

## Service design in a new product development

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<p>It can be said that we are living in the era of the customers. Business organizations have always been reliant on their customers, but never before have the customers been so connected, enlightened, and empowered than now. In today's economy technology-driven organizations are facing cultural and behavioral challenges. They are confronting a situation where they are required to change from technical to human-centered thinking.</p> <p>Commissioner of the project, Sampo Saari from Tampere University of Technology, and his team of researchers have an idea for a new innovative product to reduce small-scale carbon pollution. They were interested to find out the product's commercial potential.</p> <p>The main goal of this thesis is to provide development ideas to the commissioner by using service design methods and tools. To analyze current situation of potential customer attitudes, provide service development opportunities and suggestions. The thesis is not concentrating on the technical part of the product. The focus is on the customer- how to provide a complete service to the customer and what are their expectations towards the product.</p> <p>The theoretical framework of this thesis is written to support the project part. It looks at the mindset of service design, its principles, and process description. It highlights the main tools and methods that are used to achieve customer oriented service. Instead of concentrating on a specific field, this thesis offers an overall look on service design and its implementation.</p> <p>Project part of the thesis was conducted by using service design process model. Methods like interviews, netnography, brainstorming and prototyping were utilized in the project. According to the testing of the prototype, development suggestions for the commissioner were made.</p> <p>Key findings highlighted peoples' reservations and values toward the subject and the product. Product efficiency and sustainability, as well the installment and maintenance issues were found to be major concerns in customers eyes.</p>	
<b>Keywords</b> Service design, new product development, customer understanding, prototyping	

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# 1 Introduction

“The importance of the physical product lies not so much in owning them as obtaining the services they render” – Philip Kotler

Few decades ago it was easier for organizations to differentiate themselves from the competitors. Usually by creating something new and innovative, producing more in less time or just using clever marketing was a recipe for success. Now days, in a rapidly globalizing technology environment where people can choose their service providers all over the world, the great companies of tomorrow cannot rely just on those factors anymore.

It can be said that we are living in the era of the customers. Business organizations have always been dependent on their customers, but never before have the customers been so connected, enlightened, and empowered than now. Marketing faces greater obstacles since the information spreads fast and the most trustworthy feedback about services comes from other customers. Furthermore, growing number of digital marketing channels, ever increasing competition and lower rate of customer loyalty gives customers an unprecedented power over organizations (White 2014).

On top of that consumer's behaviors have changed. They don't search just for a product or service anymore, they crave for the full individualized experience. Those experiences comprehend both, the service and the product (Tuulaniemi 2011, 19). In a case where one service is provided by countless players all over the world, importance of the solutions that can provide whole service is increasing rapidly. No matter what the product linked service is, it has a big impact on a full customer experience. Quality of the service can be the main factor which upon customers choose their product provider. To differentiate from the competitors and meet the customers' expectations organizations must shift their focus from what they are doing to how they are doing it (Klaar 2016, 15-16).

Technology-driven organizations are facing cultural and behavioral challenges. Industrial field has traditionally leaned on their technical capabilities to gain competitive advantage. Now they are confronting a situation where they are required to change from technical thinking to human-centered thinking (Miettinen 2017, 3). By shifting the perspective from products to services, organizations are not neglecting the importance of the physical product, instead they add value by emphasizing on the service that the product conveys (Pinheiro 2014).

Different literature sources have demonstrated that correct understanding of the customers' needs in product or service development process is a foundation for success. New product or service encounters a difficult task of revealing customers current needs and anticipating the future ones. This undertaking cannot be accomplished by traditional marketing researches and strategies. To gain a deeper understanding, customer involvement to the development process is needed. (Edvardsson, Gustafsson, Kristensson & Magnusson 2006, 3-4).

## **1.1 Background of the thesis**

The idea for the thesis came with attendance to the Innoscout course. At first, I was interested in this course because it had elements that were linked to corporate social responsibility. As the project started it became evident that the focus of the task will be on modeling new services. Several partners of Haaga-Helia University of Applied Sciences had developed various new business ideas, which they now offered to students to be refined even further. The task was to apply service design as a part of product development process.

The central frame of the project was built around service design, customer insights and development of the product through experimenting. I was intrigued by the concept where services and especially new products are developed in a people-oriented mindset. As I attended to the course it was clear right from the start that I will use the knowledge gathered from this project for my thesis.

Commissioner of the project, Sampo Saari from Tampere University of Technology, and his team of researchers have an idea for a new innovative product to reduce small-scale carbon pollution. He was interested to find out the product's commercial potential. As he stated - a critical part of the commercialization process is a comprehensive market research that should include, among other things, market potentials. Furthermore, the commissioner was curious to know if there are any certain aspects they should consider when moving forward with plans to commercialize the product. He pointed out that potential customer groups could initially be private consumers and small-scale heating plants in Finland and Europe.

The thesis is performed as a development orientated project and includes qualitative research conducted by using service design tools. Service design approach is also the central theme of this thesis. Project part was executed by following Marc Stickdorn service design process. Stickdorn, who is a German trainer and a consultant for service design

thinking, describes a process which consist of four different stages: exploration, creation, reflection and implementation. All the mentioned stages contain different tools that help to achieve the goal of each separate step.

By using different methods, it was possible to create better understanding of customer expectations and fabricate new ideas. Analysis of the research included gathered data and personal observations. Stickdorn process and the service design concept are described more thoroughly in the following chapter of theoretical framework. The goals of the project were achieved by implementing service design methods and tools. Data was gathered by conducting interviews and observation. After the current situation was analyzed, newly created ideas were tested by prototyping to gain more information. Development ideas and suggestions for the product were created based on the findings and observations form testing.

Theoretical framework is written to support the project part of the thesis. It describes what service design is, how the process works and how service design can be benefited by new organizations and innovative ideas. Numerous literature sources were used to gain basis for the theoretical framework. Articles, studies and books used in the thesis were chosen carefully to obtain the integrity of the thesis.

Because Innoscout project course consisted of different projects and different commissioners the presentations of the project results were done before the thesis was written. The thesis will be presented to the commissioner.

## **1.2 Goals**

The main goal of this thesis is to provide development ideas to the commissioner by using service design methods and tools. To analyze current situation of potential customer attitudes, provide service improvement opportunities and suggestions. The thesis is not concentrating on the technical part of the product. The focus is on the customer- how to provide a complete service to the customer and what are their expectations towards the product.

The mission of the project and the thesis was to produce extra value to the product by using service design tools. The aim was to include possible customers and stakeholders into the early stages of product development and service design process. Suggestions for the future customer service model are based on the insights gathered.

Goals for personal learning outcomes were to get familiar with service design as a tool for improving services in a manner that can be later used in professional life. Educating myself both in theoretical and in the practical aspects of service design. Since the project was conducted before a personal wider understanding of service design, it was important to gain more knowledge through writing the theoretical framework.

## 2 Service design approach

This chapter focuses on the concept of service design, its principles needed for the right mindset, and process description. It highlights some of the tools and methods that are used to achieve customer oriented service. The chapter is not concentrating on a specific field, but rather offers an overall look on service design and its implementation. At the end of the chapter is a short look into why service design based approach can be beneficial to new businesses, developments and services.

Product design and market research are a vital part of any organization`s strategic plan. Organizations spend a lot of resources and time to perfect their products. While the product may be good and the markets are there, success is not always guaranteed. In growing globalization and increasing competition in the business world, organizations must provide something more to stand out. Today`s customers value a personalized service provided by the business. If an organization fails in this aspect, then success is harder to accomplish. To meet and exceed the needs of the customer, organizations have to understand their expectations and think outside of the box. This is where service design comes in.

Service design is an interdisciplinary approach that has roots in a range of different disciplines (Stickdorn & Schneider 2010, 28). It is a creative strategy that uses co-creation and innovation for the development and improvement process. In other words, it involves customers and other stakeholders in every part of the innovation. The goal of service design is to create human-centered usable solutions that make customer experiences feel logical, desired and unique (Miettinen 2017, 4). By applying service design methods organizations can get valuable information about customers and are able to create products and services that will meet the real customers` expectations. This approach puts the customer in the center of the development process and, the customer point of view can be considered right from the start.

According to leading service design company Livework directors Reason, Løvlie and Flu (7-9, 2016) companies have difficulties to solve problems with analytical and deductive tools commonly used in business world. They indicate that the problem in business thinking is that companies assume that the answers to the problems are already out there. Service design thinking looks at the problems from a different angle. It starts from an assumption that the perfect answer hasn`t been invented yet. By combining analytical and imaginative thinking, service design offers a dynamic approach that will develop new ideas to satisfy the customer needs, rather than just an improvement to already existing models. (Reason et al. 2016, 78-79).



By the virtue of its multiplicity there is no single definition what service design is. Defining this kind of approach is complicated due to it being quite new and still an evolving way to improve services. It also consists off case based methods and solutions. One can find multiple definitions to service design, for instance:

“Service design helps to innovate (create new) or improve (existing) services to make them more useful, usable, desirable for clients and efficient as well as effective for organizations. It is a new holistic, multidisciplinary, integrative field.” (Moritz 2005, 6).

