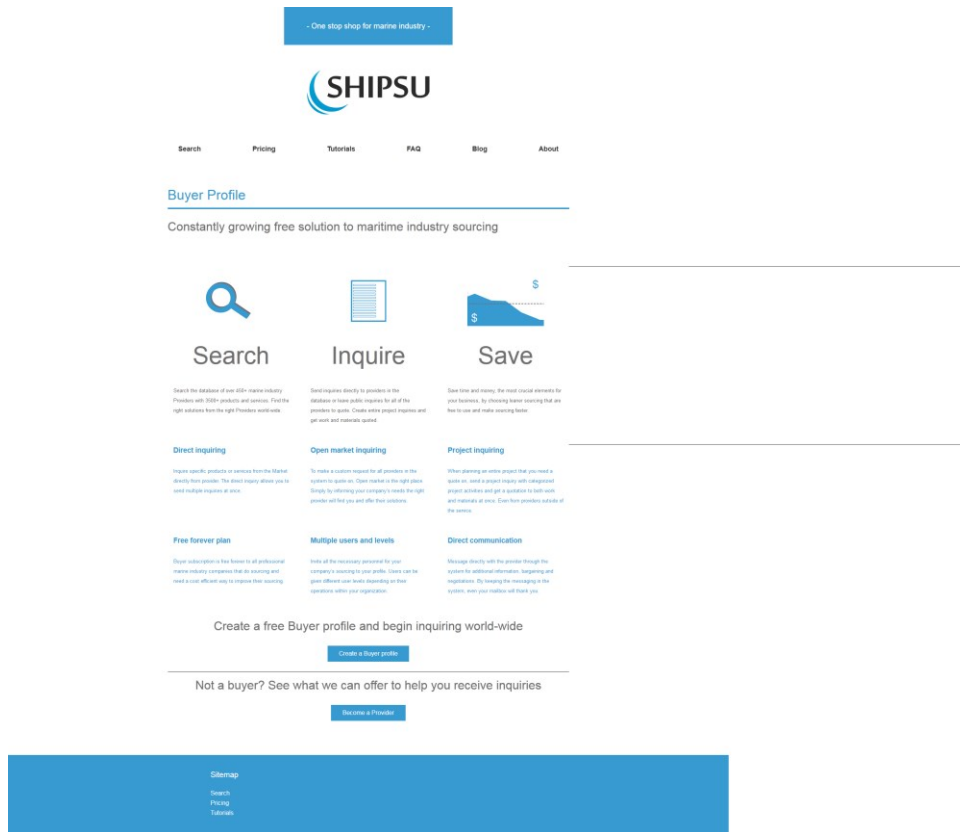
The landing page of Shipsu is straightforward (Picture 6). It has sections as follows: branding, menu, search, registration/login, and quick links to Buyers, Providers and Contact and footer section contains Sitemap, Media links and Contact info. Landing page is responsive and works in both computer web browsers and mobile devices. Customer journey of Shipsu.com is not quite clear. The pricing of the service cannot directly be found on the landing page, but prices are hidden under the link. Also the “Project Inquiry Tool” (Picture 10) and “Market place” (Picture 11) do not open up directly from the landing page, but are hidden somewhere further in the website. When you first

arrive in the page you do not even get info of the existence of these at all. That is a usability fault. They are also excluded from the Sitemap that is located in the footer section of the landing page (Picture 6). This makes the user experience of the service feel disorganized and the interface unintuitive to use. Also the Service part of the website (Pictures 7, 8 and 9) is not responsive and because of that, it does not work in mobile devices. It is apparently also located in different server or database completely, so it can create some problems with the synchronization of them, as well as challenges in the situations when the other server/database is inaccessible.

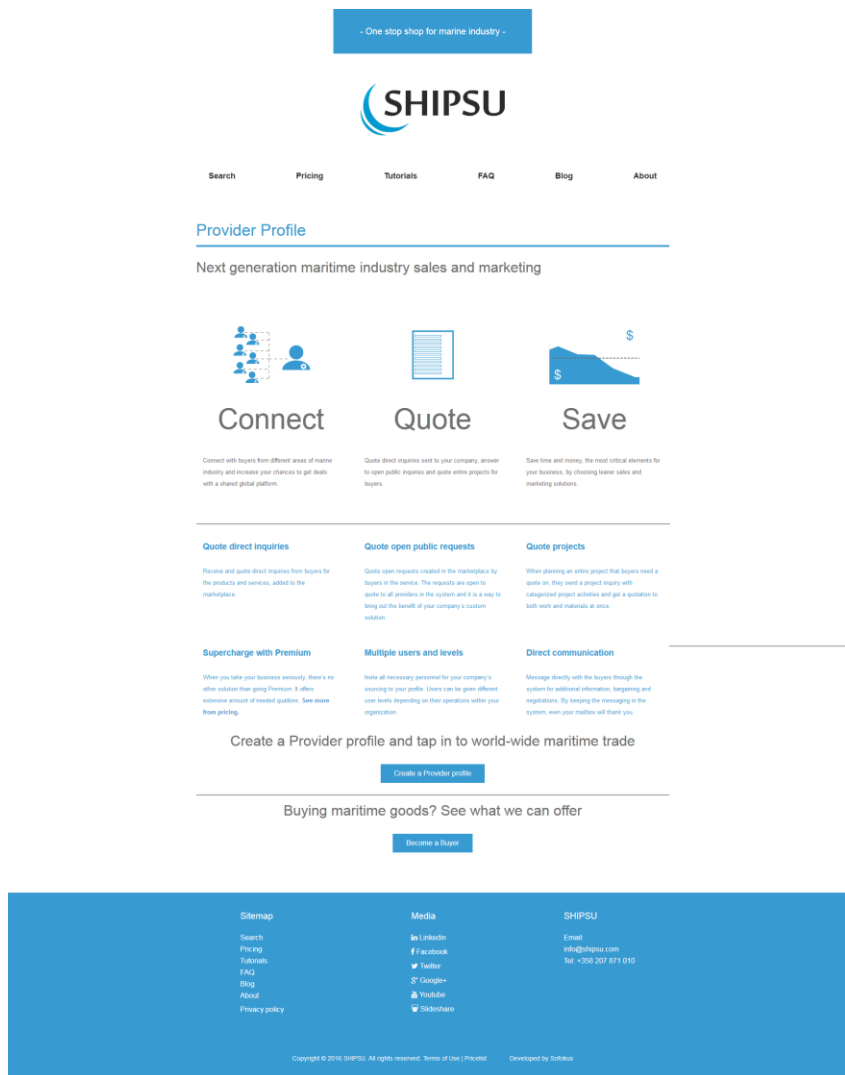


Picture 7. The registration page of Shipsu service. (Shipsu web)

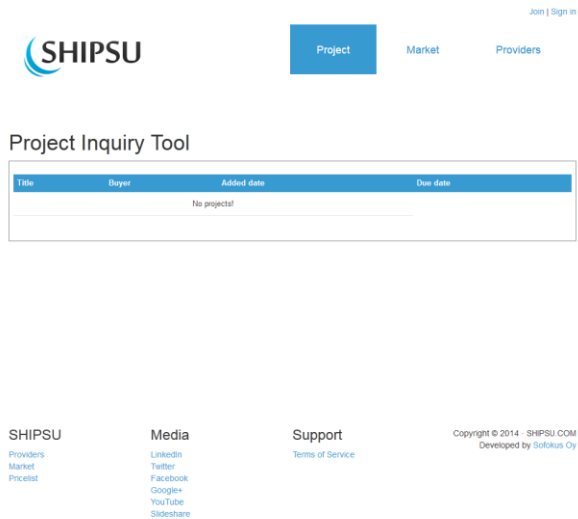
In the registration page (Picture 7) there are links for both sides of the service and short instructions of how to use both. User interface in this page is quite clear and easy to understand and use intuitively. The support for user is also accessible under these links. How the support works, was not tested.



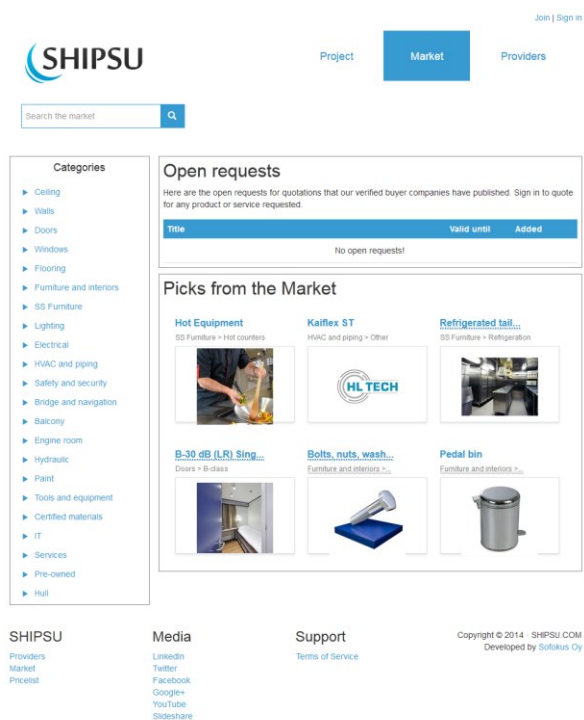
Picture 8. Buyer side of the user interface. (Shipsu web)



Picture 9. Provider side of the user interface. (Shipsu web)

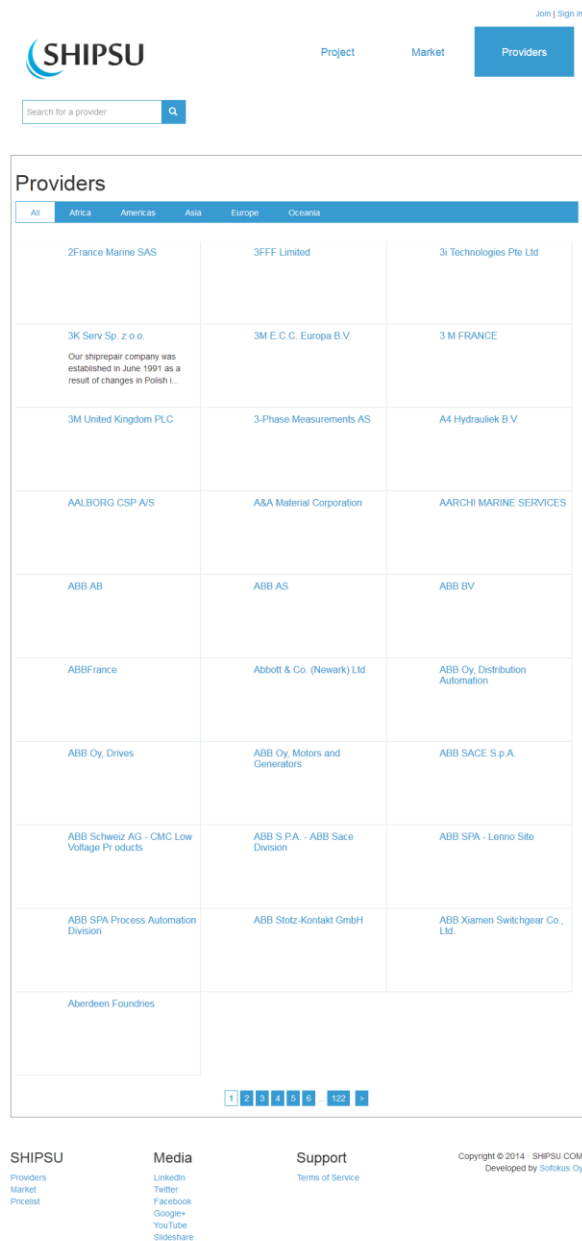


Picture 10. User interface for Project Inquiry tool. (Shipsu web)



Picture 11. User interface for Market place. (Shipsu web)

Project Inquiry Tool (Picture 10), Market place (Picture 11) and Provider listing (Picture 12) all have User Interface that feels outdated with its static, non-responsive design and old fashioned 1990's website styling which were built with tables analyzed further in (Figure 3).



Picture 12. User interface for list of Providers. (Shipsu web)

	USER INTERFACE	USABILITY	CUSTOMER JOURNEY
<i>Pros</i>	Not much to mention here. Fonts are readable and overall look is uncluttered.	Not much positive to say. Small parts of the service is working "ok".	Service is divided to two separated Customer journeys.
<i>Cons</i>	Badly outdated and unintuitive UI which combines static and responsive design and is very unintuitive logic. Sitemap located in footer section of landing page does not include all the relevant links either.	User needs to jump around the website for information and finding different things such as prices, market place and project inquiry tool is difficult. Static parts of service are unusable with mobile devices. Service is divided between two servers. What if the other one is down?	Neither of the Customer journeys is not following understandable path. And user has to step outside the path to find things.
<i>Things to learn?</i>	Having service combining both static and responsive web design is not good way to structure on-line service. Search and Sitemap options needs to be up to date and they need to deliver needed information.	Having a digital service means that provider has to follow the changing ways that the users are using the service and react to these needs accordingly to keep the service usable. New technologies create new usability challenges. You need to keep your service in one server to avoid problems. Support needs to be available for the users all the time.	Continuous development is extremely important. Service provider can not put up an on-line service and leave it as it is to outdated itself. Well built, and updating customer journey is mandatory task when developing a good user experiences. Good customer journey makes searching things unnecessary.

Figure 3. Shipsu.com – Analysis.

The analysis of this service (Figure 3) brought up insights how well constructed customer journey would affect the usability and user experience tremendously. Having a logical and well thought customer journey would reduce searching info or make it needles all together. It became clear that on-line service outdates itself fairly quickly if the customer journey is not developed constantly to keep the user experience in satisfying level. Analysis also pointed out few technical things to avoid when structuring the service. Such as using two separated servers to run one on-line service and combining static and responsive web design.

5.1.2 Valtra tractors

Valtra is a manufacturer of machines for farming industry and Valtra tractors offers possibility to make asset procurement with their digitalized service. This is the reason it was chosen as a benchmark for this study. At Valtra they have built their on-line presence in a way that allows it to be used as a tool for finding a perfect machine for your needs. The user interface guides you through the services customer journey logically and intuitively. All the touchpoints are easy and logical to understand through the service, but the usability of the service is suffering the fact that the service is not fully responsive. Service is also working in two different servers as Shipsu.com that was analyzed earlier. (Valtra web)

In the landing page of Valtra website (Picture 13) there is a dropdown menu which guides user to choose what kind of tractor is most suitable for their specific needs, based on few criteria that the user fills. With chosen criteria the service gives you the available options of those tractor models that are most suitable for your needs. These criteria are:

1. What type of work do you do?

Arable and grassland farming, Forest work, Municipal work, Special crop farming and Peat harvesting.

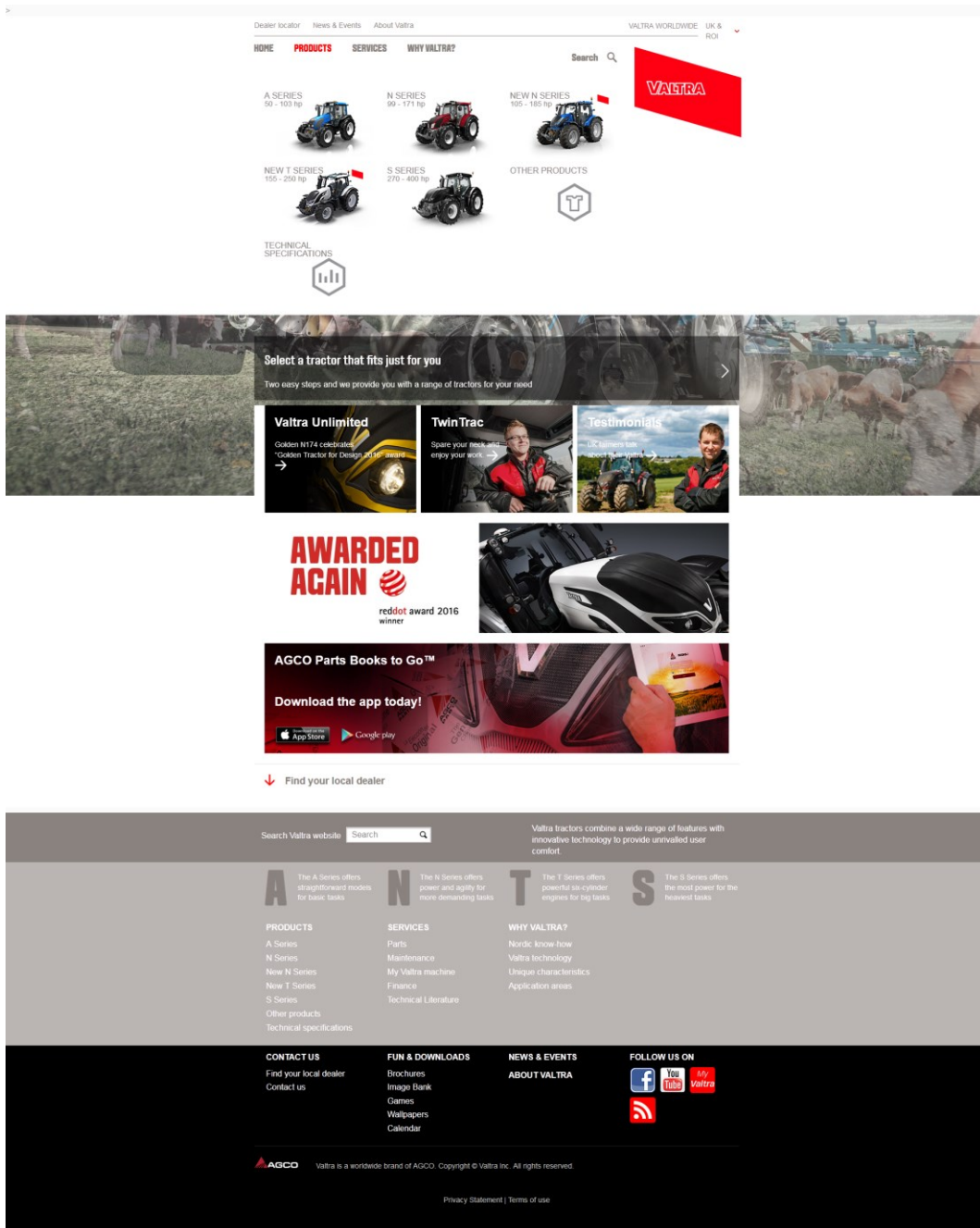
2. What horsepower range are you looking for?

Options between 40–400 horsepower.

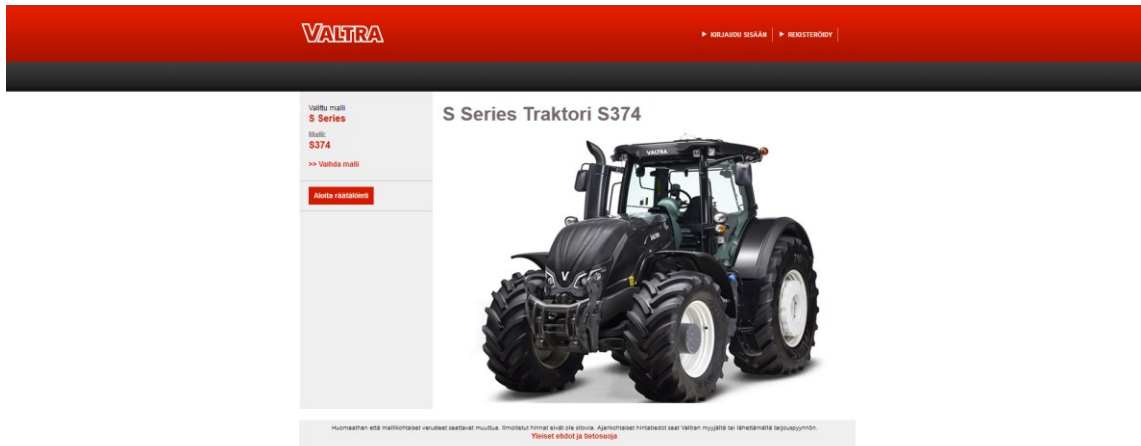
3. What kind of transmission do you prefer?