“Service design is a systematic way of approaching service development and innovation for a single time both analytically and intuitively.” (Tuulaniemi 2011, 10).

“Service design is the application of established design process and skills to the development of services. It is a creative and practical way to improve existing services and innovate new ones.” (Live/work 2010).

“Service design is a human-centered approach that focuses on customer experience and the quality of service encounter as the key value for success.” (Saco & Goncalves 2009, 161).

“Service design connects the use of different practical design and design research methods, design thinking and various visualization techniques, linking them with different stakeholders` views during the service design process.” (Miettinen 2017, 4).

In its core, service design is a multilayered human-centered approach to improve and innovate through different methods for the best user or client experience. It emphasizes observation, collaboration, fast learning, visualization, rapid concept prototyping, and concurrent business analysis (Lockwood 2009, 11). Service design can progress through many different steps and phases of customer experience or it can be just something small and simple. (Stickdorn & Schneider, 2010).

Almost every organization uses some form of service in one part of their business process. Service design can be applied on abundant of products, services, and systems in different fields. Possibilities are basically limitless. Design can be implemented into the whole service operation or just into one service moment.

While service design is a form of design it should not be confused with other design fields. For example, professional design or the art and craft of designing are different concepts. Service design uses bits and parts from other fields, but it is a self-standing form. It is more of a methodology for innovation and creativity in order to discover unarticulated user needs and improve level of service. (Lockwood 2009, 11).

Service design has many of the same markers and methods as marketing, but the main focus in this approach is on the people: from the end user to the managing director, staff and other stakeholders. The biggest difference between marketing and service design is that marketing research often uses quantitative research and statistics in their projects. Service design on the other hand puts more importance on qualitative research rather than quantitative. (Polaine, Løvlie & Reason 2013, 38-39).

Service design strives for new possibilities to improve services by shifting attention from the masses to individual touch. Statistics can be useful, but are not very actionable for designers. (Polaine et al. 2013, 38-39). In other words, designers are trying to look behind the numbers and tackle the hidden problems that occur in service. They focus on people's needs and motivations behind their choices of using or not using the service (Polaine et al 2013, 40).

## **2.1 Service design thinking principles**

Service design differs from other development approaches. Stefan Moritz states (2005, 40) that it is a multidisciplinary platform of expertise. It is impossible to learn about a service performance by reading the description or by looking process charts. Designers have to engage and expose themselves in order to gain knowledge (Pinheiro 2014). In order to prosper, designers should first adapt the way of thinking needed for designing services. According to Marc Stickdorn (2010, 34-35) there are five core principles for service design thinking. Service design thinking should be: user-centered, co-creative, sequencing, evidencing and holistic.

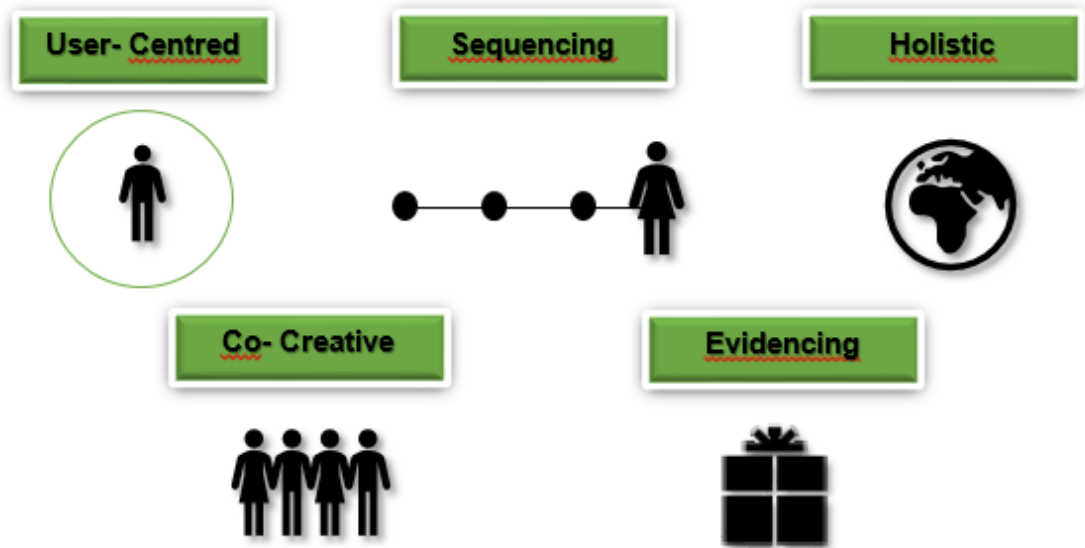


Figure 1. Service design principles

**User-centered.** Service design thinking is all about placing customers at the center of the process. It reaches for the real customer understanding, not only statistical description or empirical analyses. Organizations need to understand that while their customers can be similar due to their ethnology, the reasons behind their choices can be very contradistinctive. User-centered design means that the service should be experienced through customer eyes and driven from customer expectations. To succeed it is important for organizations to know their customer and make sure that they can speak a common language with them. (Stickdorn 2010, 36-37).

**Co-creative.** Service design is designing with people, not only for them. It is an approach where all the stakeholders, especially customers and staff, should be actively involved in every step of the creative process. In this way organizations can get ideas and results that meet the actual demands and desires of the customers. This kind of solution to improve services is cost effective as well time-saving. (Polaine et al. 2013, 44).

While no service design can be successful without participating customers, the importance of the customer-facing staff should not to be forgotten. Service employees often have detailed knowledge about customer needs and concerns. They are a good source of insights as they can provide a perspective on the everyday problems that otherwise can be overlooked. To decrease chances of failure organizations should involve staff who deals with customers on a day-to-day basis in a creative design process. (Polaine et al. 2013, 44).

It has been indicated in numerous sources that when staff is included in the development of the service they feel more engaged and therefore provide better outcomes to the organization. Furthermore, through participating in the development process they get a detailed look of the service they provide and are able to improve the service themselves in the future. (Polaine et al. 2013, 44).

**Sequencing.** There are usually numerous steps in services which combined will give a full experience for the customer. According to branding coach and author J. Margus Klaar (2016, 16), for most of the products and services buying is the smallest part in the whole customer experience. It is what comes before and after, that influences the impression of the whole service.

It is substantial to comprehend that service process happens in a period of time through different interactions and touchpoints. Touchpoints are every contact point where customers meet the service provider. In this context, the touchpoints don't mean just customer-provider face-to-face contacts, but also customer-machine and even customer-third party contacts. Third party contacts can be for example people who talk about the service or other sources where customer meets the service provider. Service designers should visualize all of the sequencing service moments in order for them to work together in the same rhythm to create certain flow in the service. (Stickdorn 2010, 40-41).

**Evidencing.** All of the service parts that happen behind the scenes, out of the customer's sight, have a big role in providing full service. Often customers don't recognize that. Service design should help to visualize the inconspicuous services by evidencing. Evidencing stands for tangible proof. Service evidences can be something small and simple that generate appreciation. For example, souvenirs, small gifts, thank you notes, letters or other products. When customers recognize the work done in the background, it adds value to the whole customer service process and prolongs the experience. (Stickdorn 2010, 42-43).

**Holistic.** It is suggested to always take a look of the bigger picture. In service design, the entire environment, where the service takes place, needs to be considered. The idea is to look beyond the obvious and take all of the factors into account. Designers should be able to see the little details of the service as well the whole picture (Lockwood 2009, 13). In reality true holistic way is impossible achieve, but the intentions have to be there (Stickdorn 2010, 44-45). By recognizing all the surrounding, designers are able to create and improve services that serve the needs of customer, stakeholder and organization.

## 2.2 Service design process

The process of service design links together user needs, new ideas, and a success (Fraser 2009, 37). Every time service design is being used to innovate, the process varies. There are many aspects that need to be considered. It depends on the type of the organization, product or service designed, resources available, timeframe given, stakeholders included, and the objectives. Taking into account all of the different factors, before starting the process designers should actually design the process itself first. (Stickdorn 2010, 125-126).

As stated before service designers look for touchpoints and usually the number and range of them is wide. Services consist of many stakeholders and moving parts. That is why it is important to be strategic and carefully choose the scope of the design research. Taking on a too wide scope can get very complex and the results would not have the desired effect. The goal of service design process is to collect usable insights from the research and turn them into real usable ideas. (Polaine et al. 2013, 45-48).

There are no certain frames for design process. There is only one rule in service design: the process has to be human-centered (Klaar 2016, 28). Rest of the process is a mix of miscellaneous approaches, and it can be said that the process is nonlinear. It plays around different stages and acquires constant learning. Still it is possible to outline a structure to follow. Stickdorn (2010, 125) presents four different key-steps for service design: exploration, creation, reflection and implementation. One can find different frameworks with more steps or different wording, but the main goal is the same in all of them.