All model types, Stepless, 5-step Power shift, 3-step Power shift, Mechanical.

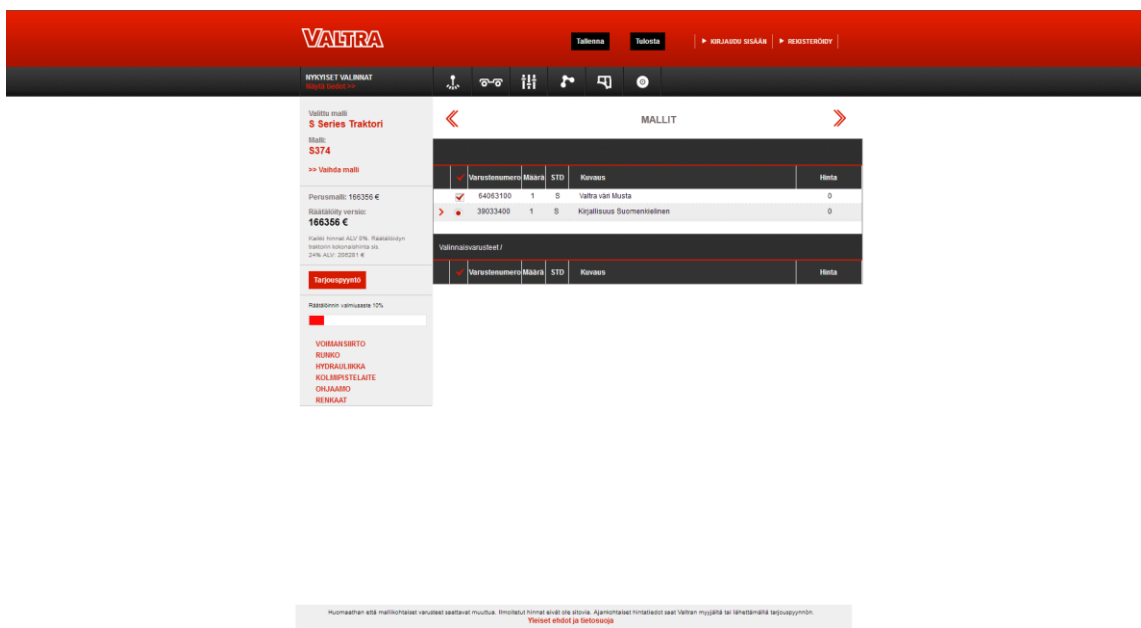
When the user has found the tractor model preferred (Picture 14) it can be further configured to perfectly fit in the specific needs that different work have. Customer journey of this configuration is going through seven touchpoints (Pictures 15, 16, 17, 18, 19, 20 and 21) and it makes the user go through and choose all the main parts and tools of the tractor. This part of the service lack the responsive platform.



Picture 14. The tractor menu by model types. (Valtra web)



Picture 15. Starting point of tractor configuration after the model is selected. (Valtra web)



Picture 16. The second step. Configure the framework options. (Valtra web)

VALTRA | **Talenta** | **Talosta** | **KILJAINU SIILÄÄ** | **REKISTERÖIDY**

NYKYISET VALINNAT

Valittu malli
S Series Traktori
Malli:
S374
-> Valitse malli

Perusmalli: 166356 €
Räätäily versio:
166356 €
Käyttö hinta ALV 0% Raakaliikityn
koneen valmistusmaa on
24% ALV: 205281 €

Talensuunnit

Raakakoneen varustelu 30%

VOIMANSIIRTO
 RUMKO
 HYDRAULIIKKA
 KOLMIPISTELAITE
 OHJAAMO
 RENKAAT

VOIMANSIIRTO

<input checked="" type="checkbox"/>	Varenumero	Määrä	STD	Kuvaus	Hinta
>	39016400	1	S	Sähkötoimoinen 521-ur. akselit	0
<input checked="" type="checkbox"/>	39016800	1	S	PTOn tak. post. PTO tasakäynn.	0
<input checked="" type="checkbox"/>	39016700	1	S	Etä akseli lmyt. valittu malli	0
>	39015400	1	S	Valtra A/T-vaihteisto 40 km/h	0
>	39016200	1	S	Ilman jarrutillaa	0

Valinnavaruudet / VOIMANSIIRTO

<input checked="" type="checkbox"/>	Varenumero	Määrä	STD	Kuvaus	Hinta
-------------------------------------	------------	-------	-----	--------	-------

Huomautus: Käytettyjen mallien hinnat saattavat muuttua. Ilmoitetut hinnat eivät ole sitovia. Ajoneuvojen hinnat eivät ole valinnan myyjästä tai lähimmästä talensuunnituksesta.
Yleiset ehdot ja lisäosa

Picture 17. The third step. Configure the drivetrain options (Valtra web)

VALTRA | **Talenta** | **Talosta** | **KILJAINU SIILÄÄ** | **REKISTERÖIDY**

NYKYISET VALINNAT

Valittu malli
S Series Traktori
Malli:
S374
-> Valitse malli

Perusmalli: 166356 €
Räätäily versio:
166356 €
Käyttö hinta ALV 0% Raakaliikityn
koneen valmistusmaa on
24% ALV: 205281 €

Talensuunnit

Raakakoneen varustelu 30%

VOIMANSIIRTO
 RUMKO
 HYDRAULIIKKA
 KOLMIPISTELAITE
 OHJAAMO
 RENKAAT

HYDRAULIIKKA

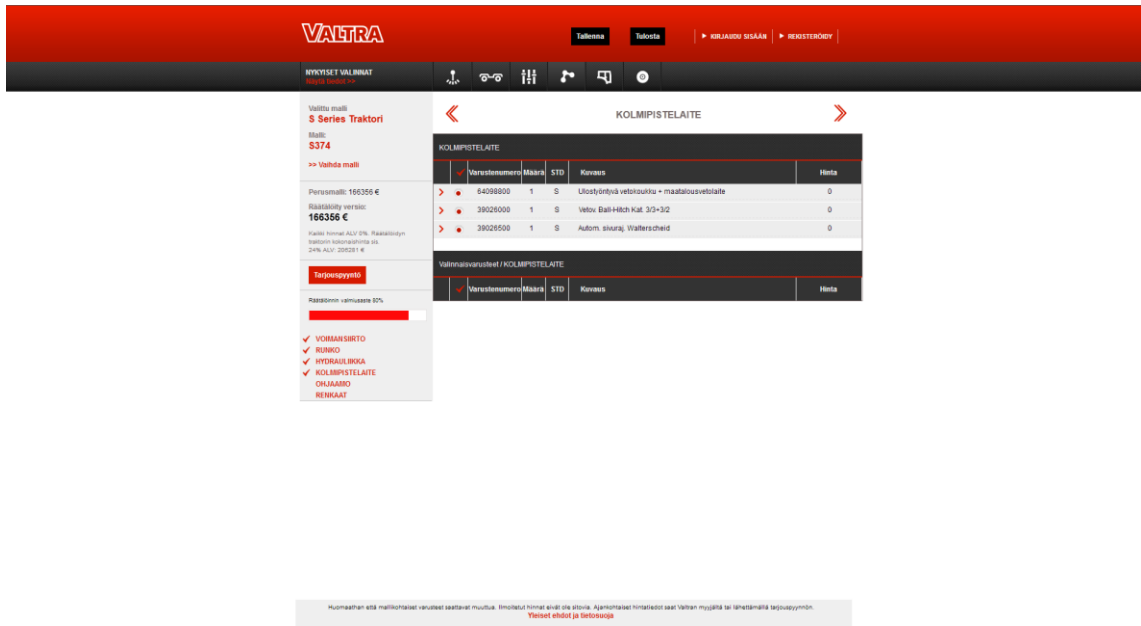
<input checked="" type="checkbox"/>	Varenumero	Määrä	STD	Kuvaus	Hinta
>	39022400	1	S	Ilman sovittelua/hydrauliikkaa	0
>	39022100	1	S	Etuostolalle 5000kg ei pinal.	0
>	39022800	1	S	Ilman etu PTOta	0
>	64098700	1	S	2 PARIA ETUPUOLITTEB&L + V&P&A P&L&L&U	0
<input checked="" type="checkbox"/>	39022900	1	S	Power Beyond	0
>	64098500	1	S	Vipuohjaukset venttiilit 3 ja 4	0
<input checked="" type="checkbox"/>	64098400	1	S	JoyStick ohjaukset venttiilit 1 ja 2	0

Valinnavaruudet / HYDRAULIIKKA

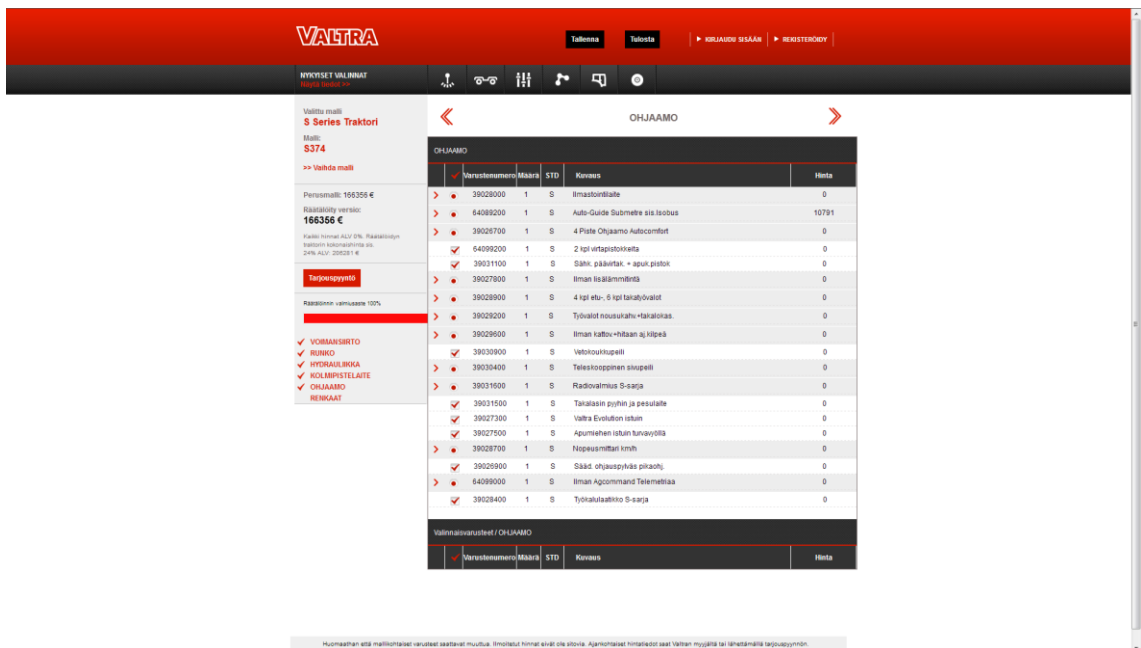
<input checked="" type="checkbox"/>	Varenumero	Määrä	STD	Kuvaus	Hinta
-------------------------------------	------------	-------	-----	--------	-------

Huomautus: Käytettyjen mallien hinnat saattavat muuttua. Ilmoitetut hinnat eivät ole sitovia. Ajoneuvojen hinnat eivät ole valinnan myyjästä tai lähimmästä talensuunnituksesta.
Yleiset ehdot ja lisäosa

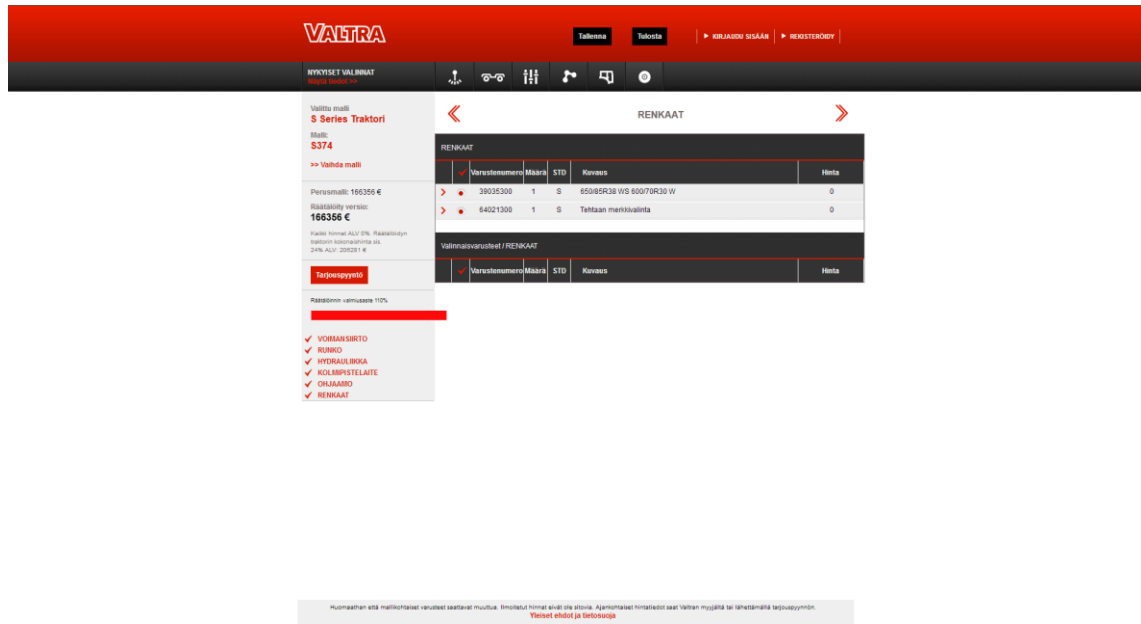
Picture 18. The fourth step. Configure the hydraulic options (Valtra web)



Picture 19. The fifth step. Configure the three point lift options (Valtra web)



Picture 20. The sixth step. Configure the cockpit options. (Valtra web)



Picture 21. The seventh step. Configure the tire options. (Valtra web)

By going through all these configuration steps the user gets the price of tractor with the chosen setup displayed with and without the current VAT. Then user can choose from options of sending the quotation directly to Valtra sales and waiting for them to contact, or saving it and print the chosen configuration to make other setups with different configurations for comparison with the options and prices.

Valtra digital service is very easy to use and customer journey is straight forward and clear. It is impossible to miss any crucial touchpoints in it. The service is understandable and usable even for commoner. User Interface for configuration tool is not responsive and it only works in workstation and laptop web browsers (possibly with some tablets available), that is the only larger drawback that could be found from it.

VALTRA Tractors - Analysis

	USER INTERFACE	USABILITY	CUSTOMER JOURNEY
<i>Pros</i>	Good UI, no clutter, readable fonts, easy to understand with one look, hierarchy is obvious, the functions are easy to understand and the results of user actions give logical response.	Making asset procurement and choose the setups can be done with this tool fairly easy (with limitations). Search from the site is made easy.	Customer journey itself is well structured. The path is logical and all the touchpoints are easy to understand and the feedback in all stages is good and relevant.
<i>Cons</i>	The non-responsive configurator tool feels outdated with its look and it works only with desktop and laptop browsers.	Site is not fully responsive and the configurator tool is limited to use only in desktop and laptop browsers. Comparison between the chosen setups can be done only with printed papers. Dividing the service to two separated databases can create unexpected problems.	Unable to compare the configurations in live mode.
<i>Things to learn?</i>	To build a modern digitalized service, you can not divide UI in both, static and responsive interfaces and exclude the mobile usage.	Excluding a mobile use from digital service is not forethought. Structuring the service between separate databases is not a good idea.	Even the customer journey is thought out well, the technical execution of it should also be up to date and support all the modern technologies available for the users in order to create good user and customer experiences.

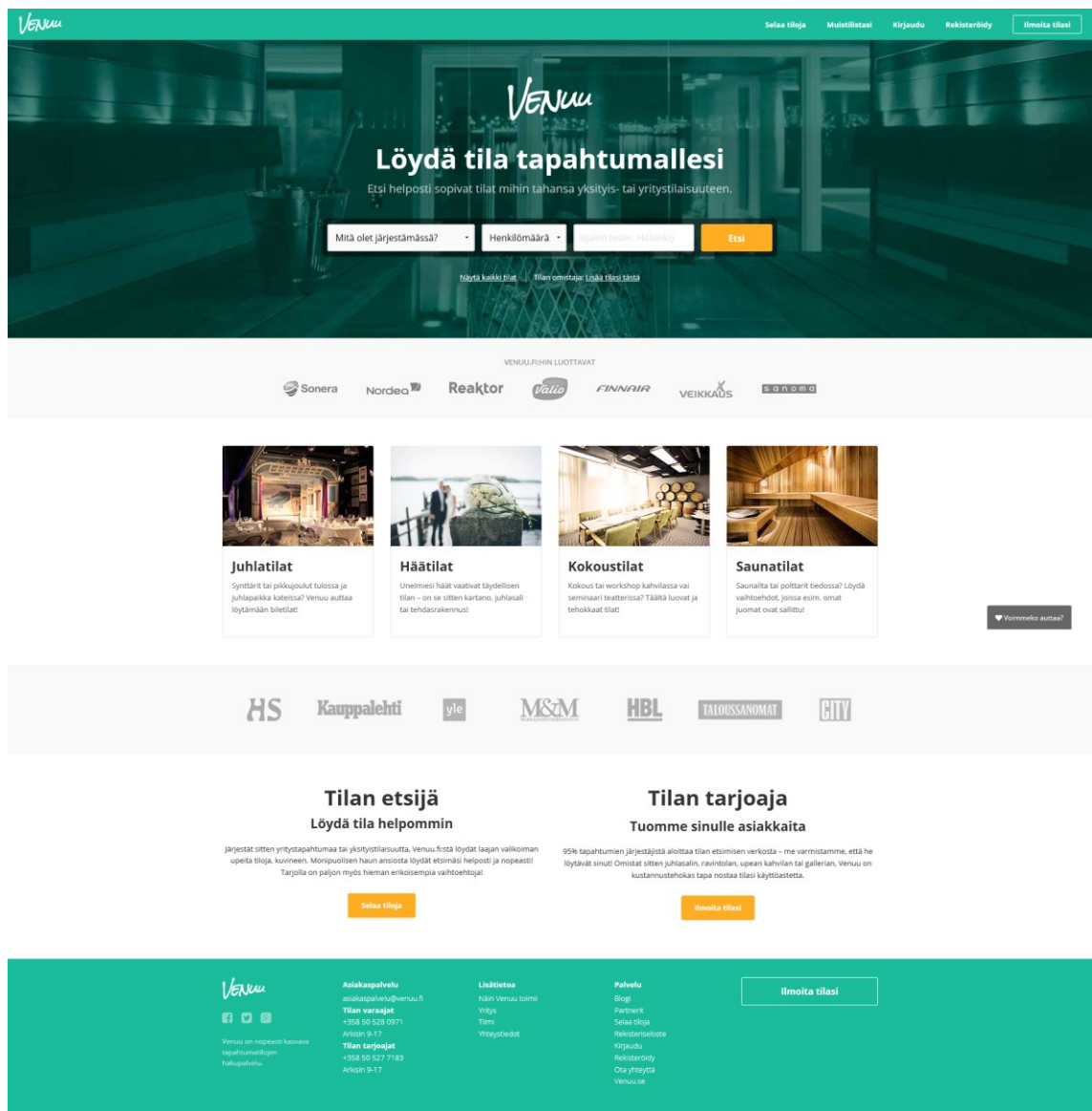
Figure 4. Valtra Tractors – Analysis.