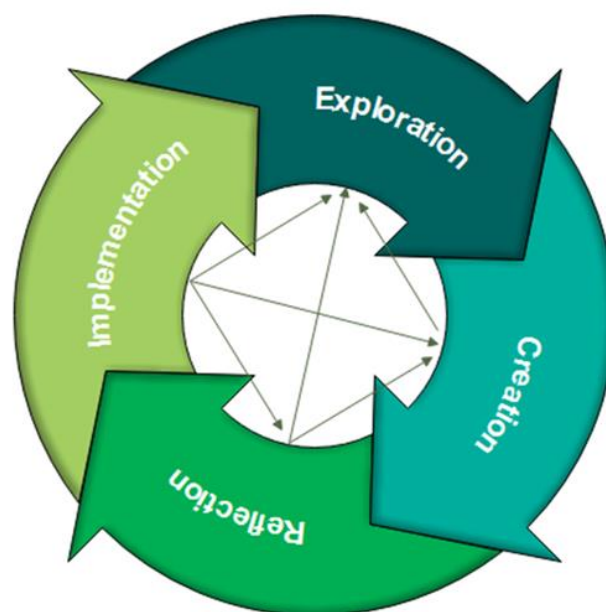


Figure 2. Service design process. (Modified Stickdorn & Schneider 2010)

Those four given steps are a simple way to describe design process. While the process usually starts with exploration, it is important to notice that all of the steps are iterative. Generally service design cannot achieve excellence at the first time. It needs repeating and the exploration-creation-reflection process has to be done multiple times. (Klaar 2016, 25). Each step can take the designer back to a previous one or in some cases it might even be necessary to start all over again (Stickdorn 2010, 124). At the same time each iteration offers more information and helps to refine the concept (Garcia 2014, 10). How many repeats is needed depends on the specific case and on the organization.

The process of service design starts by formulating the main question. To do that designers must understand the organization they are designing for and its goals. While organizations tend to look problems only from their point of view; the designers have a responsibility to look at the same problems, but from the customer point of view. (Stickdorn 2010, 128). After the main question has been raised designers start to gather customer insights to obtain information needed to provide great service experience (Polaine et al. 2013, 37).

### **2.2.1 Exploration**

Exploration phase of service design focuses mostly on gathering and formulating customer understanding. The goal of this stage is to find the problem not the solution, to see the situation from the mindset of current and potential customers. It is about locating customer needs and expectations, as well as the values they hold (Stickdorn 2010, 128-129). In other word designers have to locate what people are really doing instead of what organization think they are doing.

Exploration phase gives tone to the whole design process and therefore it is essential that designers think carefully about the methods and tools they are going to use. There is no ideal blueprint how to exactly generate insights, it all depends on the case in hand. Service design offers many tools to gather customer understanding. Service design tools and methods are described in depth in subchapter 2.3.

To create real understanding of the behaviors and mindsets of participants service design uses qualitative methods for research. Compared to quantitative research the number of subjects involved is usually much smaller. This kind of approach gets fewer numbers of exact answers, but the research goes much deeper and gets results that are hard to achieve with quantitative research.

### **2.2.2 Creation**

Creation stage of service design consists of brainstorming, visualization, and iterations. Thinking big and imagining new possibilities are a big part of service design. The assignment of this part is to find solutions and answers to the problems identified in exploration stage (Stickdorn 2010, 130).

Visualization plays an important role in service design. Creative process is better to understand when different methods of visualization are used (Stickdorn 2010, 130). To present gathered insights designers commonly use sticky-notes. They gather similar insights under the head topics or problems. Data presented in that way gives at the same time general information as well as detailed information (Klaar 2016, 42). At first results of the insights can be intimidating as usually they raise multiple new themes that need to be addressed (Klaar 2016, 79).

In creation part of the process designers look beyond “what could be” and try to visualize it. At this stage ideas can be bigger, impossible and even unimaginable, but they all must be considered as possibilities that can produce real solutions. To get innovative ideas the development team should be open-minded and examine even the broadest and wildest set of solutions. Ideas can even go beyond organization’s current competences and business model. The aim of this is to move on from what’s now to what could be in the future. (Fraser 2009, 39- 43).

As the process continues the ideas become more concrete. Some of the ideas are tossed and some of them are combined. This process is iterative, it might need multiple iterations to select the ideas that benefit the problem raised. The number of ideas is not important, as long there is just not one or two. The more ideas there are, the bigger the probability that one of them leads to the final result. (Tuulaniemi 2011,182).

### **2.2.3 Reflection**

To estimate the effect of the ideas generated in the previous stage, designers test them. To do that prototypes are created. It is effective, risk-free, creative and inexpensive way to test out new ideas and to gain newer ones. With a prototype designers can see how the idea works, what are the customers thoughts, are the expectations filled, and one some cases -is it economically sustainable for the organization. Prototypes are basis for the decision making whether the concept is good or do designers have to take a step back. (Tuulaniemi 2011, 196-197).

Testing is usually conducted with customers and/or other stakeholders. It is used to illustrate the whole service process or just some parts of it, depending on the project (Tuulaniemi 2011, 197). As in all parts of the service design there can be different approaches and the means of testing are highly dependent of the project on hand.

The biggest challenge in this step is making intangible tangible. Designers are challenged to create visions of service concepts so customers can get a good mental picture. Therefore, it is important that the prototypes created provide some kind of visual representation and are as close to reality as possible. To generate emotional engagement service design uses various approaches from staging situations to simple mock-ups. Keeping testing simple is not only cost effective but also increases participants imagination and creative response. (Stickdorn 2010, 131-132).

The more experiments and iterations are made with a prototype the better the outcome is. Failure in service design is not always a bad thing. Failing fast and frequently accelerates the whole learning process and leads the organizations to a better outcome faster. Moreover, it helps to anticipate problems before bigger investments are made. (Lockwood 2009, 11-12).

At the end of this stage all of the ideas are generated to concepts and tested. If the results from testing raised new problems or ideas then designers should take a few steps back and start again with the previous stages.

#### **2.2.4 Implementation**

Final stage in Stickdorn four-step model is implementation. Implementation phase of the process should not be understated. It demands changes in the organization and therefore great attention (Stickdorn 2010, 134). Changes, to be carried out, have to be based on findings from the previous stages.

One of the hardest things in implementation process is changing the existing structure of the organization. While organizations seem to be opened to new ideas, in reality modifying the ecosystem of an organization can be harder than anticipated (Jenkins 2009, 24). Implementation includes many factors and moving parts that have to work together simultaneously. In this stage the focus is, beside customers, on employees. How do they adapt and accept the changes is vital to the outcome of service design. As they provide the service to the customers, it is important that employees understand the created concepts and support them. (Stickdorn 2010, 134).



Progress of the changes made should be monitored by the organization's management. One way to do this is by providing them with the service blueprint so they can easily observe the process. As mentioned many times before service design is an iterative process and ideally after implementation phase another exploration stage is conducted. In this way it is possible to evaluate the effect of the changes made by service design. (Stickdorn 2010, 135).

### 2.3 Service design methods and tools

In service design, there is a wide range of methods and tools that designers can use throughout the process. These tools are always chosen in accordance with the nature, possibilities and limitations of the case and are driven by the character of the company and the customers it is targeting. Methods and tools own a strong creative aspect and can be combined in almost every way. Tools and methods described in this subchapter are just a few examples of many and finding a right combination for a specific task could need some iterations.

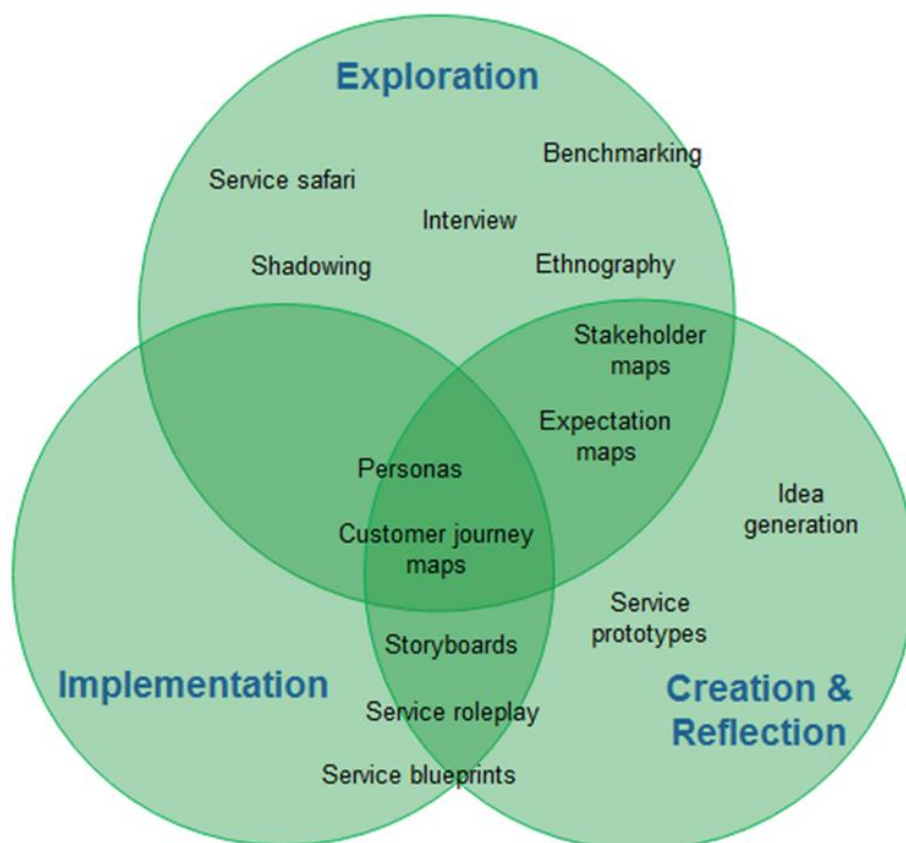


Figure 3. Example of service design methods and tools (Stickdorn & Schneider 2010, 146-217).