Even the Valtra Tractors have done lots of things well and right in their service that does not mean that there would not be any need for improvements. When breaking it down to analysis in (Figure 4) it could be found that Valtra partly falls into the same shortages that Shippu in their service. Combining factors of the shortages are the usage of two separated servers (or databases) and dividing the service to static and responsive sections. Making some part of digitalized service with static design excludes the mobile use, or at very least makes it very unpleasant user experience. Valtra service had shortage in its ability to make comparisons with chosen configurations in live mode and you had to print all the configurations on paper to be able to compare them. This, as well as Shippu approach to provide digitalized service, autenticate the fact that it is extremely important to continuously develop the user interface, customer experience and the technical solutions of your service to be able to answer the challenges from competitors and deliver good quality customer experience.

5.1.3 Venuu.fi

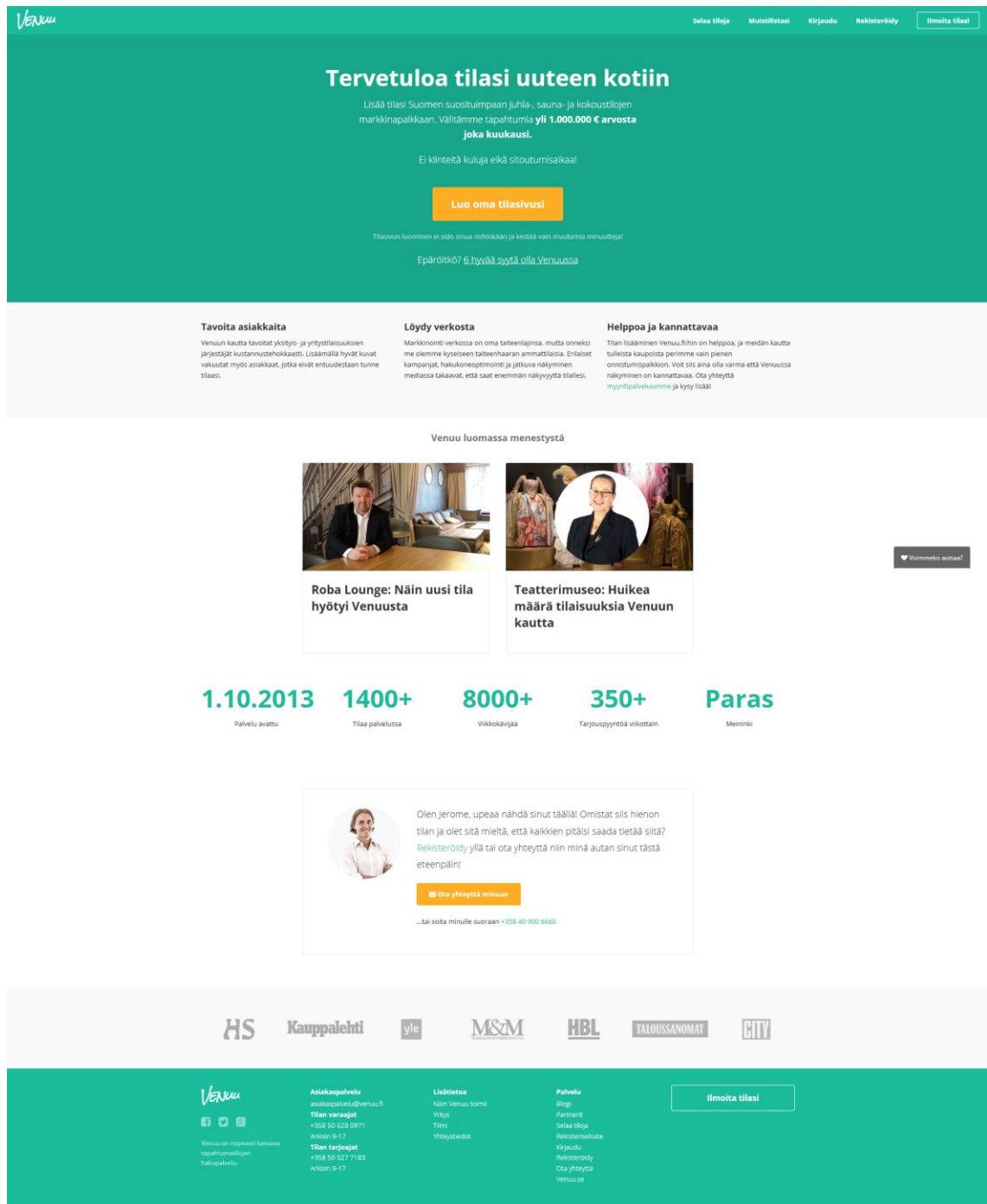
Venuu Oy does not offer any tools for asset procurement, but it has made a digitalized service for finding perfect place to arrange your personal or your business conferences and parties (venuu web).

While our service has User Interface with sides for Operators and Suppliers, the Venuu has sides for Space Seekers and Space Providers. Regardless the subject of the Venuu service is completely different than the service we are developing, the approach for customer journeys of both services have lot of similarities with two sided service concept. This is the reason it felt justifiable and rational to use it as a benchmark as well.



Picture 22. The main view of Venuu user interface. (Venuu web)

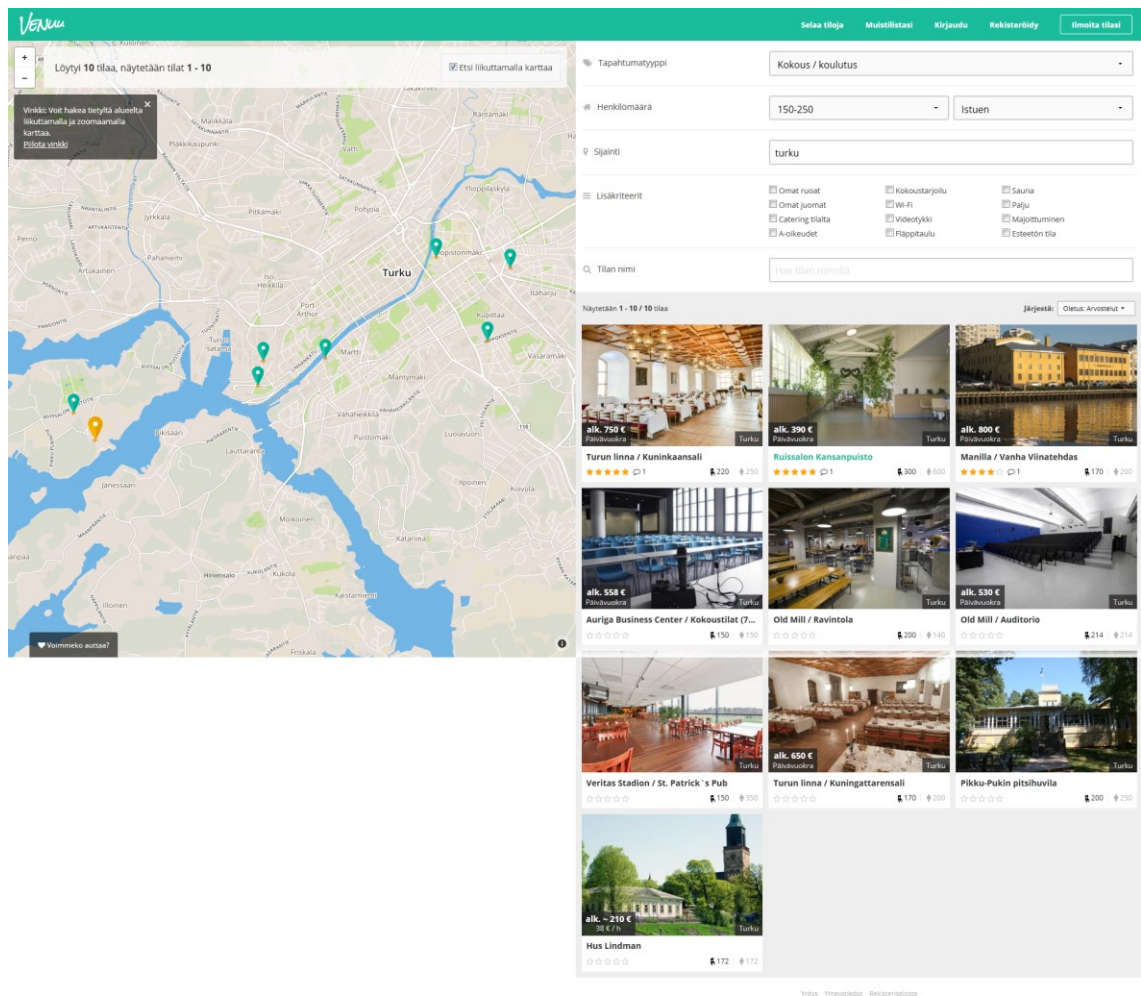
The landing page of Venuu service (Picture 22) is divided to few sections which two of them are the most important ones. In the top row there is menu section to navigate the service and straight under that is the first important section. It is menu for room seekers to locate place for their needs. Under that there is sections for references, grouping for different kind of spaces available for rent, and section of links to different media websites with articles and reviews of Venuu. Then the second important section in landing page, quick links to either room seeker or room providers. And finally the traditional place for contact info in the footer section of the page.



Picture 23. The view from first page of space provider user interface. (Venuu web)

The space provider user interface (Picture 23) offers firstly an option to create ad page for your own space that you are offering for rental. Next section is about marketing material convincing providers to use the service and under that there is place for user

testimonials. There are no fees for joining the service or being part of it. Venuu charges some fee only when there is actual rental transaction made. Then some numeral info of the service and customer service contact option. In bottom the media links and websites footer section.



Picture 24. The user interface view for space seeker after some selections made. (Venuu web)

The space seeker user interface (Picture 24) differs quite strongly from the provider side of the service. It provides seeking option from the map in the left, which fills 50% of the user interface in workstation/laptop web browsers and this option is hidden in mobile use. Map shows the locations of places for rent with a map tag and also gives a pop-up

window for added info when you move mouse over the wanted location. Map can be dragged to all compass points and zoomed in and out.

The other half of the user interface has search options on the top section and it is otherwise filled with masonry grid which shows images of places with info of rental prices and also the customer review section with 0–5 stars scale of grading. The masonry grid is also visible in mobile use of the service. Overall usability of this web-based service is extremely good and customer journey is logical and all the touchpoints are easy to follow. All the necessary info is at hand and there is no feeling that some info is hidden somewhere.

VENUU.fi - Analysis

	USER INTERFACE	USABILITY	CUSTOMER JOURNEY
<i>Pros</i>	Modern UI, with One Pager -design, good colours, readable fonts, understandable and well structured hierarchy, feedback of user selections is good and intuitive.	Intuitive extremely good service to use, everything is found easily, responsive design allows the service to be used with any device. Service is intuitive and reacts to user behaviour well.	Customer journeys are well built and clearly differ from each other in both sides of service. The path is easy to follow and the touchpoints are logical.
<i>Cons</i>	No major drawbacks.	No major usability problems in service.	Nothing to pinpoint to.
<i>Things to learn?</i>	Underlines the importance of well designed UI.	In digitalized service the usability is key factor.	Lots of things that validate the design we had chosen for our service. The Venuu brand itself is quite "general" with it's design choices, so some personalization could be done to take the customer experience to next level.

Figure 5. venuu.fi – Analysis.

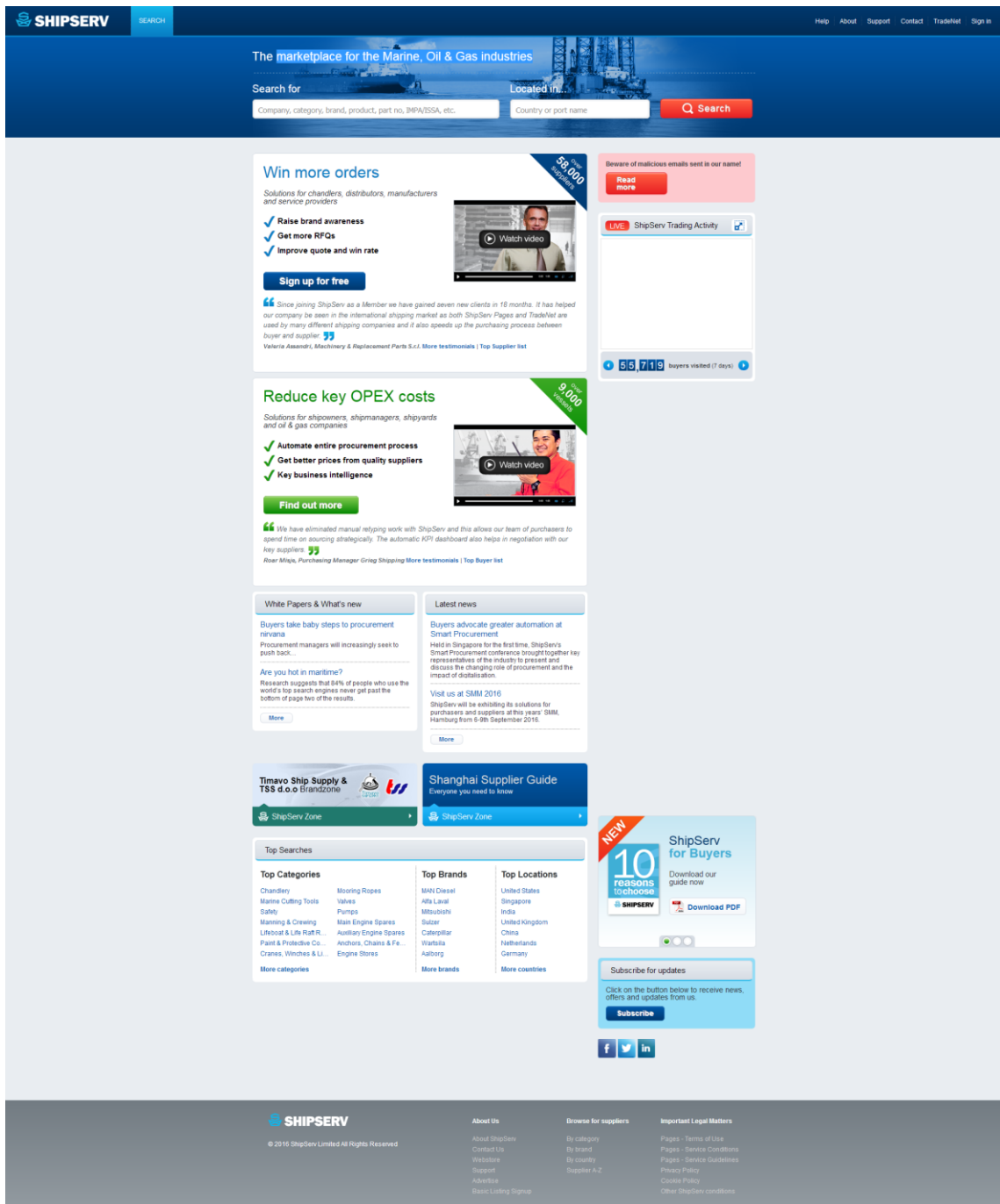
Venuu.fi is extremely well executed service and it validates the design concept that was developed for our service. Customer journeys in venuu.fi are well constructed and delivers good customer experiences for both of user groups. Design of the service is modern and responsive, which allows it to be used with all the technology available today. This service can be used to compare and mirror the functionality and usability of solutions that will be developed into our service.

5.1.4 Shipperserv

Shipperserv.com is marketplace for the marine, oil & gas industries. This service is direct competitor for the service we are developing. It offers similar kind of services for both Supplier and Operator side of business. In their own words:

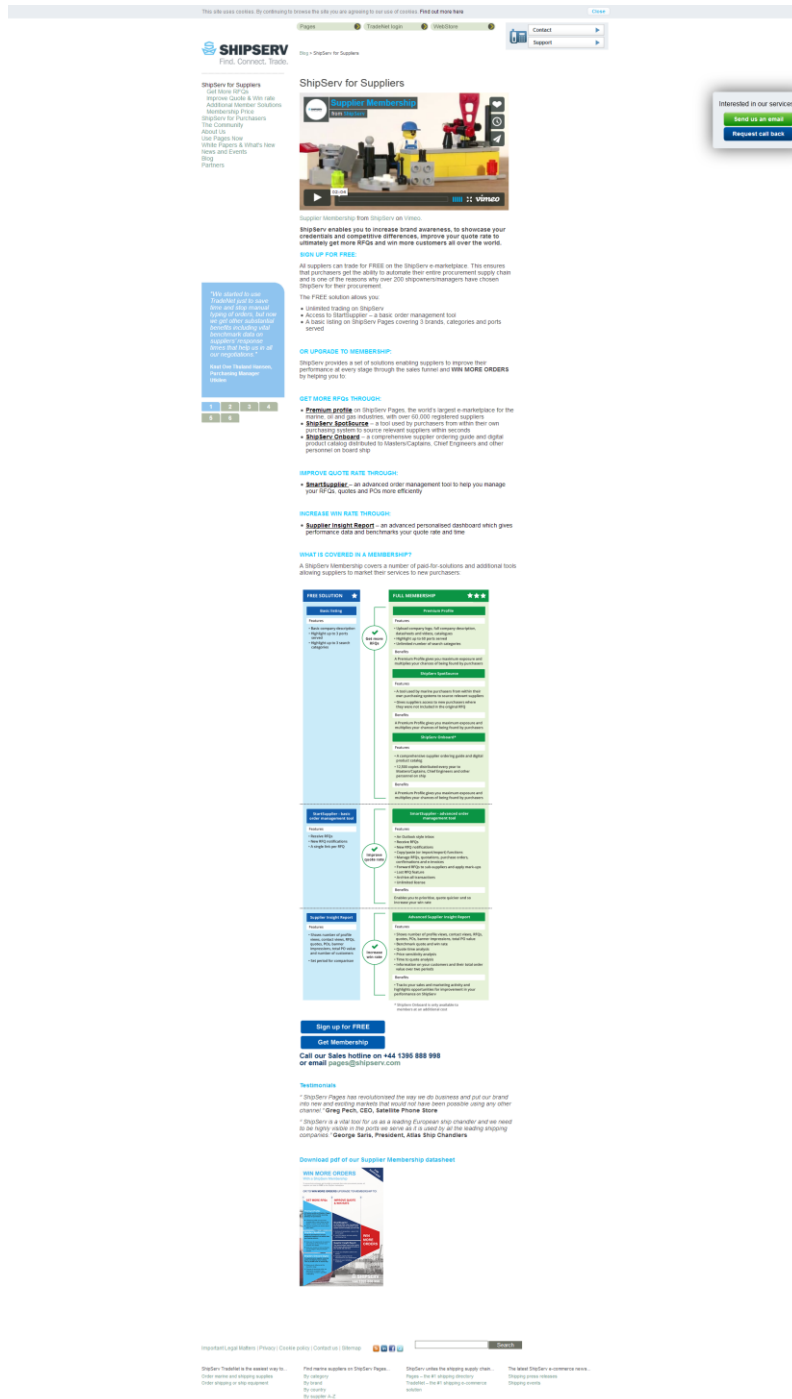
" ShipServ is the largest e-marketplace for the marine, oil and gas industries, connecting purchasers (shipowners, managers, yards and oil rigs) with suppliers of spares, stores and anything else that is used on a ship. In 2015, ShipServ facilitated US\$2.6bn of annual trade from over 200 buying companies, managing over 9,000 vessels and trading with over 60,000 suppliers in over 100 countries around the world. For purchasers, ShipServ works with existing ship management software and helps shipowners, managers and yards to cut OPEX in categories such as spares and stores, reduce cycle times by 30%, plus gain access to vital data intelligence. For suppliers, ShipServ offers effective solutions to build their brands, get more RFQs, improve their quote rate and increase their win rate and ultimately win more orders with purchasers on a global scale." (Shipperserv web)

The user interface for the whole Shipperserv service is old fashioned with the type of website design is from the era where the styling and usability has not been top priority of design. The company has been active for ten years and it seems that user interface of the service is as old as the company itself. The website is not responsive, so it does not work well with any mobiles and tablets. The service advertises of having over 58000 suppliers using their service and over 9000 vessels bought thru their service. Despite the out dated looks of the user interface (Picture 25), this service needs to be very carefully studied as a business case by Marinecycles, to research how they have solved different challenges in their service. But this analysis emphasize more on user interface, usability and customer journeys side of it. (Shipperserv web)



Picture 25. The landing page of the Shipperserv service. (Shipperserv web)

The Supplier side of the service (Picture 25) offers “Sign up For Free” and when you click the button on the site it opens up site for sign up options. All presented in non-responsive and old fashioned way.