Tools used in service design are inspired from different fields, such as: market research, social anthropology, linguistics, traditional design, and other quality management approaches (Saco 2009, 161).

### 2.3.1 Tools for gathering customer insights and creating ideas

**Interviews.** Probably the most widely used tool for getting information about customers is interviews. In service design concept interviews are not considered as classical ones. They go deeper to see behind the decisions and the problems of the interviewees (Polaine 2013, 50). This tool can provide plenty of data about customers and therefore is an effective way for gathering the information that is needed for progress.

Interviews can be held face-to-face, survey mode (online and written) or by phone. Numerous sources suggest that the best way to conduct an interview is face-to-face, more as a conversation, instead of a formal interview. Usually interviews are conducted in familiar surroundings, for example at an interviewee's home or at their workplace. In those environments barriers are lower and the real needs, expectations and attitudes are more likely to emerge. (Tuulaniemi 2011, 147-148).

In depth interviews can be time consuming. They can vary from few hours to few days (Tuulaniemi 2011, 147). The interviewer should try to create a relaxed and natural interaction. It is important that the interviewer doesn't try to explain and protect the views and doings of the organization (Polaine et al. 51). Main goal of the interviews is that the interviewee can share his/hers thoughts freely. There are no right or wrong answers in these interviews, all of the data gained is equally important. (Klaar 2016, 51).

As pointed out earlier, service design is more about qualitative than quantitative analysis. That's the reason why the number of the interviews can be quite small. Usually the rule is that there should be so many hearings conducted that the answers start to repeat themselves. On many cases small number of interviews is enough to get insights about the main problems. (Klaar 2016, 46).

**Contextual interview.** It follows the same principles as the traditional interviews but is conducted in the environment in which the service occurs. Contextual interviews are shorter and less time consuming. It is helpful because then the interviewee can easily identify the specific details about the service. (Stickdorn & Schneider, 2010, 162). It can be used later on in service design to pin point the specific parts of the service that need addressing.

**Online ethnography.** Also called on some cases as netnography. Technology gives various possibilities to gather customer insights. It is low cost, effective and unobtrusive way to gather information. At this stage, it is not a widely used tool in service design, but the potential of it is great. As every form of online research is increasing, probably the use of online ethnography in service design will be more acute.

With online ethnography designers can explore different social media groups and forums. Possibilities are limitless. One way is just to passively observe those communities. Another is to be active and get involved in discussions or raise questions. These groups don't have to necessarily be already exciting ones. If needed, researches can create their own discussion groups and then observe and gather insights. (Tuulaniemi 2011, 15-153).

**Shadowing.** This method requires researches to spend time in the service environment and observe. Subjects of shadowing can be customers, staff, or people behind the scenes. During the observation, the researcher must try to remain as unnoticeable as possible without obstructing the interaction. Hence, the documenting devices used should be chosen carefully. For example, using cameras can influence subjects' behavior. (Stickdorn & Schneider 2010, 156).

Shadowing allows seeing and documenting the exact moments at which problems emerge. It produces a good opportunity for designers to learn how customers interact the with service provider. This method has qualitative characteristics where results need to be interpreted after the research. (Moritz 2005, 197).

**Service safari.** This method is an easy and a simple way to include people in the process of design. Participants of the research are asked to go out and experience different services. Services chosen to experience can be either from the same field, or they can be each and every service that the participant comes across with (Stickdorn & Schneider 2010, 153).

To document the experiences, people are asked to do it on the scene. To do so, they can use a dictaphone, cameras, mobile phone, paper and pen or other ways they can think of. Important is that it is recorded instantly. Later on, many of the aspects might be forgotten and important insights are in risk to get unnoticed. In this way designers can find out common needs and problems customers encounter when using the service. Based on that opportunities for innovation can be developed. (Stickdorn & Schneider 2010, 154).

**Stakeholder maps.** It is a visual representation of all of the stakeholders who have direct or indirect involvement with that specific service. To provide a complete map, designers must identify also the stakeholders that the service provider has not been able specify. To accomplish that, designer creates a comprehensive list of all of the stakeholders and conducts fair amount of desk research. In addition, the interests and the motivations can be incorporated into the stakeholder map. (Stickdorn & Schneider 2010, 150).

The visual map of different stakeholders can be used to see how different groups interact with each other and with the service provider. Furthermore, it helps to highlight concerns that appear between different groups. When clustering stakeholder groups together by their shared interests, service providers can react to the problems more efficiently and utilize resources in a better manner. (Stickdorn & Schneider 2010, 150-151).

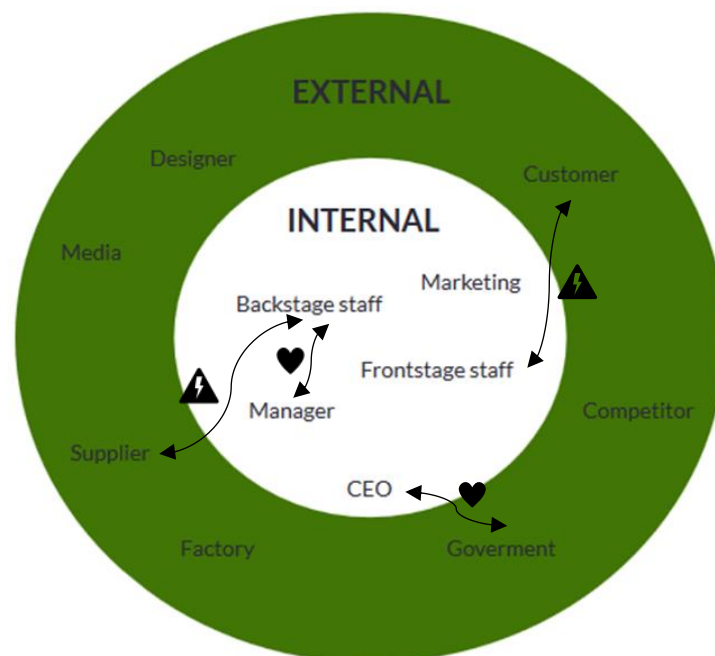


Figure 4. Example of Stakeholder map (Modified Stickdorn & Schneider 2010, 152).

**Benchmarking.** Benchmarking is a widely used tool. It is based on learning from others and combines comparison, research, perception and evaluation. With benchmarking designers get information on how other organizations in a similar field organize their business. (Tuulaniemi 2011, 138-139).

Benchmarking helps to avoid mistakes that others have already made. It gives a better knowledge of the field and helps to design especially for that field. On the one hand it is an easy way to gather data, but on the other, many of the companies are not so keen to

share their strategic choices (Tuulaniemi 2011, 139). Tuulaniemi highlights (2011, 140) that when using this tool, it is important to remember good code of conduct.

### 2.3.2 Tools for creation and implementation

**Personas.** Creating personas is the main way how to present gathered insights. Personas reflect real customer groups that share similar values, needs and expectations. It provides a different perspective on a service and helps to emphasize with the characteristics of customers. Most of the personas are created from the insights gathered with other methods and tools. (Stickdorn & Schneider 2010, 178).

The aim of the personas is to reflect behavior of different customer groups. It helps to understand to whom the service is designed for. Based on that it is possible to create different concepts and test their potential. By comparing different personas in different touch-points designers get a better understanding of what are the most common aspects in customer journey that need improvement. (Tuulaniemi 2011, 155-156).

**Service blueprint.** Service blueprint reflects everything that the customer sees, hears and feels, as well the actions of the service provider. It helps to detail every aspect in the service process in chronological order (Tuulaniemi 2011, 212).

Blueprint is divided into two parts. One of them is visible and other invisible actions, based on whether the customer and service provider are in direct contact. To gain as much information as possible the blueprint should be precise. There is a thin line between being too detailed and having just the right amount of details. When blueprints are long and precise the big picture can get lost. But when creating a too general blueprint some of the crucial aspects can be overlooked. It is important to remember that blueprints can be similar to process charts used by organizations, but they must reflect customer point of view. (Tuulaniemi 2011, 212-214).

**Customer journey map.** This tool is used to portray service experience from the customer point of view. Unlike service blueprint, which reflects everything that customer feels, customer journeys focus on distinct parts of the experience (Reason et al. 2016, 167). It shows the steps that customers go through while using the service and highlights the factors influencing the experience (Stickdorn & Schneider 2010, 159). It is beneficial tool to identify the aspects that have the most influence on customer experience.

As said before there are many different tools and methods in service design. Previously presented tools are just a small part of the possibilities. Besides these, for designing services can be used for benchmarking, client segmentation, context analysis, ecology map, ethnography, mystery shopper, experience test, expert interviews, focus groups, gap and historical analysis, trend scouting, net sourcing, market segmentation, shadowing, observation etc. (Moritz, 2005).

Tools listed above don't have to be necessarily used in those certain stages in the service design process. They can be used in only one or in all of the stages and can be customized according to the needs of the design. The designers don't have to know all of the methods, more crucial is to know how to apply them and what kind of outcomes they lead to (Arslan 2017, 27).

## **2.4 Service design and new products**

Developing new products is necessary, but costly and risky for the organization. It requires great investments and organization's full attention. The risk level is increasing as the life-cycle of the products become shorter and the competition is fierce. Besides designing physical aspects of the product, development of the new product acquires designing operations and production processes. (Garcia 2014, 4-10).

Innovation is a must to compete with other businesses, it drives differentiation (Neumeier 2009, 17). To innovate, organizations must design. Although at first the process might seem slightly complicated the overall results can be the key for an organizations success. Edvardsson et al. (2006, 2) argue that, service design has lately become significant point of departure when developing new products and services. For new business ideas service design holds a power to identify possible problems, get a deeper customer insight and solve complications in a new way (Neumeier 2009, 17).

Industrial business model commonly concentrates only on the selling part of the product (Ojasalo 2017, 117). They tend to offer the minimum needed for the purchase. In today's economy, due to the competition, new products cannot rely on that. By shifting their focus on to the customer it is possible for organizations to develop a product with unique benefits that adds value to the customer (Alam 2009, 16).

With increasing changes in technology and business field organizations meet more complex and demanding issues in their operations (Arslan 2017, 26). Service design offers tools to understand and tackle those problems. To develop a viable product, customers

and stakeholders' knowledge, skills and activities must be considered (Miettinen 2017, 9). Using service design in the planning process of the new product can be beneficial later on as the product or service is designed for the targeted customer with consideration of their specific needs and expectations. In addition, according to Garcia (2014, 60), customer-driven products tend to produce greater financial return. Based on these factors, by investing to service design in the early stages of the development can have greater return in the future.

For new business ideas service design can be a way how to utilize their resources better and save up money for example in product launch (Moritz 2005, 58). By interacting with the customers organizations may gain most recent information about customer preferences and expectations (Alam 2009, 17). This information can potentially prevent the need to redesign their services after the launch and save costs for the organization in the long run.

For new products and services, it is important to know what prior experiences customers have had. What are their prejudices, expectations and knowledge? Service design helps to unlock those questions and organizations can prepare their response to the anticipations of the consumers. It can help develop propositions that meet unmet needs of the customer previous experiences or differentiate the services in the market. (Reason et al. 2016, 19-20). In some cases, it assists to unlock the needs of the customers before they even acknowledge the need for the service.

Including customers in to the development process can be seen as a way of marketing. The co-operation creates innovative products that fulfill the end-user needs and make them easily accepted by the customers. Customers included in the development process may feel that their thoughts are listened and may decide to buy or promote the product (Alam 2009, 17).

As mentioned before, although service design puts the customer the in the center, the importance of the employees who deliver services is equally as important. Making sure that all of the stakeholders are supportive of the changes is crucial in delivering new services and products (Moritz 2005, 59). Due to the co-creative nature of the service design employees are included into the early stages of the process. That allows them to get better understanding of the development process and they feel more committed to the product. It is easier for companies to plan the product and the strategies when they understand the needs of their customers and staff. When planning is only product based there is a risk

that the product/service is not exceeding or even meeting the needs of the customer and the staff won't back-up the idea.

Watter Edman (2013, 112) suggests that service design should be included at the beginning of the process when strategic plans are made. In that way it is easier to implement service design process into the current corporate structures and processes where design can be used (Miettinen 2017, 9). In addition, understanding your customer helps organizations to create realistic plans for the future.

The biggest issue with applying service design to new products is the question whether the organizations culture is acceptable to the new ways of problem-solving (Arslan 2017, 24). Still many organizations and internal stakeholders are reluctant to change towards to more holistic ways. To raise awareness of service design and the use of it in the industrial field more promoting work by designers needs to be done (Miettinen 2017, 5). It is needless to say, that a good beginning in customer-organization relationship can have significant impact to success (Reason et al. 2016, 20).



### **3 Project process**

This chapter focuses on the project made at Innoscout course. It describes the entire process step by step from beginning to the end result. It will be shown which kind of methods and tools were used during the process, why those were chosen, and what were the findings during the project.

#### **3.1 Project's background information**

Haaga-Helia University of Applied Services Innoscout course was held in April 2016. A new course that combined customer driven development, experimenting and modelling new services in a practical manner by implementing service design to new business ideas. The course consisted of three workshops and independent team work. Duration of the whole course was 4 weeks. Practical part of the project lasted for three weeks.

At first, students were able to choose from a range of innovative business ideas to work with one of them. Business ideas varied from wave energy to the investment application to cosmetic products. Unfortunately, some of the business ideas presented in the course description were unable to participate in the project. As I was at the time participating in a course of corporate social responsibility I chose a product that had most associations with that topic – a solution to restrict the particle emissions from small-scale wood burning devices.

Small-scale wood burning devices such as saunas, fireplaces, and small energy plants are considered as a major source of local air quality degradation and respiratory problems according to the World Health Organization (Chafe et al. 2015, 1). The report indicates that in 2012 in Europe occurred 94 000 premature deaths from exposure to ambient air pollution and 3,7 million worldwide. While the pollution of coal burning is well known, wood has not received the same attention (Chafe et al. 2015, 8). Nevertheless, latest researches indicate that wood burning can be as harmful to the environment and public health as coal.

Climate change has been a heated topic in environmental and political discussions for many years now. Right now European Union is preparing a new legislation called Ecodesign 2020. Ecodesign is a directive that provides EU-wide rules and minimum mandatory requirements for the environmental performance of miscellaneous products (European Commission 2017). In the Ecodesign 2020 there is also, among other topics, characterized a need for scaling down small-scale emissions (Saari 2017). There is not any

definite data how exactly it will affect wood burning fireplaces and saunas in the future. It is more likely that the legislation will concentrate on new devices instead of the old ones. The biggest problem in implementation of the legislation is that small scale emission production is very hard to measure and monitor. Due to the pending legislation it is highly possible that solutions to reduce air pollution are needed in the near future.

Commissioner of the project has an idea for a new product that would reduce small-scale carbon pollution. The product can be e.g. a low energy consuming electrical filter that would be suitable for installment into old and new chimneys of fireplaces and saunas. The concept of the product is that it will be manufactured in such way that it is simple and easy to use and therefore available also to the individual consumers not only to industries. While the product is still on an idea-based level, they have all the know-how to implement a technical solution and make a finished product. The exact price of the product is hard to predict at this stage, but it is estimated between 400- 1500 euros. Price will be largely depending on a type and make of the fireplace/sauna used for installment. (Saari, 2017).

Students' task in the project was to examine the business idea from a service design perspective and innovate. The goal was to gain customer understanding, provide ideas and suggestions how to continue with the development process. Project follows the service design process and principles highlighted in the theoretical framework (see chapter 2).

### **3.2 Project implementation**

Service design combines various expertise from different disciplines and approaches (Moritz 2005, 45). To get a variety of ideas and better analyzation results, it is useful to have more than just one designer working on a service design project. This particular project was conducted in team of two. I teamed up with Leysan Karimova, a second year Business Administration student of Haaga-Helia University of Applied Services. All of the practical parts of project have been done in collaboration as a team-effort. Throughout the project we had support of the teachers who guided us and gave valuable advice when needed.

Service design as an approach to improve services was a new concept for both of us. So it can be said that the project was done simultaneously by learning theory and putting it into practical use. Before starting with the whole project, we familiarized ourselves with the world of service design by reading and exploring different materials and writings about the

topic. To gain deeper and more concrete understanding about this approach we additionally searched for real cases from the past where service design was successfully used. By doing so we got the basis and knowledge needed to proceed with the project.

The first thing to do was to define the design challenge and articulate the main question of the project. After discussing the goals and what we are looking to get out of the project, we were able to state the main question for our project: "What are consumer/retailer attitudes toward small-scale emission control?" Furthermore, questions "Are people interested in buying the product?", "What are their needs?" and "Do they care?" were chosen as sub-questions for the project.

To ensure progress of the project, plans were made on how to proceed. One of the pressure points was building a reasonable time schedule. We had three weeks to complete the task, so timing was essential in order to present a finished project. Pre-scheduled course workshop dates worked as guidelines for the project schedule. Time marks for each stage of the design process were set and they made up a rough timetable. It had to be taken into consideration that the schedule can shift when some of the stages need more iterations or improvements from what was first predicted.