Picture 26. The supplier sign-up page of Shipperserv user interface. (Shipperserv web)

The operator side of the service (Picture 27) seems to be a bit easier to use than the supplier sign-up page (Picture 26), but still shares the same problems of usability and mobile device hostile design.



Picture 27. The operator page of Shipperserv user interface. (Shipperserv web)

Overall feeling of the Shipperserv page is that user needs to take the time to dig out the needed info from somewhere. Everything is available, but not very approachable way at all. The customer journey is not streamlined and touchpoints are cluttered.

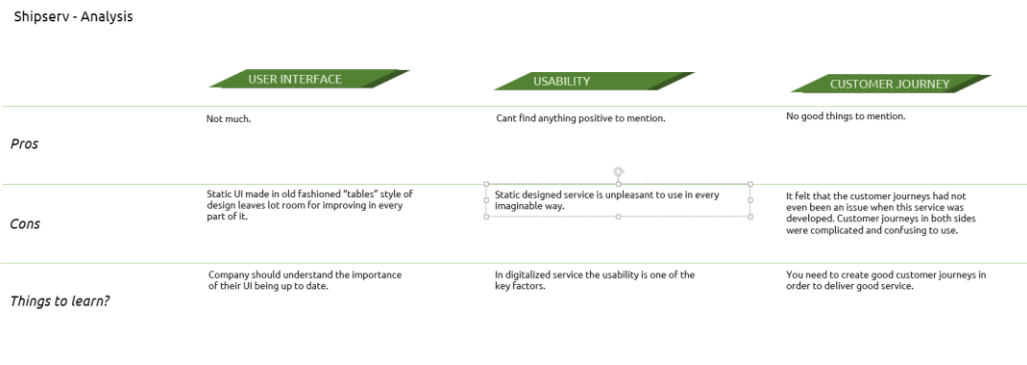


Figure 6. Shipperserv – Analysis.

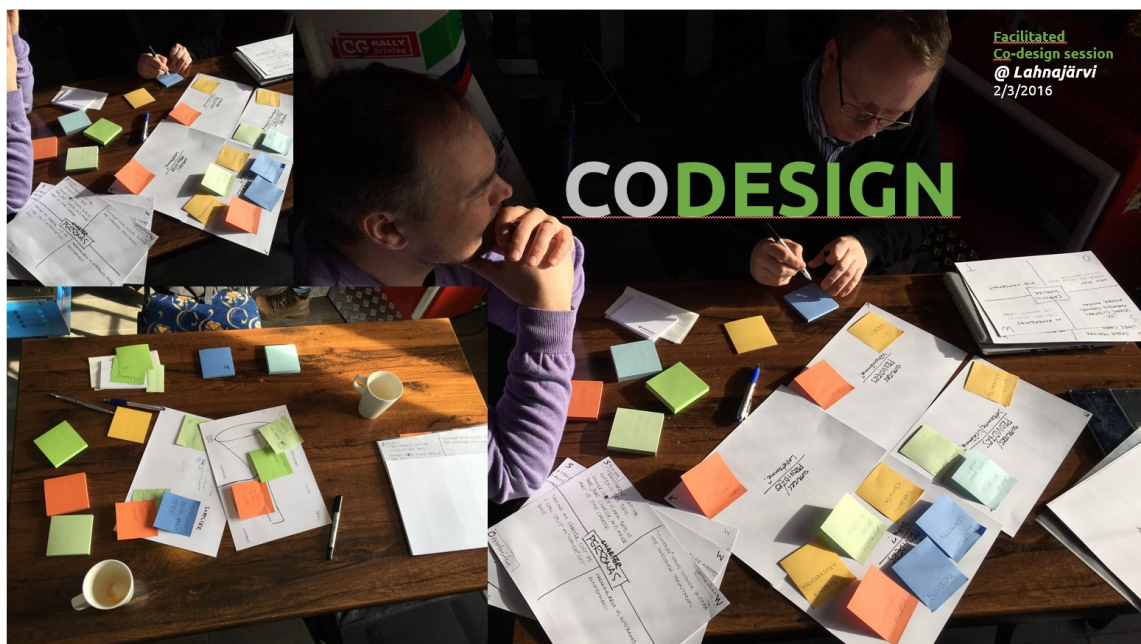
The fact that this service has been active for years with the kind of user experience they are offering tells very loudly that there has been a lack of competition or no competition at all in their business. Analysing this service demonstrated that even though the users of the service get their business done, they had all the key elements of their service badly outdated and it felt that the user experience had not even been a factor when it was developed. Usability of the service is not in good shape and static design of the site ensures that it is not mobile friendly at all.

5.2 Co-Design / Co-Creation

Co-creation or co-design, is the essence of service design. It means that the work process is made in collaboration with the different stakeholders that are important to the current service that is under development, of being designed from green field. Naturally different tools are used in different service development processes, to be able to

research the needed matters, but co-design is a way of doing this development work and it can be used with all the service design tools. (Stickdorn & Schneider 2011, 198–199)

The process begun by having several meetings together with the commissioner, which all focused on different subjects of the challenge at hand. Based on all those meetings the first drafts of service design tools were taken in use and started to be filled. Filling these service design tools allowed the structure of the whole service to take some kind of logical form for first time. This first step also made it very obvious that there is a lot of information lacking from understanding of the service. And after the first versions of service design tools were filled (Pictures 29, 30, 32 and 34) it was found out that having the discussions with the commissioner was not the most efficient way to research the needed info. It had to be completed with co-design.

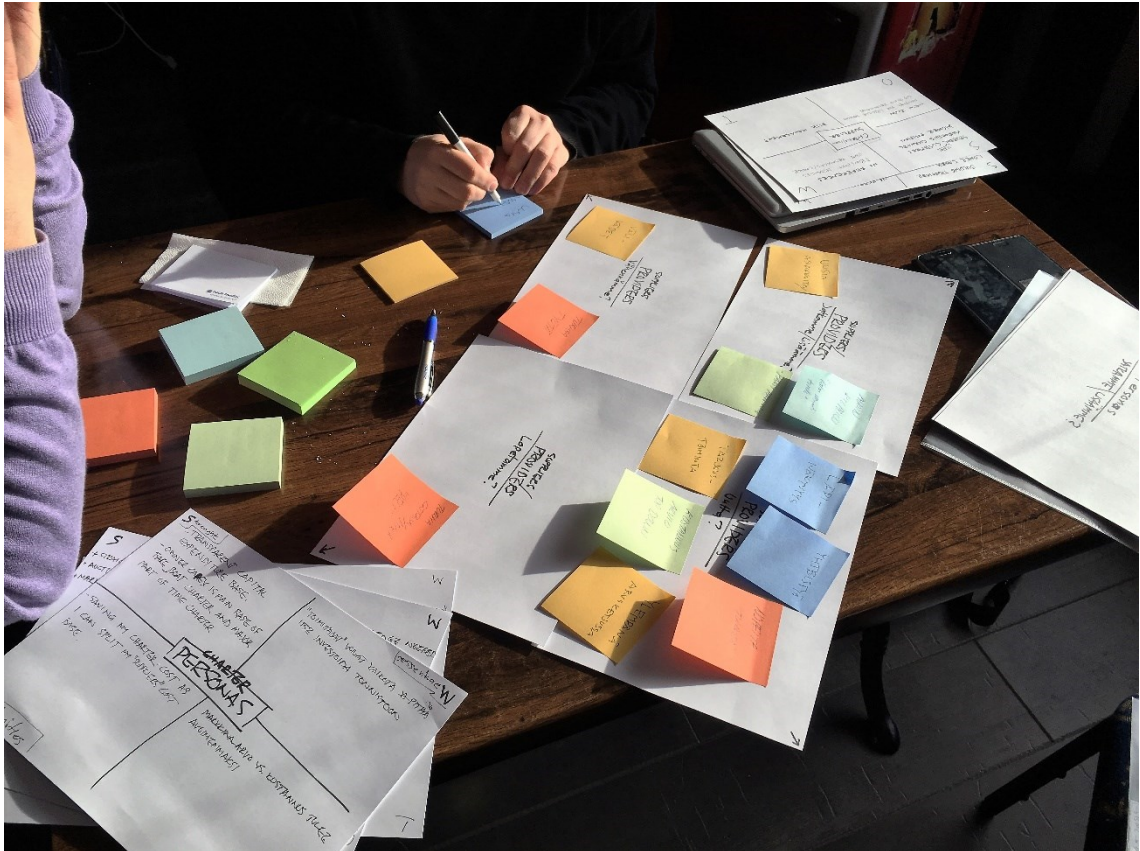


Picture 28. Facilitated co-design session at Lahnajärvi.

Next step of the process was to proceed with a facilitated co-design session (Picture 28). The tasks for this session were planned and ideated to give answers to all the empty slots on the service design tools that were chosen for this research. The participants had

to prepare for the session in advance by homework tasks (Picture 29). The homework was to conduct a traditional SWOT-analysis from all the stakeholder points of view (towards the service) in order to get the commissioner to understand the challenge from different angles. Different stakeholders were divided between the participants to analyze. They were asked to look the service as the chosen stakeholder and to analyze Strengths, Weaknesses, Opportunities and Threats that this service would offer to that distinct stakeholder.

In the beginning of the workshop the homework results were first analyzed as a group. It was made to tune the participants for the days subject as well as to share the found insights with each other. First new task in the workshop was to deepen the homework SWOT by using again a four field analysis to challenge and deepen homework results. But this time working as a group instead of working in person as with homework. This task was not traditional SWOT to analyze strengths, weaknesses, opportunities and threats, but was based on those insights from the stakeholder SWOT to define the service even further. Participants were asked to analyze the service by using fields such as “We increase and continue”, “We diminish and decrease”, “We end or shut down” and “This is new” to define different things in the service. After we had processed through this task (Picture 29) we had all the needed info to fill the Stakeholder Map (Figure 7), Business Model Canvas (Figure 9), Personas tool (Figure 11) and the Service Blueprint (Figure 14).



Picture 29. The SWOT-analyses and the four-field task

Workshop continued with a task that was planned to develop ideas for revenue streams that were still lacking from the Business Model Canvas (Figure 9). During the task different kind of visual structures for revenue streams were drawn and ideated. This task produced the actual “Silo” concept (Figure 13) for Service Blueprint. I drew the concept (Picture 30) during the workshop from commissioner request and it was filled by participants (Figure 14).



Picture 30. The “Silo” tool.

When the commissioner continues the development of this service after this thesis work all these tools will be developed accordingly. The customer journeys for the service are developed with the agile development of the prototype, but how the process developed proceeded with all individual service design tools used during this study is as follows:

5.2.1 Stakeholder Map

Stakeholder map is a presentation of all the stakeholder groups that are involved in this explicit service. Visualization of the stakeholder groups like this makes it easier to analyze the possible interactions between them. By creating a stakeholder map it is also possible to surface new stakeholders or bring up those that were not considered important initially. (Stickdorn & Schneider 2011, 150–151) In the early discussions we had with client we started to form understanding of all the stakeholders that might be involved in this service and I added them to Stakeholder Map tool. (Figure 7).

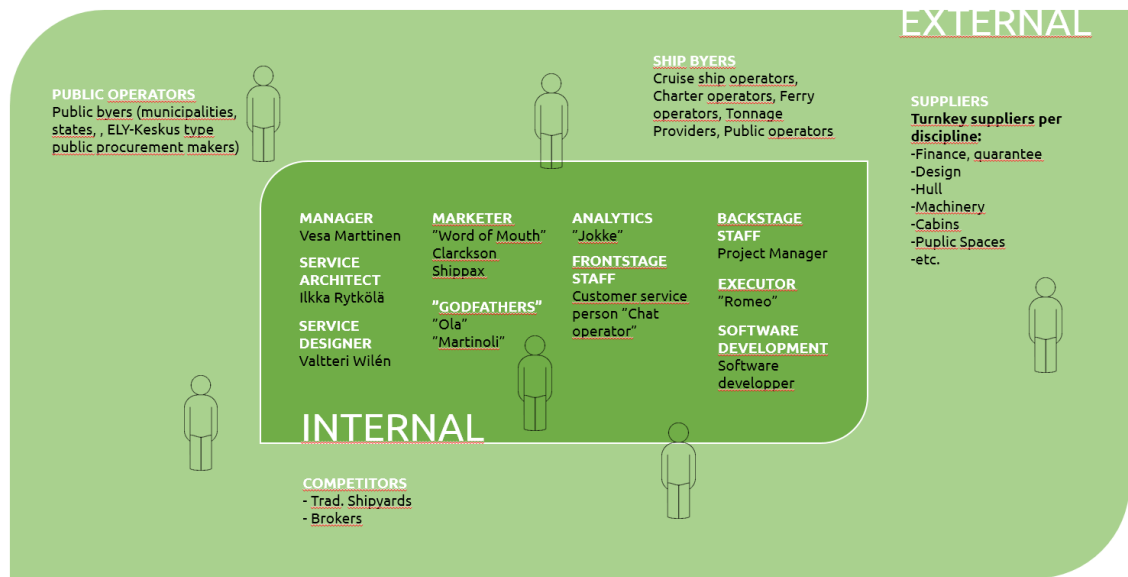


Figure 7. The Stakeholder Map.

During the facilitated session we updated all the chosen service design tools and realized that internal and external stakeholder groups covered comprehensively at the beginning of the process in the discussions already. And the co-design did not bring any changes to this one. So we concentrated our efforts more on the other service design tools and left this as it was. Apparently the commissioner had solid understanding of stakeholders from the very beginning. The external stakeholder consist of Owner/Operators and Suppliers which are clients for this service and Competitors. Internal stakeholders were the Commissioner Vesa and Ilkka, myself as service designer, "Godfathers" were people that work in the industry and support the development, but did not want their name attached to it. Then there were different kind of supportive roles for the operational use which are people that need to be hired for running this kind of service, such as the Marketer, Analytics, Frontstage Staff, Backstage Staff, Executor and Software Development.

5.2.2 Business Model Canvas

Business Model Canvas is a visual tool to develop the business model and it is introduced in a book called Business Model Generation which was written by A. Osterwalder and Y. Pigneur in 2009. This business model canvas template is nowadays widely used and extremely usable tool in co-creative work process. It demonstrates visually how different areas interplay and makes it visual of how the service or organization is creating added value for its customers. (Tuulaniemi 2011, 175–179; Stickdorn & Schneider 2011, 212–213)

In the beginning of this process, after the discussions, the business model was left undefined and there was multiple open slots in it (Figure 8). The service idea the commissioner had was completely without a frame work. Business model canvas turned out to be more difficult to fill up than was expected and it could not be filled with discussions alone. It required much more work compared to Stakeholder Map (Figure 7) that was introduced earlier. The understanding of all things concerning this new service did not come easy and the iterative process took long time to reach into its final form (Figure 9).

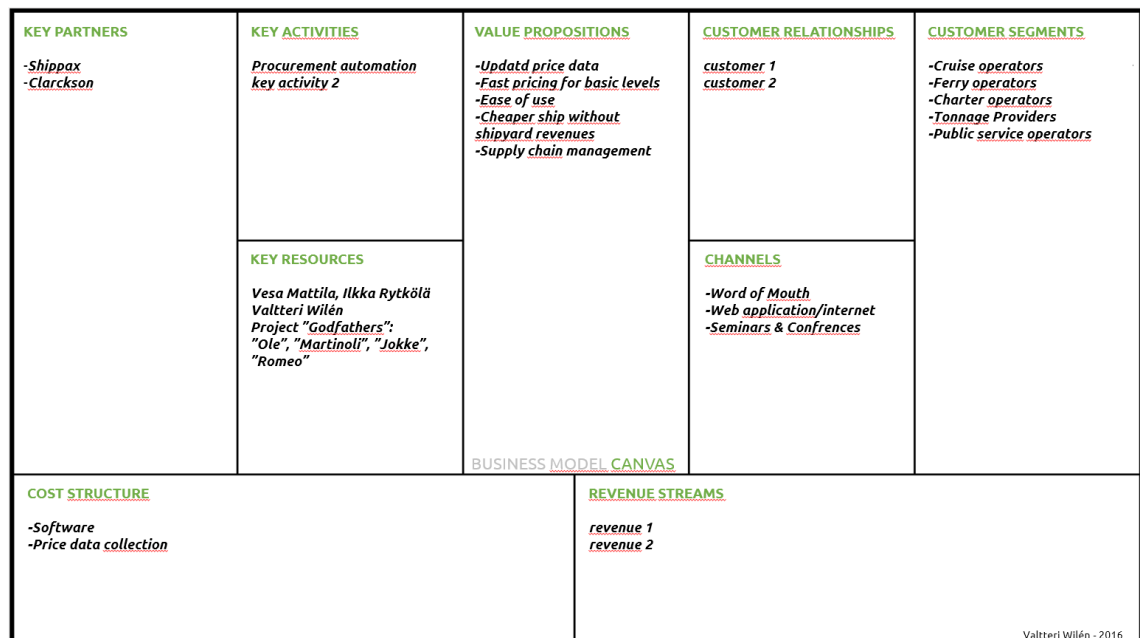


Figure 8. The first version of the Business Model Canvas.

The first version business model canvas was attempted to be filled based on the discussion with the commissioner. And as it shows, there is lot of gaps in the first version (Figure 8). There was no understanding of the Revenue Streams or Customer Relations at this point. But the co-creative work was able to produce insights to fill all the empty slots and give the service its frame work (Figure 9).

<p>KEY PARTNERS (helping to achieve goals)</p> <ul style="list-style-type: none"> - Shippax - Clarckson - Software developpers - Valtteri Wilén 	<p>KEY ACTIVITIES (what are the actions needed to excel)</p> <p>Procurement automation Sales funnel</p> <p>KEY RESOURCES (needed to offer service)</p> <ul style="list-style-type: none"> - Vesa Mattila, Ilkka Rytököä - Valtteri Wilén - Project Godfathers: "Ole", "Martino!", "Jokke", "Romeo" - Customer Chat operator - Software development (who) - Data analyzing and visualization (who) 	<p>VALUE PROPOSITIONS (benefit)</p> <ul style="list-style-type: none"> - Efficiency - Cost Driven Development - Co-Development - Credible Opex - Updated price data - Fast pricing for basic levels - Ease of use - Cheaper ship without shipyard revenues - Supply chain management - Pre-filled CRM - Financing - Lifecycle support service - Transparency - Co-operation opportunities - New markets for suppliers - Open competition benefits operators - One stop market place for ship 	<p>CUSTOMER RELATIONSHIPS (engagement)</p> <ul style="list-style-type: none"> - Delivering sales leads - Business and Marketing intelligence services - Prefilled CRMs for suppliers - Analyzes - Option comparing <p>CHANNELS (how reached)</p> <ul style="list-style-type: none"> - Word of Mouth - Web application/internet - Customer Chat Operator in website/Some - Seminars & Confrences operators 	<p>CUSTOMER SEGMENTS (who)</p> <ul style="list-style-type: none"> - Cruise operators - Ferry operators - Charter operators - Tonnage Providers - Public service operators - Suppliers
<p>COST STRUCTURE</p> <ul style="list-style-type: none"> - Software - Price data collection (server) - Price data analytics and visualisations (from servers) 		<p>REVENUE STREAMS (monetize)</p> <ul style="list-style-type: none"> - For investor: registration – free / deeper services charged by steps - For Supplier: registration – monthly fee, deeper services chared by steps (Deeper services: analyzes, quotation, option comparing, pre-filled CRM, identified leads, etc.) - Business development fees – Marketing and Business intelligence. 		
<p>INFRA / OPERATIONS</p>		<p>CUSTOMER VALUE</p>		

Figure 9. The second version of the Business Model Canvas.