Course workshops were a good space where to interact with other teams, learn from them and discuss problems that emerged during the work process. Workshops were divided according to the progress. In the first workshop we did preliminary preparations for the whole process. Second one was for data analysis, where we worked on insights and made plans for prototypes and testing. The third and final workshop included analyzing findings from the prototyping and finalization of the projects. At the end of the third workshop, students presented their projects and results to the commissioners. Our commissioner, Sampo Saari was unable to participate in the presentation event, so after the presentation results were sent to him via e-mail.

Project process has been visualized stage by stage in figure 5. Marc Stickdorn four step process model presented in the theoretical frame part of the thesis (see subtitle 2.2) was used as a basis for this project and for the service design process. Stickdorns model was easy to grasp and it gave different solutions to carry out the service design process according to the needs of the project. The project focused mainly on exploration, creation, and reflection stages of service design.

Since the goal of the project was to create ideas on how to continue with the development, instead of getting "a ready" service, the implementation phase of the service design

was not in our focus in the Innoscout project and therefore was not included. Implementation stage can be added later on when more iterations with previous stages have been done and the best solution has been found. Also, when the product will be more concrete and tangible.

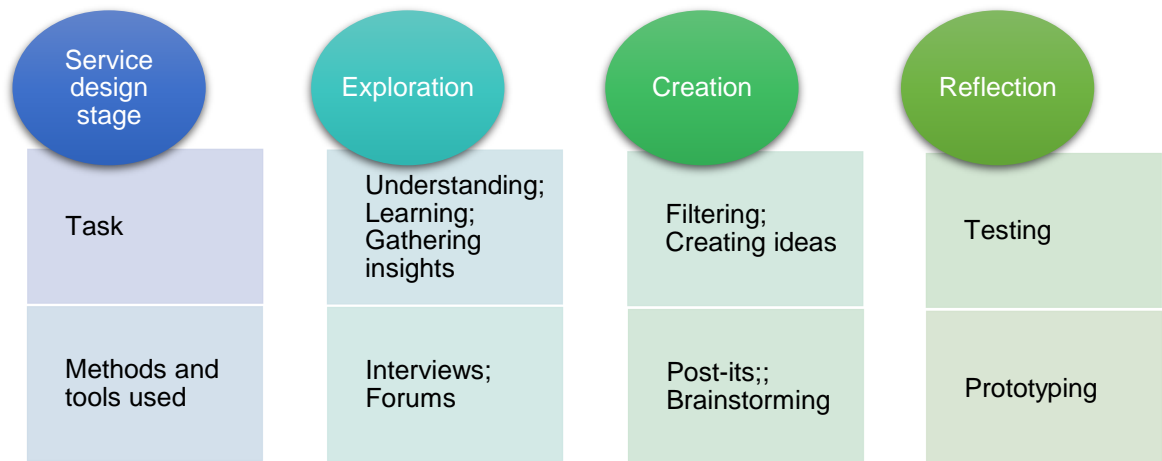


Figure 5. Tasks and tools used in different parts of project

During the service design process, different service design tools given in the literature were used. Tools were chosen according to the aim of the project. But also, it was taken into consideration how the tools can be used in the task, do we have sufficient time and resources, how much of information it is possible to collect with those tools, and is the information collected and tested in a manner that the goal of the task is achievable. The process is described more thoroughly in the following parts of this chapter.

### 3.3 Data collection

Service design is a customer orientated approach and recognizing potential customer's expectations, needs and hopes is one of the most critical stages in the service design process (Tuulaniemi 2011, 142). To get a better understanding of current situation, gathering customer thoughts and viewpoints about emission pollution control was needed.

First of all, we had a discussion to find out who are our target groups. As presented in the theoretical part of the thesis one of the main principles of service design is that it is co-creative, it involves customers and service providers in the design process. Including stakeholders was serving the purpose of the process and it was the wish of the commissioner. Because the product in question did not have ready customer groups yet, we had to first think who the possible stakeholders are. Commissioner of the project was interested in

getting information from the end users, chimney and fireplace manufacturers, and small-scale heating plants.

Due to time limitations, nature of the study and available resources we chose to continue with private consumers, chimney and fireplace manufactures and retailers. Retailers and manufacturers were included in the service design project to get the overall look of the situation and more ideas. It is likely that in the future they are on one hand customer facing staff and on the other as customers themselves. Also in this way better understanding of possible service can be formed as they are a vital part of the whole service process and customer experience. For this specific project, the possible market place was narrowed down to Finland.

Subjects for the research are often selected by their ethnological indicators or common factors. At this stage of the project, where the aim was to collect general information about attitudes, values and thoughts, we didn't see this kind of selection necessary. Age, gender or background didn't play importance in preliminary data gathering. The only criteria set was on consumer data gathering. In order to get most accurate and insightful information, the subjects of customer research would be preferably chosen among people who have small-scale wood burning devices at their home or at their summer cottage.

There are numerous service design tools to choose from when collecting customer insights. Each one of them has their advantages and disadvantages. When choosing the right tools for the task different aspects needed to be considered – accuracy needed, proficiency of the designers, and the resources available. From the nature of the product and the task given we narrowed them down to two possible ones - interviews and online ethnography.



Figure 6. Methods used in data collection process.

Data collection for this project was conducted as a qualitative research. Qualitative research is a type of research that works with non-numerical data and tries to find interpretations of gathered information. Its emphasis is on explaining people's experiences, behaviors, attitudes, and relations (Cole 2017). It is commonly used when the expectations are unknown. This type of research usually answers to questions how and why, instead of how many.

Open-ended questionnaire interview guides were utilized in all the inquiries. They require a longer response than just few words and answers collected are more in depth (Farell 2016). Open-ended questions are helpful because they automatically hand control of the conversation to the interviewee and they can freely reflect their opinions and feelings. Questions formulated in such way are more objective and less leading than closed-ended questions.

We planned to conduct interviews with possible end users on face-to-face basis and for companies we decided to use phone interviews. Questions for the interviews were prepared separately for possible customers and companies. As the strategy was to conduct a conversation like interviews questions were formed more as a basis for the discussion to keep the topic on the right track. Structured but flexible questions revolve around the topic but help to understand the bigger picture (Live/Work 2016). In that way interviews are not tied to specific questions and gives the researcher a possibility to gain wider perspective. Base questions used in personal interviews are found in Finnish in appendix 1 and in business interviews in appendix 2.

The questions for interviews were chosen according to the goal of the project focusing on the theme of small-scale emissions and environmental views. Base questions included topics that could possibly help to see behind the reasons why people are feeling one or another way.

### **3.3.1 Personal interviews**

Conducting face-to-face interviews can be time consuming and needs planning in advance. Arrangement for the interviews proved to be difficult, because of different time schedules. Since Leysan and I are living in different cities and had other school assignments, we decided to conduct the interviews separately. Both of us chose participants for interviews from our social group. The backgrounds of the interviewees were different with various age and job descriptions.

The questions prepared in advance were constructed in a manner so that the interviewers won't lead the conversations into one direction or another. Questions focused firstly on the interviewees thoughts and views on environmental issues. Followed by the questions about small- scale emissions and what are their opinions about a filter that can reduce emissions. In addition, the topics included the EU legislation and possibility that the filters will be compulsory in the future. Open questions left opportunity to answer as freely as interviewees wished and there was no time limit set on the interview.

In total 10 one-to-one interviews were conducted. Ten is good and sufficient amount according to the experts in service design (Polaine et al. 2013, 39). The answers in the latest interviews started to repeat the previous ones. Three of the interviews were conducted over the phone due to the scheduling conflicts. Interview followed the questions prepared earlier. To prevent misinterpretations that may occur as a result of using a foreign language, interviews were conducted and recorded in Finnish. Answers and observations were recorded by writing them down on the paper.

There were pros and cons in managing that way. It was easier to create casual and natural surroundings suggested in the textbooks. On the other hand, next time it can be more useful to use a dictaphone to record the interviews. Writing at the same time when following the conversation can damage the effect of normal conversations and gaps in the discussion may occur. Also, important behavioral observations can stay unnoticed. According to Garcia (2014, 103), body language and nonverbal communication are important to truly comprehend customer needs. Video recording can be considered in upcoming data gatherings.

Since concentrating on the discussion with interviewee was the priority, there was a risk that some of the answers and findings won't be registered properly. To prevent that from happening all of the answers were re-written into suitable form right after the interview and then stored in a personal computer. This ensured that all of the findings were recorded correctly and nothing was forgotten.

### **3.3.2 Business interviews**

For gathering viewpoints of the staff, the strategy was to gain insight from the companies who sell or manufacture fireplaces and chimneys. Given the time constrains and other school and work-related commitments it was practically impossible to schedule face-to-face interviews with all of the companies. It was agreed to conduct these interviews by

phone. Sending e-mails with questions will be often side passed by companies. Phone interviews can give much more information than just a questionnaire. In addition, interviews by e-mail don't give so much detailed information as people tend to answer more carefully and think about their answers beforehand, instead of answering intuitively straight away. Based on that, questions to conduct interviews by phone were prepared.

Questions prepared for the companies followed the same outline as customer interviews. Only this time, questions were created to focus on the business point of view. Questions included topics about the company's background and their customers, how they regard environmental issues and how that effects business now and in the future. Furthermore, we were interested to know how they see the potential sales emission filters among their clientele.

As we were not familiar with those companies, we selected them by searching them online. Google search was used to find possible companies that matched our interest. The criteria for companies were that they located in Finland, and were selling or manufacturing fireplaces, chimneys or saunas. Selection narrowed suitable companies down to 12. To have a good relationship with the companies we decided to call first to arrange time for a phone interview. The plan was then to call them back when it is more suitable for them.

Getting phone interviews scheduled was harder than expected. Most of the organizations were reluctant to conduct phone interviews or they couldn't tell us when they would have time to answer the questions. Many of the retailers stated that they were alone at the store and due to this it was impossible to conduct an interview over the phone.

As we didn't want to lose the opportunity to gain information from the companies we deviated from the initial plan. We offered them an opportunity to answer the questions by e-mail. This was part of the project where major mistake was made. Questions sent out to organizations were prepared to be our guidelines for phone interviews. There were too many questions, because phone interview subtopics can go different ways. Before sending the questions out, the questions should have been looked over and modified into a form more suitable for e-mail interviews. This is probably one of the reasons why we received so few answers. The total result of interviews sent was 12, only two of them replied.

Based on the outcome, it can be said that next time, when planning to approach companies, better preparations need to be done. Improvements in scheduling and active approaches can provide better outcomes. Due to the timeframe that we had it was decided



not to conduct any more inquiries with the companies. While service design theory states that small number of interviews is enough we saw that based only on those two interviews it is hard to get an overview of the real situation. According to the theoretical framework answers should start to repeat themselves in the interviews. In this case it didn't happen. The decision was made to exclude the business stakeholders from this project. From now on the project was concentrating only on the end user in service design project.

### **3.3.3 Forum**

To get a wider perspective on the topic we decided to use online ethnography as the second tool in data collection. Online ethnography is an easy and inexpensive tool to use- researchers post discussion topics on the internet platform so that the participants can add their discussion on the topics (Eun-Ok & Wonshik, 2013). It gives an opportunity to reach out large network of people, and online community can be utilized to find diversified information (Garcia 2014, 67).

The initial idea was to post a discussion about small-scale wood burning emissions and reduction on renovation related blogs. Blogs can be beneficial because they are followed by prospective customers but also by professional builders. In that way, we could have gained added information from the builders, even though they were not our first target group. We saw this as an additional opportunity to improve the service design outcome. They have a unique perspective to the topic and are possible stakeholders in the future.

Unfortunately, there aren't many wide range blogs about renovations in Finland. In addition, many of the sites used by professional builders required registration and/ or an existing contractor tax number. Still, it is a possibility to consider in the future, especially when widening the research to the other markets.

As the aim was to gather as much information as possible, we turned our focus onto social media. Facebook has numerous different groups and communities. The plan was to post questions on a group site that has many followers and high activity, so our post will be seen and answered as many people as possible. After searching in Facebook, we selected out three suitable groups. First one was a group called "Remontti ja rakentaminen" (Renovation and building). It focuses on sharing advice between members on different renovation projects and has almost 10 000 followers. Because Leysan was already a member of a group called "Yrittäjänaiset" (Women entrepreneurs), we posted our thread

also there. From that discussion group we got a suggestion to post our question to another popular group site “Pelastetaan vanhat talot” (Save the old houses). This community has over 30 000 members and it focuses on how to renovate old houses.

Previous experiences have shown that when asked multiple open questions in writing they stay mostly unanswered. Social media groups are a difficult platform for open questions, as the analysis of the answers gets complex because of the irregularity of the answers. So instead of that we started a thread on the three sites. In the thread we stated that it relates to a school project and all of the answers will be handled anonymously. At first few sentences about emissions and pending legislation were added as an introduction. Then we kindly asked people to reflect their thoughts toward the topic and whether they would be interested in buying a filter to reduce emissions. After the post was made we remained inactive in the discussion and were only observing.

Online ethnography was successful. The topic received a lot of discussion and argumentation in every group that we posted. Biggest discussion was born on Facebook group “Pelastetaan vanhat talot” that also has the largest number of group members. In sum, we registered 631 answers. Keeping in mind that some of the people were engaging with the discussion multiple times and the quality of the answers varied.

Using public forums to gain information maybe a good source, but the problem with forums is that the quality of the answers is not always what expected. Although forum discussion for gathering information was successful and we got a lot of answers there were many of the posts that didn't give any insight towards the topic. On some cases the answers were not related to the topic and some people engaging in the discussion were posting same statements above different comments. By observing the discussion, it seemed that people in forums tend to reflect previous discussions instead of posting their own ideas.

### **3.4 Preliminary data analysis and creating ideas**

To proceed with the project the gathered data needed to be analyzed. After gathering all the answers from the interviews and forum discussions data analysis was conducted. Among the answers gathered some of them can be redundant, but many of them relate to the topic (Garcia 2014, 109). As data included in-depth personal interview answers and shorter forum ones we needed a method to gather cohesive and accurate information from them. Writing insights from gathered data down to post-it is a common tool used in

service design. Seeing the big picture of the situation can be extremely helpful when analyzing a large collection of data.

We started by searching and filtering customer insights from the collected information and then laid them out under the head keywords. Similar insights were combined into one bigger insight. This gave us a more cohesive knowledge of peoples' thoughts about the product, the environment and the common values and concerns. Analysis of research results was based on most positive and negative topics in the discussion. Main topics that we picked up from the interviews and forums were: attitude, price, values and services.

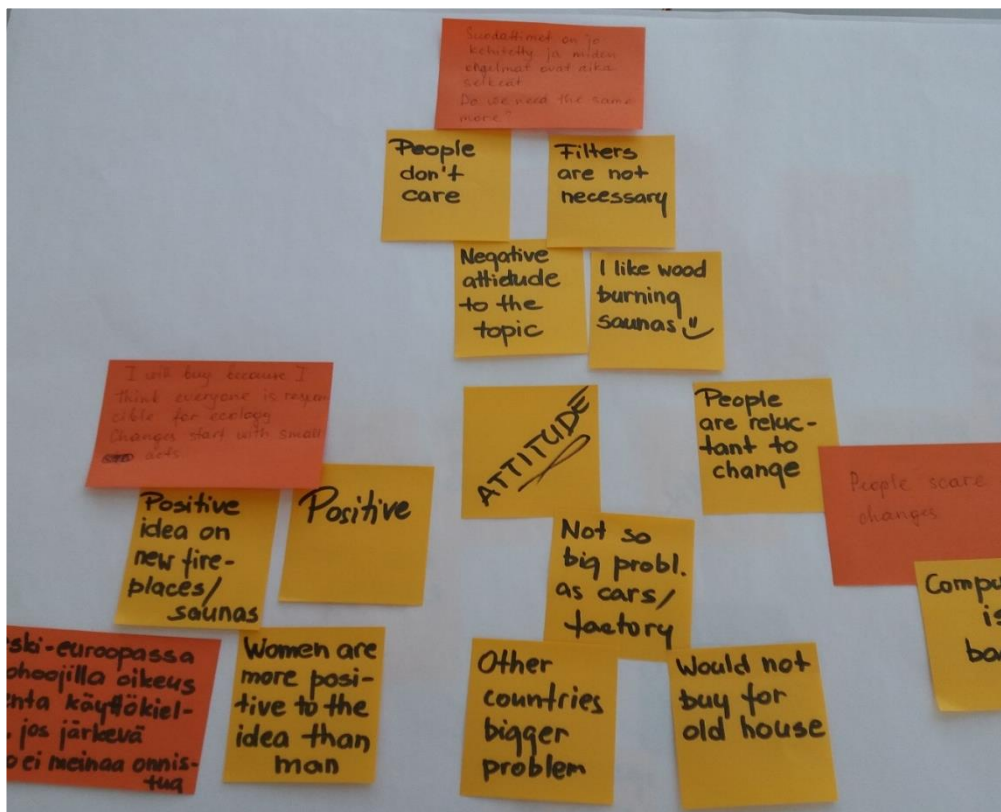


Figure 7. Gathering insights under main topics.

As we analyzed the data it became evident that when people were discussing the topic in forums they were more negative towards the issue. But when conducting the face-to-face interviews and the discussion was longer they thought more about the topic and stated more positive thoughts. This kind of difference was expected while in-depth interviews give the opportunity for more ideas to emerge. As stated before- presence of the interviewer can also have some effect to the answers although people were asked to answer as truly as they feel.

In interviews, there were questions to gain insights about peoples' environmental views and attitudes. Every one of them stated that they were concerned about the environment. The driving force behind that was that they would like to preserve a clean environment for the generations to come. Most of the interviewees recycle on a daily basis and try to use more sustainable products in everyday life. Some of them were thinking about doing more for that cause, but didn't exactly know how to do it.

From the interviews, it came apparent that people haven't thought that burning wood can cause emission that are considered as air pollution and a health risk. Even if the subjects were living in the city they didn't feel like that the air quality is a major concern. Air quality in Finland was rated as very good or superior. Some of the interviewees mentioned having seen articles where it was indicated that Finland has one of the cleanest air in the world.