5.2.3 Personas

Personas are fictional groups that are based on some kind of similarities within the group. Dividing groups into clusters makes it easier to understand the outlines of groups and the main differences between them (Stickdorn & Schneider 2011, 178–179). In the discussions in the beginning of the thesis process the commissioner was advised to divide the operator side stakeholders (Figure 7) of this service into some kind of clusters, based on their similarities in something. That way there could be some kind of

understanding develop of what kind of clients we are dealing with. Personas tool was used for this clustering. (Figure 10).



Figure 10. The first vision of the Personas.

Personas tool was developed further in facilitated co-design session where the commissioners did tasks that made them to really think and challenge the service from different angles. In this case from the different personas point of views. Participants went through the thought process and analyzed the whole service from all the different viewpoints. In this process it became very clear, that one of the personas that was created in the beginning of the process (Figure 10) was actually almost totally irrelevant for this service all together. And on the other hand, one of the personas grew out to be the most valuable of them all (Figure 11).

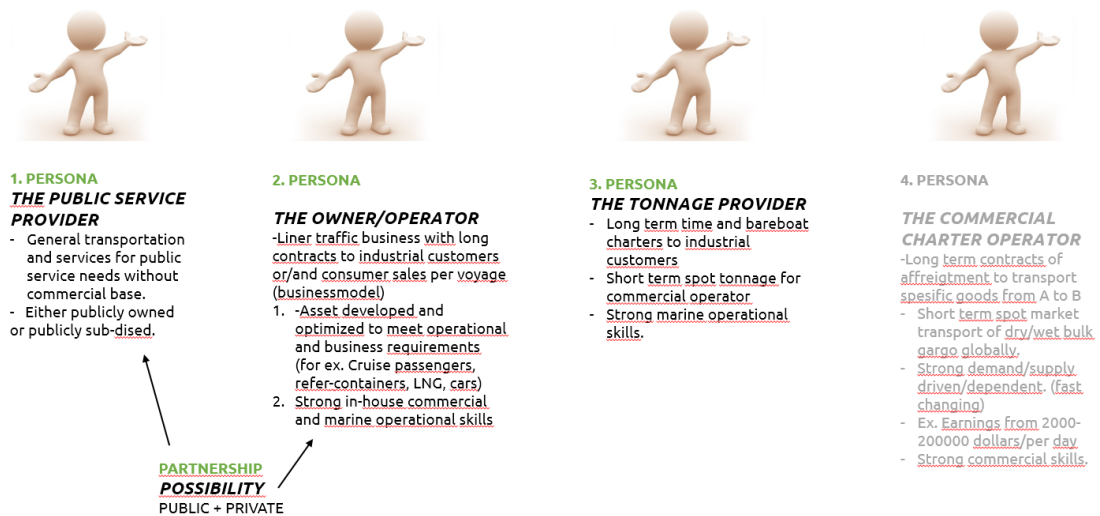


Figure 11. The second version of the personas.

5.2.4 Service Blueprint and Customer Journey

Service Blueprints are visualized tools that specify each aspect of the service. It is used as a tool to perceive the actions of the service users and to describe structure of the service. They can also be used to describe the structure of the organization (Stickdorn & Schneider 2011, 204–207). As it was with business model canvas earlier, the service blueprint tool was also challenging at first. In the beginning there was long period of ambivalence. The commissioner is a start-up company and the service itself is brand new, built from the “green field”. There was a lot of uncertainties still to be solved in strategic level and at business model of the service. Trying to explain still uncertain, intangible things visually is always a tricky task. In the first attempt to visualize this service (Figure 12) the service concept was still lacking too much information and it was mainly addressing the supplier side of the service. There was practically a void in place of the Owner/Operator sector, which was thin with facts and all the necessary information. Still it was useful step to go through this visualization attempt as iterative step, as it served the thought process for the development tremendously and already showed where the need for further research is.

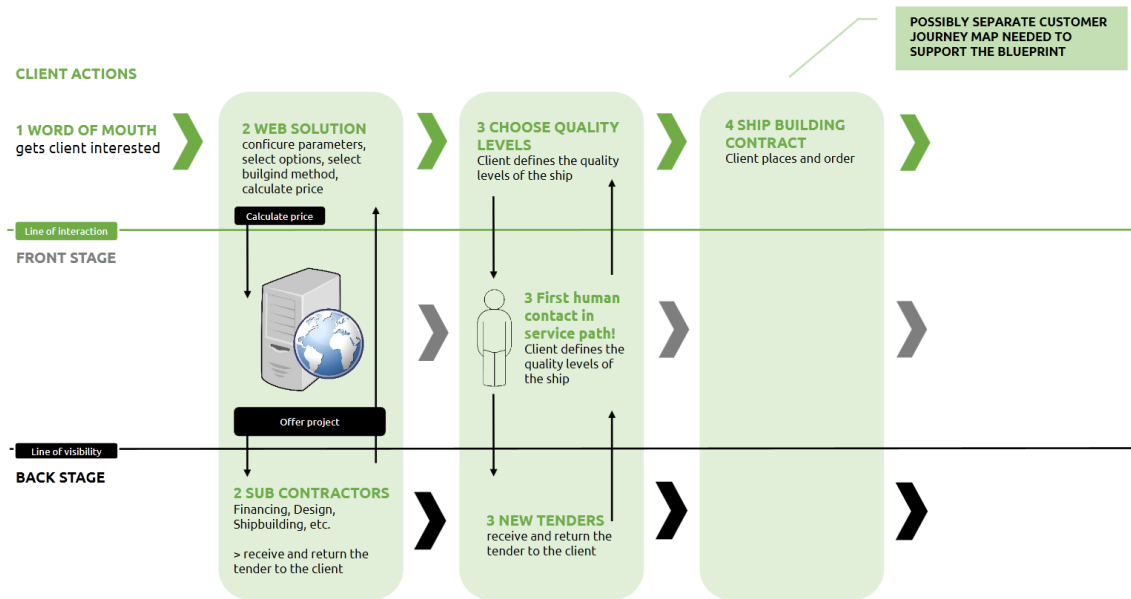


Figure 12. Customer Journey Map. First attempt to visualize the service.

Co-design workshop at Lahnajärvi created the understanding that made it possible to really start using this tool. The “silo” model (Figure 13) was drawn during the workshop and the commissioners filled it with information. There was a task in workshop, which was designed to develop the revenue streams for the business model canvas, which it did well, but that task served this tool as well. In this “silo” model the service works with two different kind of user interfaces which are modified and tailored for supplier and owner/operator needs separately (Figure 14). The revenue models ended up to be different for both sides also. This tool cleared the ending point of this service, which is the point where owner/operator and supplier make an agreement of shipbuilding and then continue the negotiations further with all the info and prices now gathered from the service. Knowing the ending point allows the after services support to be developed in the future.

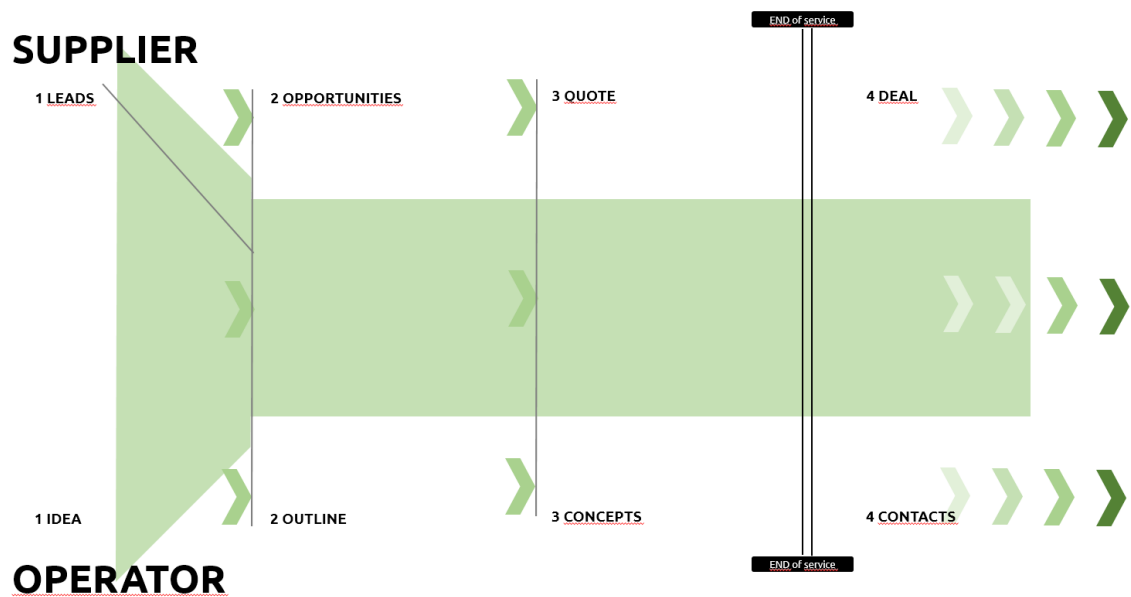


Figure 13. First draft of the Service Blueprint after the Lahnajärvi session.

The first draft of the Service Blueprint (Figure 13) shows that the touchpoints were found and where are the key points for value adding for both users. The second version of it (Figure 14) has the line of payments presented and all the other main aspects gathered together. With the co-creative process it was able to turn this intangible thing into tangible. With this service blueprint, along with the other service design tools and research, it was now possible to proceed to develop the mock-up. When the mock-up is build straight to on-line version it is agile to modify based on the feedback that it is going to receive. That feedback also develops this tool onwards in future and allows to build very specific customer journey maps for both target groups separately.

SERVICE BLUEPRINT- draft

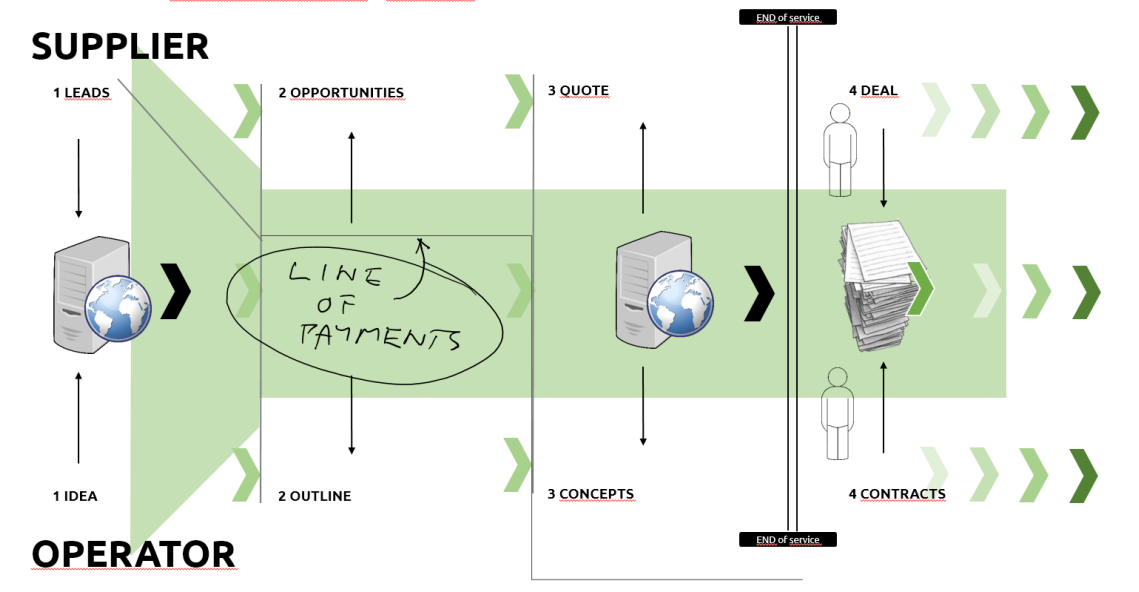


Figure 14. Iteration of Service Blueprint & Customer Journey.

After the Service Blueprint had found its form (Figure 14) and contextual interviews (Chapter 5.3) were conducted, an imaginative Customer Journey Map (Figure 15) for the Owner/Operator side could be created. The results from the interviews were combined to create this example of possible customer journey map. Imaginative, because the actual customer journeys cannot be developed without the actual feedback that comes directly from the users when the service is tested. And that testing takes place after this thesis study is finished.

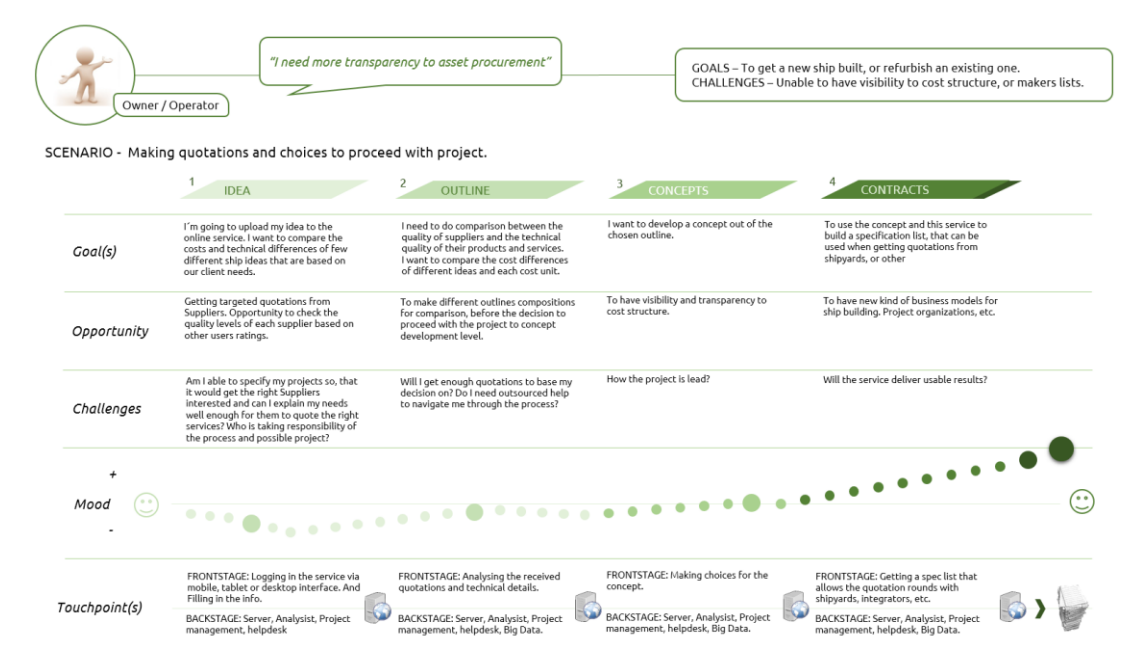


Figure 15. Customer Journey Map – Owner / Operator (imaginative)

5.3 Operator Interviews

Contextual interviews build the understanding of the context of specific service. In interview it is also possible to get insights from points of views that cannot be reached with any other way. Interviews are useful to conduct in the environment and context where the users usually use the researched service. (Tuulaniemi 2011, 147–148; Stickdorn & Schneider 2011, 162–165)

After the co-design there was now understanding what was needed to develop further in the supplier side of the service. The service has found its frame with co-creative work. It was also acknowledged that there is still open questions that need to be researched in the owner/operator side. Best tool to research these was the contextual interview. For that one more co-design session with the commissioner was arranged. The interview structure and questions were designed so that they would serve this design process and deliver the most usable results. And also choose the companies and stakeholders that would be good sources for these interviews. Marinecycles made the first contact for the

stakeholders and I scheduled the meetings with the chosen participants that had agreed to be interviewed. In our session, where we planned the interviews, we found out four different owner/operators that we would have wanted to interview, but we managed to arrange the interviews only with three of them. It was also plenty, since they all represented different groups of Personas we had developed in the co-design process (Figure 7).

The interviews were made at the offices of these stakeholders, which two of them were located in Helsinki and one in Turku, at times suitable for their schedules. Companies and person that were interviewed were Kari Patrakka at Arctia Oy an operator of ice breaking ships, Mauri Harki at Eira Shipping which provides oil tankers and Jussi Mälkiä at Meriaura Oy which provides cargo chartering for dry goods. (Personal communications: J. Mälkiä 9.5.2016; M. Harki 28.4.2016; K. Patrakka 28.4.2016)

The Interview is usually conducted as a structured or unstructured interview. This interview was a hybrid of these with emphasis on unstructured side. There were the same structured questions for all of them, but the persons were allowed to speak and answer freely, even when they wondered off the subject, and also as long or short as they wanted to. This because they all had a lot of experience and even if they wondered off the subject, all the info was extremely usable in this study process anyway. They all answered to questions more extensively and with wider points of views, than was expected. Not only they gave usable data for the research needs, but they also gave new insights for the service all together. (Tuulaniemi 2011, 147–148)

When interview is conducted with highly specialized professionals strongly biased points of view can occur. In this interview process it acted as a benefit because all the persons represented different type of stakeholders. Together they created the big picture of challenges in this business. Using mostly unstructured interview allowed to let the interviewees to use their own words and talk freely of subject and it also made it easier to gain understanding where their expertise is focused.

5.3.1 Interview Analysis

At the beginning of the interview there was discussion of the current state of shipbuilding business and what kind of challenges there are at the moment. With a question: Asset procurement (in ship investment) today, what does not work?

Results

It turned out that the projects are few and far apart and the procurements are being made in long run and all the stakeholders in industry do not have visibility to available projects. Currently the shipyard controls everything and carries the full responsibility of projects and they also define the maker's lists within projects. This procedure seemed to have two sides of it. On the other hand some stakeholders were happy that someone takes full responsibility of the project. And same time some stakeholders found that they feel that this limits their ability to control their business tremendously. The current way of doing things has no transparency and it is impossible for owner/operator to understand clearly the cost structures of their projects. It is also impossible for them to do technical or cost comparison in different parts of ship and evaluate possible differences. One aspect that surfaced was that there is a tremendous need for new modern tonnage in the near future and there is demand for new designs and innovations in the industry in general as old do not feel usable anymore. (Personal communications: J. Mälkiä 9.5.2016; M. Harki 28.4.2016; K. Patrakka 28.4.2016)

Conclusions

Digitalized service would bring more business intelligence available for the stakeholders in both ends of the service. It would allow the owner/operators to control the maker's lists better.

There is a demand for transparency in cost structures and technical comparison, for which this digitalized service would answer.

Opportunity to develop new ways of doing things and share responsibilities together in ways that are more beneficial for the stakeholders.

Possibility for Naval architect consultancies to offer design platforms, which could easily be modified to different owner/operator needs. Instead of them buying ships in series.

The discussion continued with to subject of what kind of process is the asset procurement currently. With a question: (talking of current process of asset procurement) Describe the process beginning from the idea/need until the ship building contract comes into effect.

Results

To start the asset procurement process, at first the owner/operators have a need. A customer that has the market for the ship, or changes in operational surroundings. Changes in environmental laws for example, which could make some old ship unusable in some areas. Example of environmental law could be the Sulphur directive in EU. owner/operators need long term contracts with their client to be able to kill their investments. The length of the contracts varied from ten to thirty years depending of the clients of the interviewed owner/operators. Then they would evaluate could they fulfil the need with second hand ship. If not, they will need to make decision to proceed with existing design or create a new one. Existing design is priced more aggressively, because shipyards have all the processes to manufacture them already. If they choose to proceed with new design they make specifications by themselves or with design consultancy, then proceed with models tests, quotations, funding solutions with self, banks, investors, then make contracts and build. (Personal communications: J. Mälkiä 9.5.2016; M. Harki 28.4.2016; K. Patrakka 28.4.2016)

Conclusions

Service makes it possible to quote.

There could be a marketplace for the second-hand ships and lease as well.

Digital service would create big data that would benefit several different stakeholder groups when analysed and delivered directly. Big data, analysed to business intelligence and served to different stakeholders depending on their needs is the main revenue stream in this service.

Third subject of interview was that in which key aspects of the procurement they would need more information of. With a question: What are the key needs where the additional information is needed? (Could it be related to the following?)

- Ship concept
- Investment cost structure
- Forecasting the operative costs
- Options for financing procurements
- Discipline supplier options (engines, hull, interior, etc.)
- Integrator / shipyard options

It was also discussed do they see it beneficial for them. With a question: Would you benefit of having better understanding of the big picture of these aspects. And with a question: ("in a perfect world") How would you hope this process to flow?

Results

They talked both, the refurbishment projects as well as new build projects. All the stakeholders had quite good understanding of how these aspects in refurbishment projects. However, they would all need more info of and would benefit of help with these aspects in new build projects. Concerning these new builds there was wishes for availability of design consultancies and engineering companies that would deliver turnkey services (Ship concept). There was demand for better options in procurement financing, since no one builds these kind of projects with their own capital. (Options for financing procurements), From owner/operator point of view the Integrator/Shipyard/Broker often seemed to work in symbiosis and being very "monopolised". And they all have very different ways of doing things also. There was demand for getting help in negotiations with them (Integrator/Shipyard options). Owner/operators wanted to be able to compare the services of the suppliers and be able

to compare the prices (Discipline suppliers). (Personal communications: J. Mälkiä 9.5.2016; M. Harki 28.4.2016; K. Patrakka 28.4.2016)

Conclusions

It became very obvious that there is demand for this kind of service and it would benefit the stakeholders tremendously. Overall there was a high demand for more transparency of different options throughout the whole process.

This service would make the process transparent and allows freedom of choice for maker's lists and other options.

This service would allow suppliers to offer their products and services in co-operation much more easily and even to create turnkey products together.

This service would benefit the owner/operators by allowing them to compare suppliers to detail.

Financing could be one segment of options in this service as it is today widely in e-commerce solutions.

One totally new thing that surfaced during the interviews was the fact that because in this service the shipyard acts as a one supplier. It could be possible to develop a whole new business model for shipbuilding. There could be a project organization that would lease the premises from traditional shipyards and bring needed parts and materials with the team to the building place. And clear everything out after the built is done.

Interview continued with showing the interviewees the Service Blueprint Draft that we had developed (Figure 14) and request for them to give their comments of it.

Results

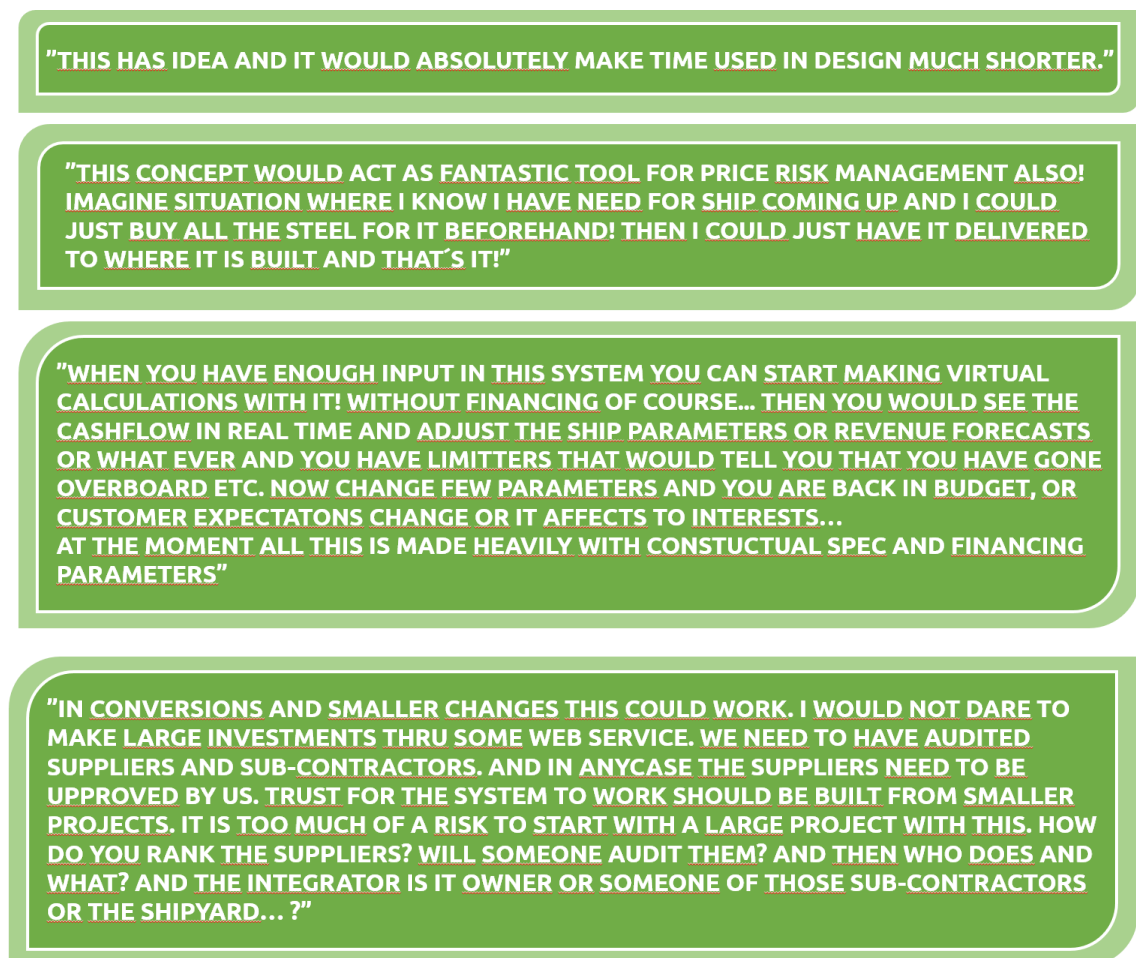


Figure 16. Comments on the Service Blueprint Draft.

Conclusions

Interview surfaced twofold reactions towards this service concept (Figure 16). On the other hand there was concerns of the quality of the service and the suppliers that would offer their services through it. It seems that some owner/operators would have a need to try out the service with some small scale projects first, to see how it would operate in action before trusting it with larger build. And the opposite of that was enthusiasm for the transparency it would bring to everything. There was also already interest to sign in and enrol some upcoming refurbishment projects in to it!

After we had discussed of Service Blueprint Draft their interests to use this kind of service was enquired. With a question: Would you be interested of signing your future projects into digitalized service, which is directed for the marine industry professionals only?

Results

Again, alternating points of views. There were doubts about who would audit the suppliers and how and who would carry the responsibilities of projects. Again the need to test the system with some small project. Then there was the neutral point of view with interest towards the service (if it would show its benefits), with interest to already book some upcoming refurbishments in to the system and to start trying it. And the other opposite there was cheering that this would totally benefit the buyer by forcing the suppliers and shipyards to change the way they are doing their business currently. (Personal communications: J. Mälkiä 9.5.2016; M. Harki 28.4.2016; K. Patrakka 28.4.2016)

Conclusions

The service itself could have an evaluation system for suppliers. It could be implemented in similar way than the largest e-commerce platforms nowadays do it, with stars or points that the buyers give to products and suppliers. Or there could be some kind of levels of auditing, that suppliers need to pass. This digitalized change in the game, of how businesses are operated, could create another business opportunities that are not yet found. It is also natural that people have doubts of new ways of doing things and these are also valuable things to find out in this kind of research and they benefit the development work.

In the end it was also discussed that what kind of expectations this kind of service might provoke in them and their willingness to use it, if it costs something. With a question: What would you expect to benefit from it and would you be willing to pay for it?

Results

There was an outlook that this would clear out the decision making process from what it is today and make it also faster than currently. Benefit of being able to do comparisons was one of the main points for them. The transparency of whole process were seen as huge benefit of this kind of service. Integrated Supplier Management System would save time and money, when you know that what is the level of suppliers service/product and in what price group they belong to. This service would also surface the “weak links” among the suppliers. All of the interviewees were willing to pay for the service if they would see it saving their time and money. (Personal communications: J. Mälkiä 9.5.2016; M. Harki 28.4.2016; K. Patrakka 28.4.2016)

Conclusions

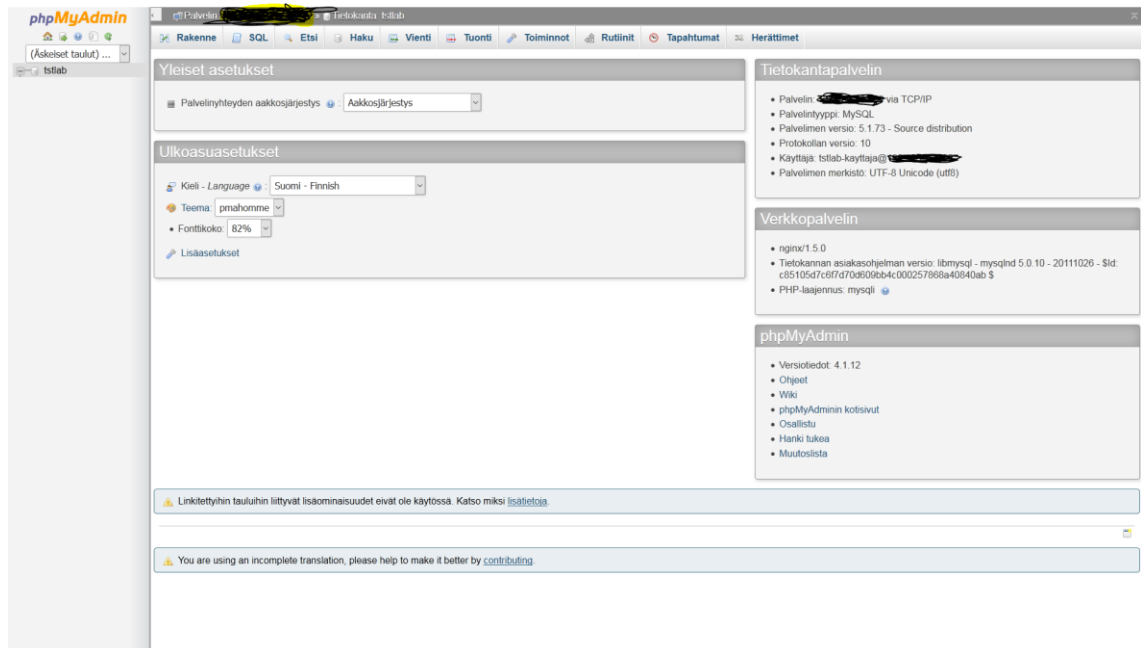
There is a clear demand for the service like this. And among all the technical details and fluently flowing customer journeys, the main challenge is to build a credible brand for it. Brand that would make all stakeholders to have the feeling that they benefit from it and brand that makes them want to use it as one of their main tools in asset procurement.

6 PROTOTYPING

After the research work was done and processed there was enough information to get started prototyping the first version of the service in digital form and on-line. Prototyping is a way to simulate the service experience and it can be executed in different depths of complexity. The most common way of doing this is to come up with mock-up that is used in user testing. The prototype was built with agile development methodology. That means that the whole development is an iterative process and it is constantly developing, evolving and adapting with all adequate input. The aim of this prototyping work was to create a demo which would allow the further development for the commissioner (Stickdorn & Schneider, 2011 192-193, 196-197)

6.1 Agile Development

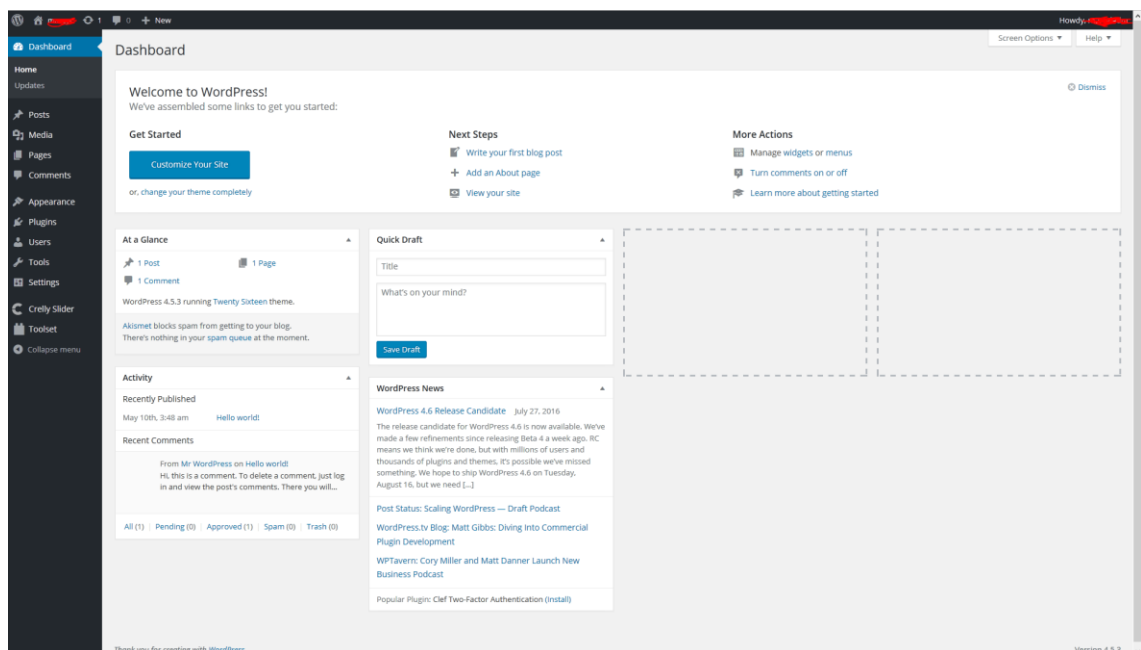
The actual service prototype building work started by setting up a test server (Picture 31), that would be used as a platform where the first mock-up is built to.



Picture 31. The installed test server.

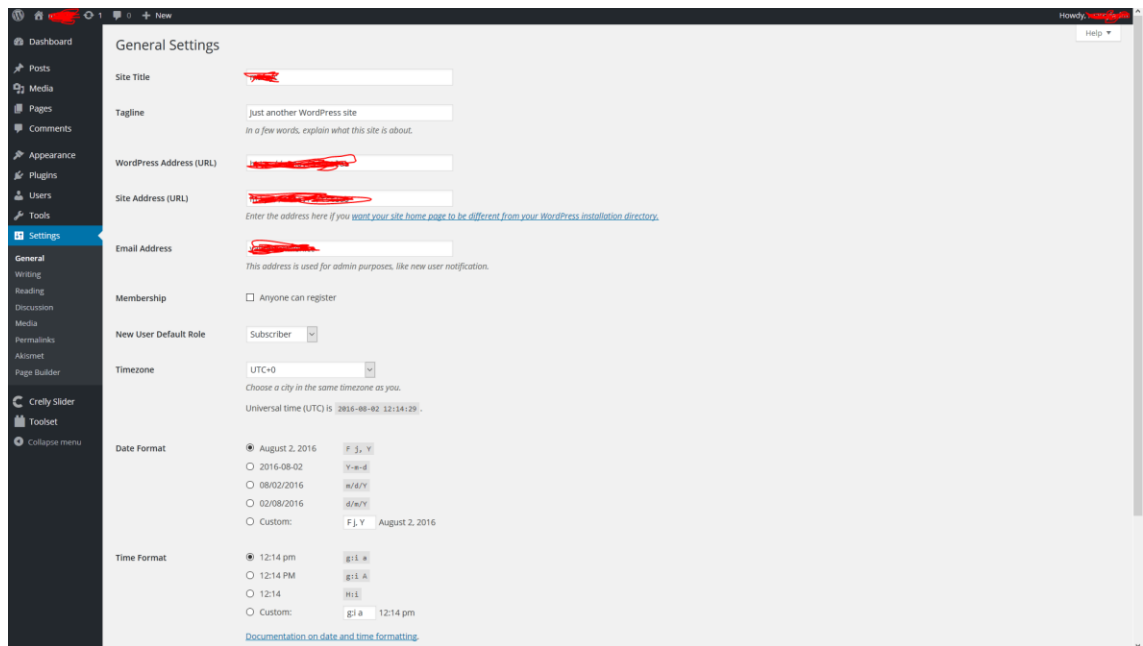
WordPress was chosen as a platform for prototyping this web-based service. It is an open source web software platform for creating web pages, blogs and web application solutions. Being open source means that there is a lot of development around it everywhere in the world going on constantly. Several developers and designers create different kind of add-ons and plug-ins that help to extend the features of WordPress. (WordPress web) It was also a familiar platform for me to work with, so it was the most agile tool to proceed to build this first version of prototype. After the platform was set-up (Picture 32), the WordPress could be installed on it.

When the WordPress was installed (Picture 32) the development work could begin by installing and modifying a theme (Picture 43). As for this first prototype need it was chosen to create the website on existing theme and modify that according the needs, instead of building completely new from the scratch. That way the development and testing would be more agile. If and when this project will be finalized as a true working web-based service, it can be done with more focus in all the details.

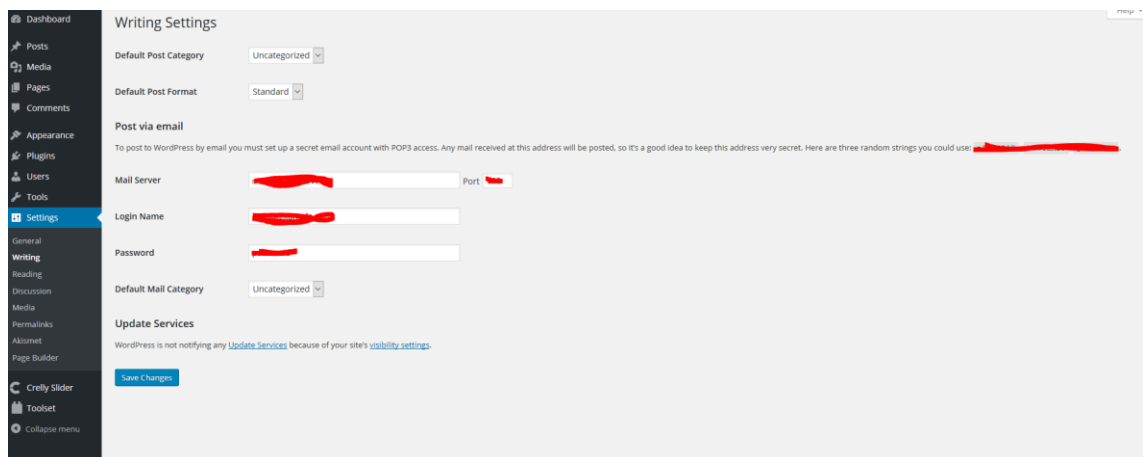


Picture 32. First, un-modified installation of WordPress.

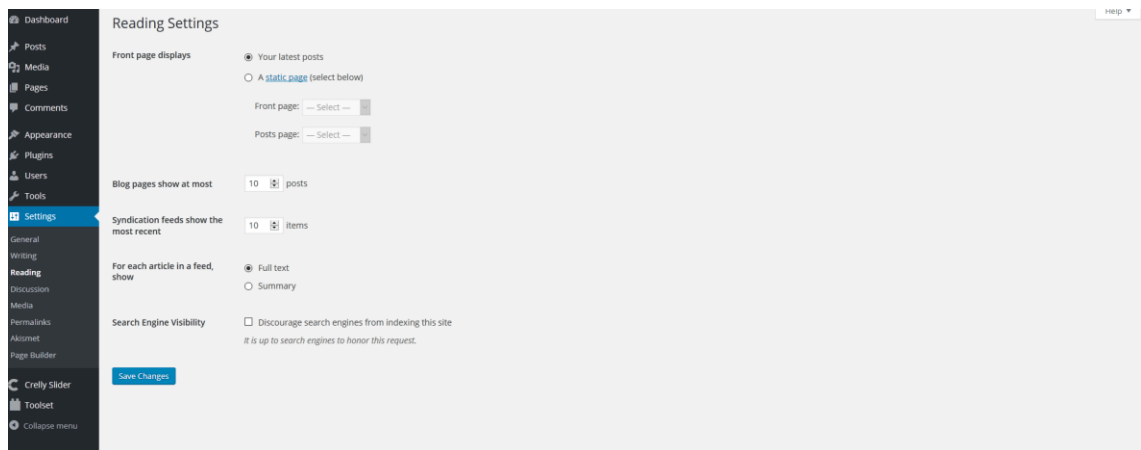
First it was needed to update the WordPress installation and its add-ons, then configure the settings for the site so that they would best serve the prototyping work. The settings chosen are not the ones that are seen in pictures following, but these pictures show what kind of options there is in WordPress settings to choose when starting to build a WordPress project. (Pictures 33, 34, 35, 36, 37, 38, 39 and 40).



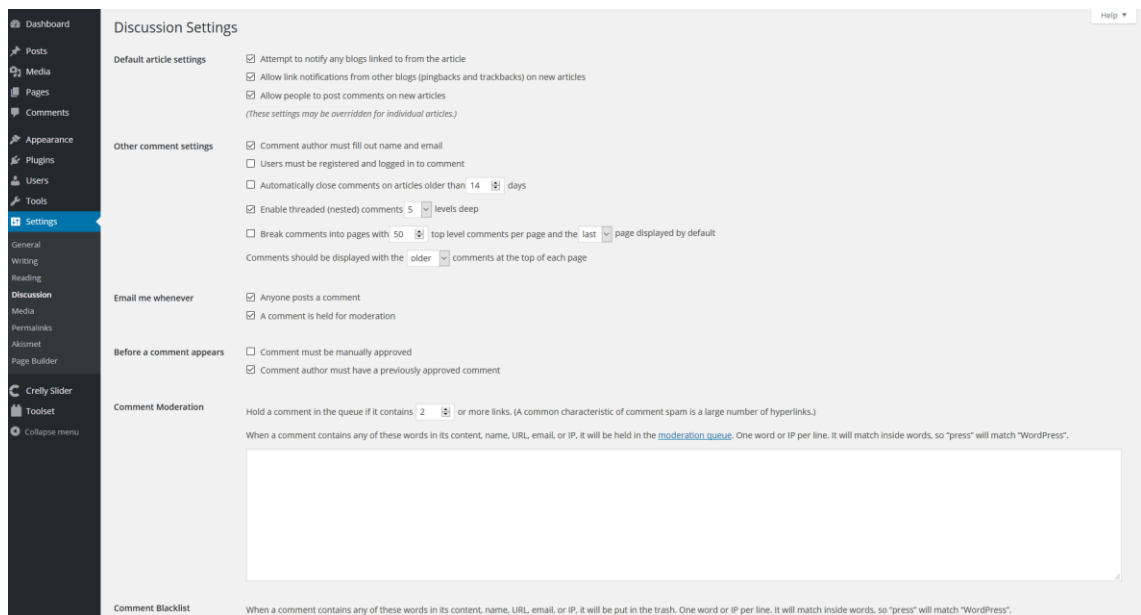
Picture 33. General settings.



Picture 34. Writing settings.



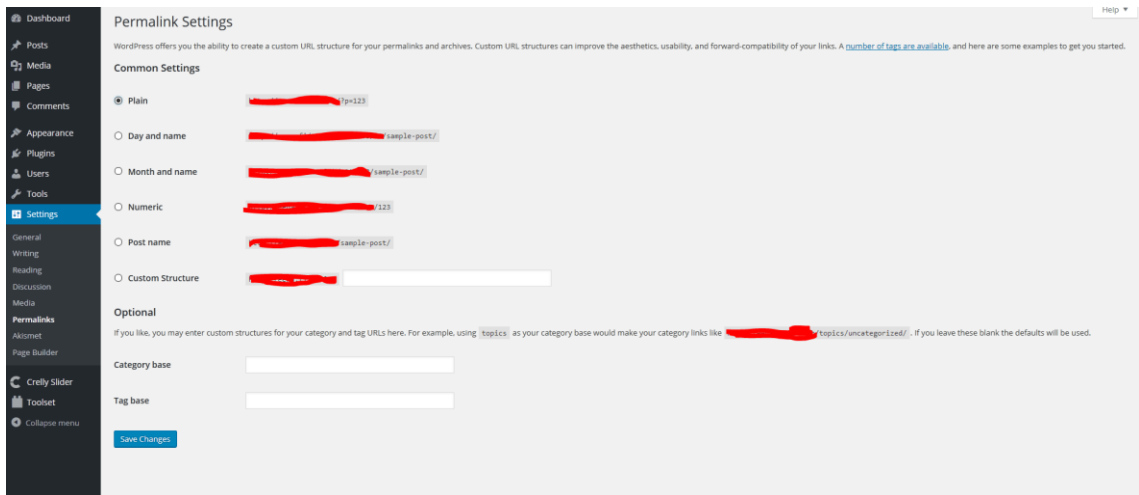
Picture 35. Reading settings.



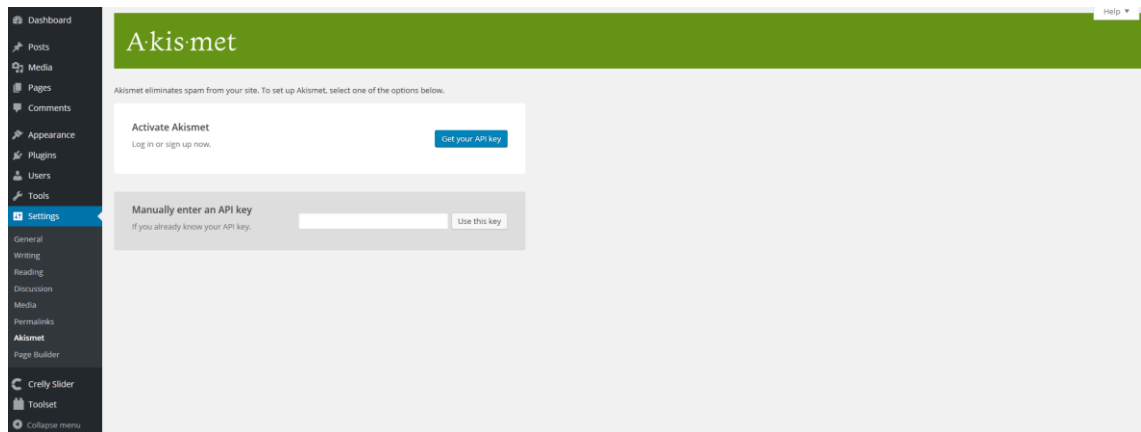
Picture 36. Discussion settings.



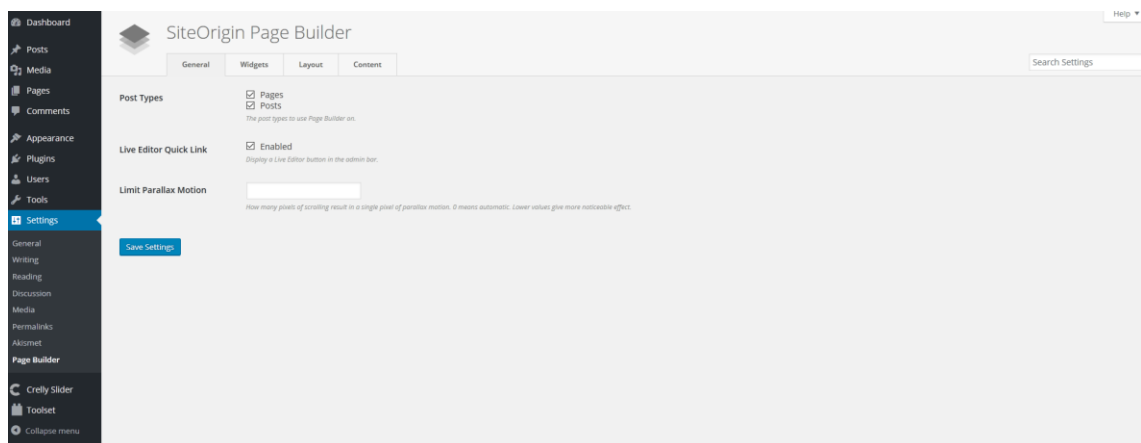
Picture 37. Media settings.



Picture 38. Permalink settings.

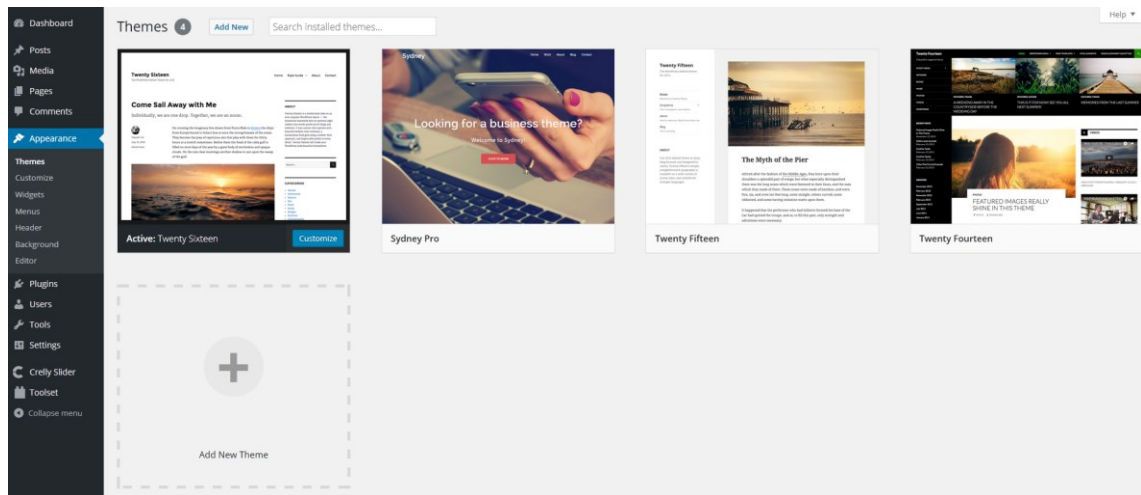


Picture 39. Askismet settings.

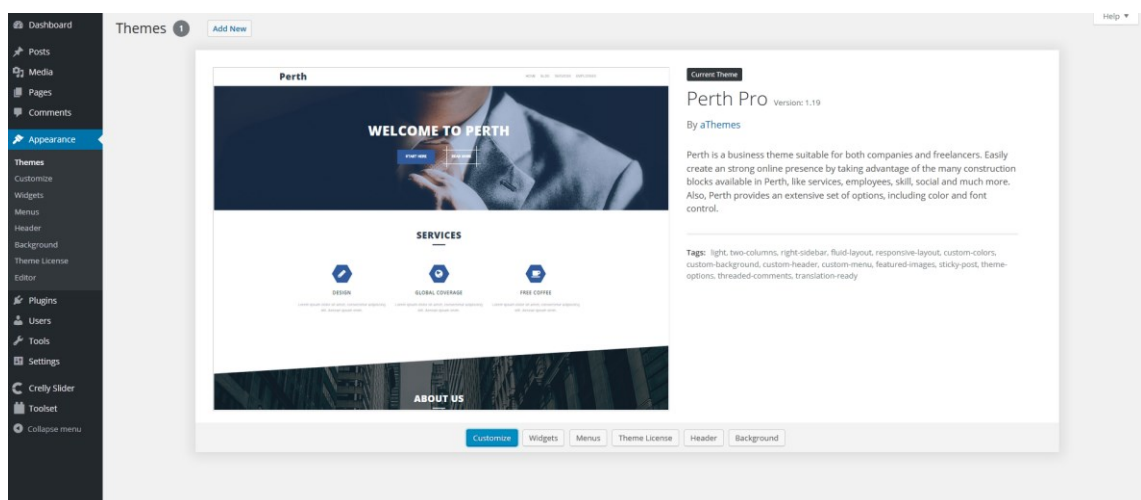


Picture 40. Site Origin Page Builder settings.

As a default this WordPress installation came with four pre-installed themes that could be used to build different kind of web solutions (Picture 41). This prototype work was made with a different theme and therefore all the pre-installed themes were removed and the chosen theme installed alone in the server (Picture 42). The common way to build up WordPress sites is to use separate file-directory called Child Theme, which holds all the tweaks and customization that will be made to the themes style file and functions, but for this prototyping project that was not necessary since it was just the first step on the process and later the service might be moved to different platform all together. (WordPress Codex web)

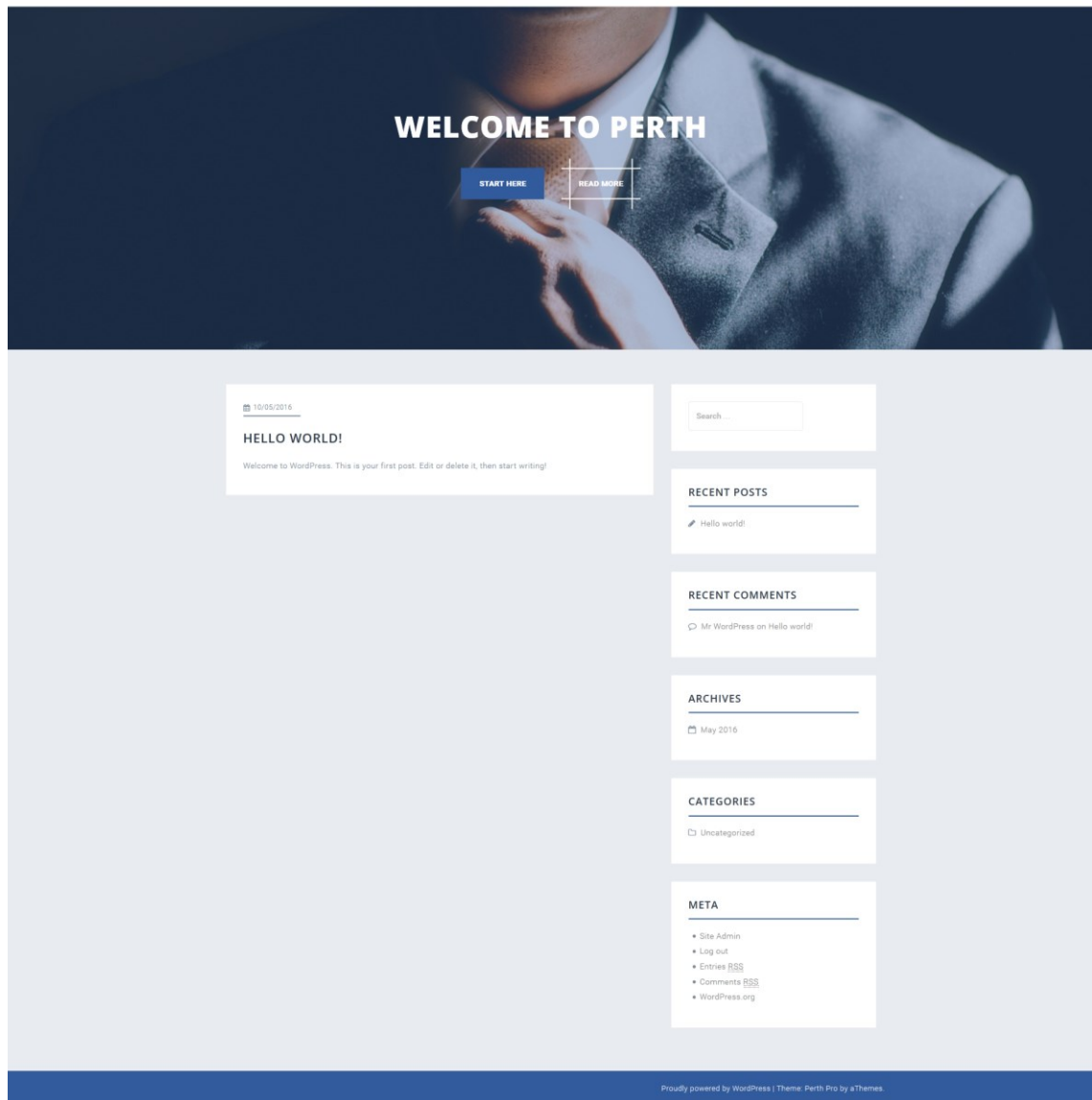


Picture 41. Pre-installed themes that were removed.



Picture 42. Chosen theme installed and ready for build.

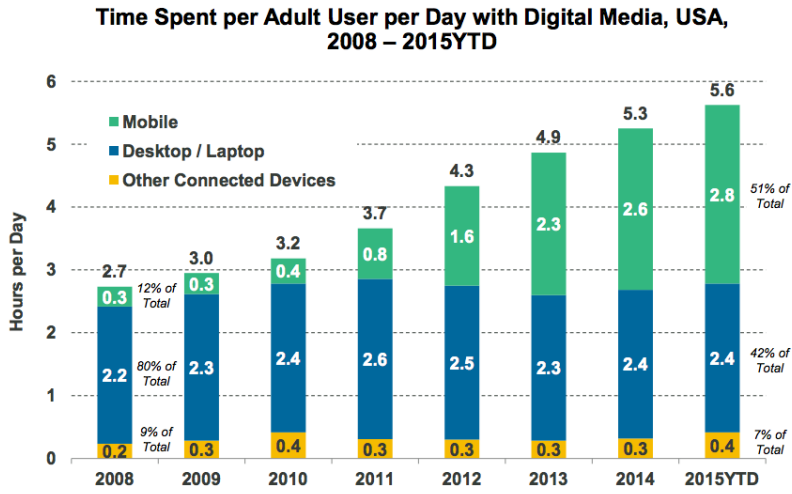
After the theme was installed it still needed some adjusting before I it was possible to start to modify it for mock-up and design the user interface usability (Picture 43).



Picture 43. Clean, unmodified theme look, this is where the design begins.

The chosen theme for this project was modern one-pager styled design, which works fluently in desktop / laptop computers as well as mobile phones and tablets (Picture 43). The mobile web browsing is growing continuously year after year and in 2015 it was already over 50% of all usage (pictures 44 and 45). That is the reason this service was developed for responsive platform from the beginning (Pictures 46 and 47), which was proved to be the best approach also in benchmarking of the current services especially in the analysis of the venuu.fi service (Figure 5).

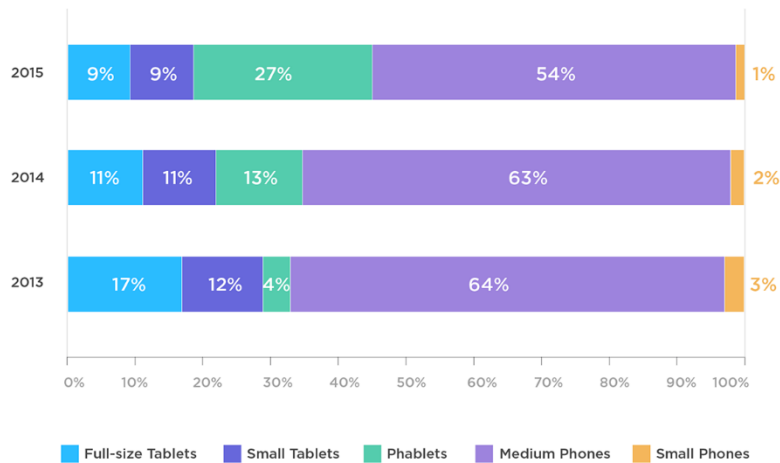
Internet Usage (Engagement) Growth Solid
+11% Y/Y = Mobile @ 3 Hours / Day per User vs. <1 Five Years Ago, USA



@KPCB Source: eMarketer 9/14 (2008-2010), eMarketer 4/15 (2011-2015). Note: Other connected devices include OTT and game consoles. Mobile includes smartphone and tablet. Usage includes both home and work. Ages 16+; time spent with each medium includes all time spent with that medium, regardless of multitasking.

Picture 44. Internet usage per device. (Smartsights web)

Distribution of New Devices by Form Factor Week Leading to Christmas



FLURRY
—BYFOC

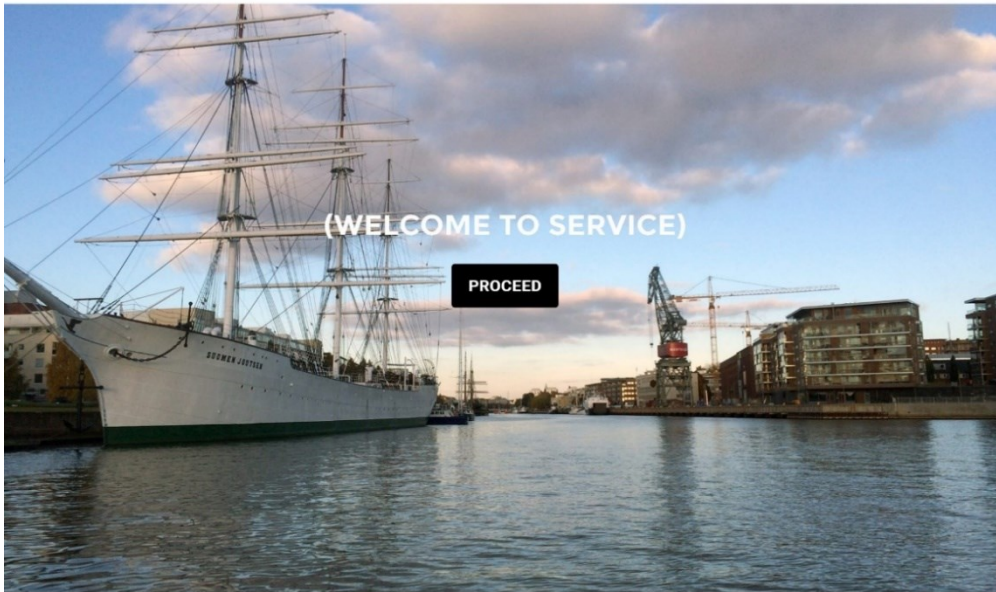
Source: Flurry Analytics, December 19 - 25, 2015, 2014, and 2013

Picture 45. Device form factor comparison. (Flurry analytics web)

logo here

tagline here (if needed)

BLOG FRONT



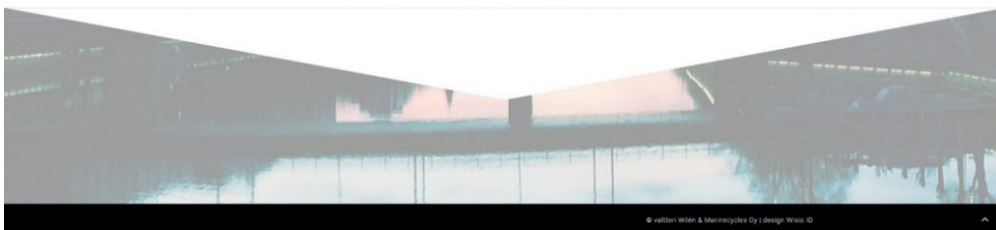
Service

Lorem ipsum on yksinkertaisesti testaus teksti, jota tulostus- ja ladointiteollisuuden käyttäjät. Lorem ipsum on ollut teollisuuden normaali testaus teksti jo 1500-luvulta asti, jolloin tunnetuin tulostus oli kirjuri ja sekoitti sen tahdikkaan esimerkkikryksiin. Se ei ole selvinnyt vain siitä vuositasa, mutta myös lukan elektroniseen kirjoitukseen jätteen suurimpiin muuntamattomana. Se tuli kuuluvuuteen 1960-luvulla kun Letraati paperiä, jossa oli Lorem ipsum pätsä, julkaistiin ja vielä myöhemmin tietokoneen julkistushelmassa, kuten Aldus PageMaker jossa oli versioita Lorem ipsumista.

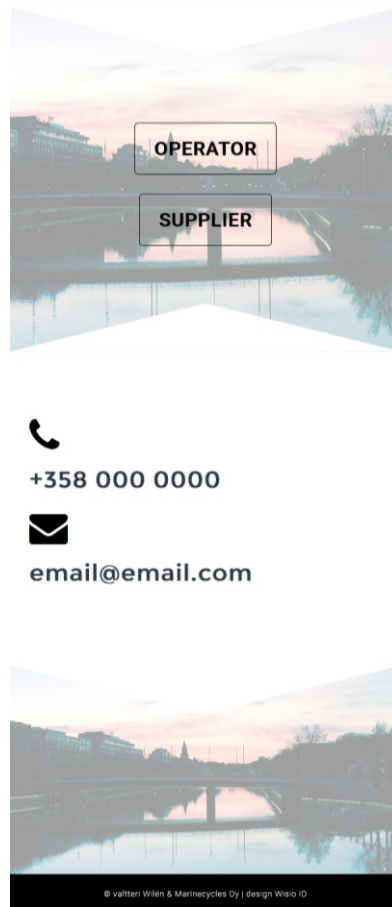
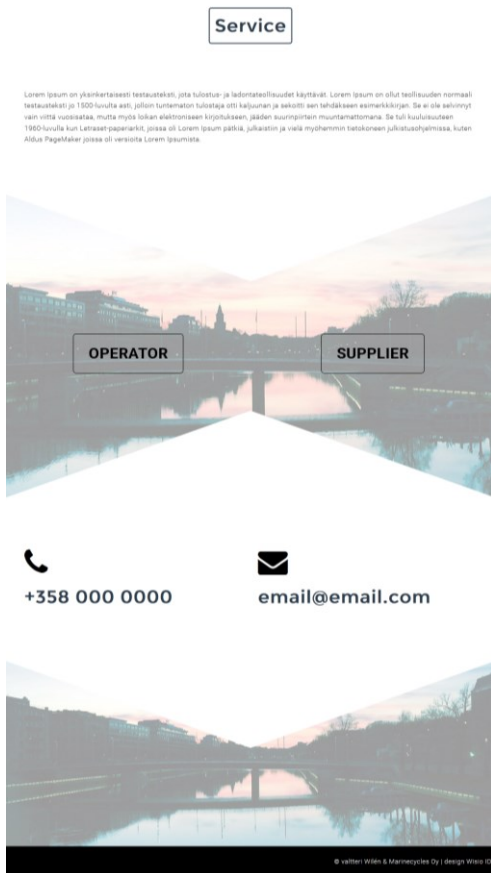
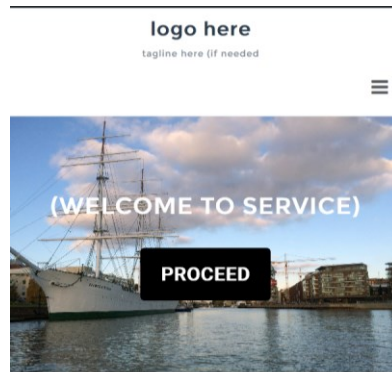
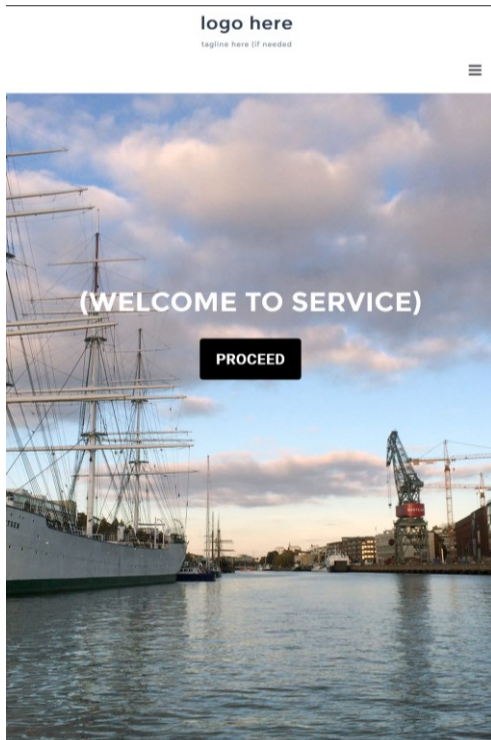


+358 000 0000

email@email.com



Picture 46. First edition of website in desktop / laptop view.



Picture 47. First edition of website in tablet and mobile phone views.

6.2 Testing

Testing and piloting of the service was excluded from this thesis work. When the project will be continued with agile method, it would also alter and update the service design tools, especially the service blueprint and customer journey maps. The actual customer journey maps were not even created during this thesis work, because they will develop iteratively along the prototype development. However one imaginative customer journey map was created just to get somekind of understanding of it and to get it started also (Figure 15).

7 CONCLUSIONS

At the beginning of the work there was only a hint of a direction the project should take and the way how it should be completed. When we started the discussion of the project with the commissioner I felt the amount of information received from them was overwhelming. I was asked to sort it out, to challenge it and give it back to them in structured and understandable form so it would be possible to create and design the service. I felt overwhelmed in the beginning and thought that I might have signed up for something that was a bit too much for me. Having no relevant experience from marine industry what so ever I had to try to adapt into it very quickly to be able to start to understand what we are dealing with in this project.

By using the service design tools and co-creative working method we were able to develop the concept of this service from “green field” with the commissioner. The service could not have been developed this far without using service design and agile development that is very clear now when I look back the process. There was too many open ends that would have remained undefined. And all solutions would have been left invalidated without user interviews.

Research Questions

The first research question for the study was *“What are the needs for the Owner / Operators in ship procurement?”*

The contextual interviews clearly answered this question by giving evidence that there is a strong demand for the service itself in owner/operator side. They had needs for transparency in process, which would allow them to compare the prices of each cost unit in process separately and also for ability to compare technical differences of products and services. There was a demand for ability to compare differently specified builds and need to get options and help for financing their projects. There is demand for shorter timeframe in quotations and procurements. It also became clear, that there is a need for business intelligence services and B2B integration to Customer Relationship Management (CRM).

Second research question was *“What are the needs of the Suppliers when they offer their products/services to Owners / Operators?”*

Answers to this was gained from facilitated co-creation session and contextual Interviews. Suppliers have demand for business intelligence. Digitalized service like this would provide a lot of big data based business intelligence for all of its users. Later the service could be implemented with Supplier Relations Management tools that would also be benefit the suppliers when utilized. This service allows suppliers to co-operate and create consortiums to deliver turnkey services through this service. And it would also give them rankings and auditing the results that owner/operators could use when they are choosing the suppliers for their projects.

Third Research question was *“Which actors would benefit of service?”*

This research work indicated clearly that there is a demand for the service like this. Different kind of suppliers and owner/operators have different kind of needs and they would all use the service a bit differently, but they would all benefit from it.

This kind of service, when taken in use widely, would be disrupting and could force the entire branch of business to alter its business models. This kind of drastic change has happened earlier in different kind of businesses with digitalized services such as AirBnB and Uber and with e-commerce such as eBay, Amazon and Alibaba.

The Co-Design Process

Out of the service design tools that were used in this co-design, I personally felt the Business Modell Canvas, Personas and Contextual Interviews of both the commissioner and owner/operators, were the most efficient tools for this service development work. They gave solid info that allowed to us to build the concept and mock-up of the service and to validate our choices with the end users. The Stakeholder Map was the easiest of them, but it also helped tremendously to understand the outlines of frame work for this service.

The service design process started by having meetings with the commissioner, where different matters were discussed. Based on these discussions the first service design tools were filled, but the project felt a bit stuck from the commissioner's side and I was also struggling with it because I had no experience from the marine industry. The commissioner asked me to facilitate a co-design session for them, as they needed to be coached through their thought processes. I planned the co-design session and came up with ideas for tasks that would give the answers which would allow us to fill all the service design tools with relevant info. At this point of the process I had a minor panic, because I had no experience of facilitating service design sessions either. And we had not had a course of it at school either by the time I facilitated it. I have done a lot of design and innovation work for numerous of clients and brands and taken part of design and innovation workshops, but I had never actually guided anyone else through the thought process. With a huge help from my co-students I was able to succeed in this. Special thanks to Laura Elo who was kind enough to lend me some facilitation tools from her box of tools she had developed in her profession. Gladly the participants were enthusiastic of the subject at hand, so there was no need to warm anyone up especially for the tasks and we got straight in the work.

The participants prepared for the session with pre-tasks as homework. They had to do SWOT-analysis from different stakeholder points of view. And our first task in workshop was to challenge and deepen their homework results with another four-field analysis. After we had worked through the viewpoints of different stakeholders we continued with the task that developed ideas for revenue streams.

The session took place 02.03.2016 at legendary highway pit stop at Lahnajärvi, which is located on side of Highway 1 between Turku and Helsinki. The place was renovated and restarted by new owner and is again an active resting place on side of the highway for people passing by. Lahnajärvi premises include an old arcade room which is full of vintage arcade videogames and tabletop games. That was the room we used for our service design session and the room gave it a spectacular atmosphere to work at. Lahnajärvi itself is one of those places where time seems to be stopped, while the rest of the world has moved on. Premises was old Alvar Aalto designed building with

appropriate level of decadence. So it was great place to forget everything and focus deeply on the work at hand. It also turned out to be great fun for me and the participants. It was quite eye opening experience for me of how efficiently and how precise data can be achieved with this kind of working method. The whole co-creation we went through, including the first discussions ending up to the facilitated service design session and customer interviews, was an iterative process as all design work is. When the participants went through the thought process and analyzed the whole service from all the different stakeholder viewpoints it really started to open up for them. And it really opened for myself as well, while I observed them working and thinking. It was also very inspiring for me to witness the actual moment when the clients reached the “moment of clarity”, the point where it all became obvious for them instead of the earlier state of confusion. Small victories in process and extremely motivating for me as a service designer.

Other research method, contextual interviews also turned out to deliver fantastic results. It was good that we were able to get stakeholder representatives from different Personas with completely different points of views. Personally I felt that I learned all the essentials in asset procurement in the marine industry just by listening to these professionals talk of their work in these interviews. Always a pleasure to talk and especially to learn from the professionals of different fields.

The goal for this thesis work was to develop a business model (the concept) and the online mock-up for the service. Both objectives were accomplished in a very challenging timeframe. The commissioner was satisfied to the results of this work and so was I personally. And as a side product I learned a great deal of the marine industry and its processes and also of the service design process and designers role in it.

SOURCES

B

Business Insider web <http://nordic.businessinsider.com/maersk-earnings-and-outlook-for-industry-2016-8>, Referred 22.8.2016

Business Insider web <http://nordic.businessinsider.com/global-warming-is-accelerating-2016-5/>, Referred 22.8.2016

Business Insider web <http://nordic.businessinsider.com/cargo-ships-are-being-recycled-due-to-slowing-global-economy-2016-8>, Referred 22.8.2016

Buyer side of the User Interface <http://shipsu.com/buyer-profile/>, Referred 13.5.2016

C

Cruiseindustrynews web <http://www.cruiseindustrynews.com/cruise-industry-stats.html>, Referred 22.8.2016

Cruisemarketwatch web <http://www.cruisemarketwatch.com/articles/cruise-market-watch-announces-2015-cruise-trends-forecast/>, Referred 22.8.2016

Cruiseindustrynews web APAC growth
<http://www.cruiseindustrynews.com/images/thumbnails/images/stories/wire/2016/May/asia-pac-growth-fill-200x130.jpg>, Referred 22.8.2016

D

Device form factor comparison
https://s.yimg.com/dh/ap/flurry/tumblr/ChristmasCharts_ONE.png, Referred 4.8.2016

Double diamond
http://www.thecreativeindustries.co.uk/media/32564/DoubleDiamond_739x517.jpg, Referred 23.8.2016

Double Diamond by Koishin Chu
https://www.google.fi/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwjCwLz92drOAhUKSJoKHdreBo8QjRwlBw&url=http%3A%2F%2Fservicedesignvancouver.ca%2Ftag%2Fdouble-diamond%2F&psig=AFQjCNFZGFAc8IGb9mW_2IMHd5AJTDCSXg&ust=1472150420106256, Referred 24.8.2016

F

The fourth step. Configure the hydraulic options <http://configurator.valtra.com>, Referred 12.5.2016

The fifth step. Configure the three point lift options <http://configurator.valtra.com>, Referred 12.5.2016

H

<http://www.shipserv.com/info/about-us/>, Referred 27.7.2016

<https://wordpress.org/>, Referred 15.8.2016

https://codex.wordpress.org/Child_Themes, Referred 25.8.2016

<http://searchcrm.techtarget.com/definition/CRM>, Referred 15.8.2016

https://en.wikipedia.org/wiki/Customer_relationship_management, Referred 15.8.2016

<http://searchsap.techtarget.com/definition/supplier-relationship-management>, Referred 15.8.2016

https://en.wikipedia.org/wiki/Supplier_relationship_management, Referred 15.8.2016

I

Internet usage per device <http://www.smartinsights.com/wp-content/uploads/2015/06/Mobile-Internet-Trends-Mary-Meeker-2015-1.png>, Referred 4.8.2016

L

Lahti UAS web http://tykes.lpt.fi/methods_docs/BENCHMARKING_MENETELMAKORTTI2.pdf, Referred 15.8.2016

The landing page of the Shipserv service <http://www.shipserv.com/search>, Referred 27.7.2016

M

Marine lifecycle today, ABB

http://www07.abb.com/images/librariesprovider91/Marine/Service/life-cycle-chart-short_rev2d62dd3e2c1f463c09537ff0000433538.jpg?sfvrsn=2, Referred 3.1.2016

Maersk Interim Report Q2 2016 <http://www.maersk.com/en/the-maersk-group/press-room/press-release-archive/2016/8/maersk-interim-report-q2-2016>, Referred 22.8.2016

The main view of Shipsu User Interface <http://shipsu.com>, Referred 13.5.2016

The main view of Valtra User Interface. <http://www.valtra.co.uk/>, Referred 12.5.2016

The main view of Venuu User Interface <https://venuu.fi>, Referred 12.5.2016

O

The Operator page of Shipserv User Interface. Shippers web

<http://www.shipserv.com/info/save-time-and-money-with-tradenet/?b=1>, Referred 27.7.2016

P

Provider side of the User Interface <http://shipsu.com/provider-profile/>, Referred 13.5.2016

R

Räisänen, P. 1997 Jyväskylä. Laivatekniikka, Modernin laivanrakennuksen käsikirja.

The registration page of Shipsu service <http://shipsu.com/a/signup/>, Referred 13.5.2016

S

Shipsu.com <http://shipsu.com/>, Referred 13.5.2016

Stickdorn, M., Schneider, J. 2011. This is Service Design Thinking.

Starting point of tractor configuration after the model is selected <http://configurator.valtra.com>, Referred 12.5.2016

The second step. Configure the framework options. <http://configurator.valtra.com>, Referred 12.5.2016

The sixth step. Configure the cockpit options <http://configurator.valtra.com>, Referred 12.5.2016

The seventh step. Configure the tire options <http://configurator.valtra.com>, Referred 12.5.2016

The Supplier sign-up page of Shippers User Interface <http://www.shipserv.com/info/pages-for-suppliers/>, Referred 27.7.2016

T

Thecreativeindustries web Double Diamond

http://www.thecreativeindustries.co.uk/media/32564/DoubleDiamond_739x517.jpg, Referred 22.8.2016

Tuulaniemi, J. 2011. Palvelumuotoilu. Talentum.

The tractor menu by model types. <http://www.valtra.co.uk/>, Referred 12.5.2016

The third step. Configure the drivetrain options <http://configurator.valtra.com>, Referred 12.5.2016

U

User Interface for Project Inquiry –tool <https://shipsu.com/a/project/>, Referred 13.5.2016

User Interface for market place <https://shipsu.com/a/market/>, Referred 13.5.2016

User Interface for list of Providers <https://shipsu.com/a/provider/>, Referred 13.5.2016

The User Interface view for space seeker after some selections made. <https://venuu.fi>, Referred 12.5.2016

V

Valtra <http://www.valtra.co.uk/>, Referred 12.5.2016

The view from first page of space provider User Interface <https://venuu.fi>, Referred 12.5.2016

W

www.venuu.fi, Referred 12.5.2016