One of the most common answers was that the air quality in Finland is good and the emissions of small-scale wood burning do not have any effect. People were more concerned about air pollution caused by airplanes, cars, industry and dust from the streets in the dry seasons. The emissions caused by private residential homes didn't seem to concern majority of the people or they didn't see the need for that kind of device.

The most negative response was to the EU legislation and possibility of filters becoming compulsory. Right from the start people regarded the legislation as a negative aspect and it caused strong emotions. They saw this as another restriction and even when the filter seemed as a good idea the word "compulsory" made them cautious. Some of the people stated that they wouldn't buy the product due to the fact that is mandatory. On the other hand, some of the participants mentioned that it is good to have environmental legislations also for private residences not just for the industries.

While there was smaller amount of positive comments on the forum, the people who posted them usually explained their choices better. They argued that even a small reduction in pollution is good for the environment and if it is possible to stop increasing pollution with a filter they would consider buying it. They suggested looking at the bigger picture instead of just one factor. The same statements were found on most of the interview answers too.

On most of the cases, when people stated they are willing to consider buying the filter, it would be more likely that they would do so when buying a new wood burning device. It would increase the value of the new fireplaces if the filter is offered as an addition. People

were suspicious on the compatibility and efficiency of the filter in the old houses and fireplaces/saunas. That's the one of the reasons why purchase decision making would be harder and many of the people would not buy filters for the old houses.

The research indicated that one of the major concerns that people had was the price of the filter. In the interviews and Facebook discussion platform we didn't state the possible price of the product. If asked what are the possible limitations in buying the product many of them stated the price. In many cases people had more than one wood burning device and they were thinking about whether the investment would be too expensive to buy filters for all of them. In addition, it was brought out that the price should meet the capability to reduce emissions.

One of the topics that raised from the data gathering, was the capability of the filter. Both on forums and in interviews people were questioning whether the filter is efficient enough to have a real impact on the air quality. If the impact would be very small then they don't see the benefits of the product and would invest in other products. Some of the people had previous experiences with other so called "Eco-products" and they didn't have positive impressions of them. That's why they acted more reserved towards the idea of a filter. Furthermore, people who rarely use fireplaces/ saunas do not believe that having a filter will have any real effect in their personal cases.

Majority of the research participants felt that when they buy the product it has to be easy to install and maintain. The dominant concern was that by who and how the filters will be installed. Calling a professional to clean it wasn't a preferred option. In addition, there was discussion about how often the filter needs to be cleaned and how long is the life cycle of the product, so it won't burden the environment itself. They wished that the product would be recyclable not a hazardous waste. It would defeat the idea of it being an environmental friendly product.

After analyzing all the gathered data, we got an understanding what are the expectations of the possible customers. Interviews and forums raised many questions and ideas that can be used in further process of the service design. Next step was to innovate and think possible solutions.

To create possible scenarios and ideas brainstorming was used. Brainstorming is a method where team members generate various different ideas (Moritz 2005, 210). The ideas can be anything linked to the topic. The aim is to gain wide range of new ideas or improvements to the old ones (Garcia 2014, 68). Ideas for product development were

based on the real needs of the customer. Considering all the gathered insights and main topics we started to think which are the most significant aspects for the potential end user.

### **3.5 Testing**

Following the frameworks of service design, the next step of the project was reflection of the ideas created. That meant that we had to test out our ideas for solutions. The aim of testing is to determine customer interest in the product, to evaluate whether the customer needs gathered from previous stages are correctly understood and to create valid development plans (Garcia 2014, 125).

To get the best result for the commissioner we had two possible choices on how continue with the project. One of them was creating customer journey model and another creating a prototype in a flyer form. Garcia (2014, 127) states, that the first goal of testing is to gain insights how customers see the product according to its attributes, features, benefits and value. Based on that and the fact that we didn't have an existing service, but rather a new development we decided that prototype experiment would be more informative. This way we could test if the solutions created would have an effect on the possible customers and what kind of response the ideas will get.

Traditionally prototype means a complete sample of the product. In service design concept prototype doesn't have to be something real or physical. It is concretization of the idea and a tool for testing. They can be in a form of concept sketches, videos, mock-ups, stories, role-playing, story boards etc. There is no certain rule which one to use, but it has to provide a visual information (Lockwood 2009, 12). Through visual information it is easier for customers to grasp the concept and to provide feedback.

Prototype in a flyer form was relatively easy to produce, it was low-cost and no additional resources than our time and a laptop was needed. Prototypes that are made as simple as possible give the designer a better chance to learn. Keeping them simple and easy to understand, can provide bigger engagement by the participants and a possibility to gain more creative ideas (Stickdorn 2010, 132). It was a straightforward hands-on experimentalism to gain immediate information.

According to the insight gathered and analyzed, we created a flyer that had basic information in form of keywords and short sentences about the product. In addition, information about the minimum price, guaranty and how often to maintain was included. We incorporated sentences that highlighted the environmental aspect of the product. Style

that was used for the flyer was clean and fresh, with one picture of a lake. With the picture, we wanted to create sense of the product and generate more interest. The flyer in question has been added to this thesis in appendix 3.

Objective of the testing was to gain more knowledge and to determine how people react to the product under its current design. Through testing we were hoping to find answers to the following questions:

- Does the product raises interest?
- What kind of additional information is needed on flyer?
- What are the thoughts on the price?
- What is especially attractive in the prototype?

We chose participants for testing once again from our social group. But this time we did not include people from the first data gathering. We wanted to receive new feedback and ideas, and see how people react when they haven't heard about the product before. The new subjects are more objective to the prototype testing as interviewees from initial data gathering already have some idea what kind of product is in question. In this way, we gained genuine first impressions to the prototype. Same as in interviews, the subjects were chosen among the people who have small-scale wood burning devices at home or at summer cottage.

Prototype in a form of flyer was sent out via e-mail or by using social media channels to 34 respondents. 19 of them responded. In hindsight it would have been probably more beneficial to show the flayer face-to-face as the first reaction and behavioral observations remained unregistered. The aim was to get as much responses as possible in the time frame.

Overall the flyer was well received. People liked the visual impression of the flayer, saying that "less is more" in this case. They complemented that the look of the flyer is simple and easy to grasp. It raised interest thanks to the picture and phrases on the flyer and gives the impression that this product has the ability to preserve the nature.

On the other hand, people found that more specific information about the product itself was needed. Pictures of the product or technical details would have given more valuable information and helped to understand how it is used. It remained unclear why the product is good because that they didn't know what Ecodesign 2020 is. This information would have clarified the benefits of the product.

People reacted positively to the fact that the filter it is easy to use and maintain. We received positive reaction for 15 years of guarantee for the filter. Long guarantee gave an impression that the quality of the product is good and it is reliable. The statement that it is produced in Finland brought much needed value in the eyes of the respondents.

In the data gathering part of the process people stated that they wouldn't pay much for the product. But in this case, we received other results. In case of the flyer most of the people found that the price of 600 euros was acceptable. Although there were some who found it too expensive to explore any further despite the initial interest toward the product. People who rarely use saunas and/or fireplaces don't see the need for this kind of investment.

It should be mentioned that from 19 answers two of them stated that they aren't interested at this type of product at all. Furthermore, the word EU-legislation created negative feelings and was off-putting in their eyes right from the start.

After the prototyping another analyzation was done with the results. Analysis is needed to evaluate which are the best development solutions to the organization (Garcia 2014, 81). Key findings from the analysis and final development suggestions are described in the next chapter.



## **4 Discussion**

This chapter focuses on key findings of the research and development ideas created in the Innoscout project. All the ideas presented are a result of service design process. At the end of this chapter evaluation of the project can be found. Evaluation is based on authors personal views and feelings and includes feedback from the commissioner.

### **4.1 Key findings**

One of the biggest challenges with the product is the reservations people have toward the subject. They question the reliability of the studies that indicate the downsides of small-scale emissions and therefore the need for the product. Finland can be a hard place to market filters, designed to reduce emissions. Various sources indicate that Finland has one of the best air qualities in the world. Due to these reasons demonstrating the value of the product can be complicated. A large number of people do not believe that this kind of product can have any impact to the environment because of the pollution caused by cars and manufacturing industry.

When it comes to investing in to the product the opinions are divided. Based on the flayer experiment the price point was deciding factor. If the people saw the value in the product and its potential they were willing to explore further. On the other hand, purchasing more than one product raised concerns. Also, when small-scale wood burning devices were used only rarely, the investment didn't scale up.

People value the possibility to install and maintain the product themselves. Installment by professionals was acceptable when purchasing the new device. But on old devices they would prefer to install it personally. People would appreciate the chance to clean and maintain the product themselves. As well the interval of the maintenance needs to be long enough and dependent on the usage.

From testing and previous data gathering it came apparent that the product itself should be efficient and sustainable. One of the concerns was that the product's lifecycle must be long enough that it won't burden environment itself.

### **4.2 Development ideas**

This section concentrates on proposing ideas for further development and for commercializing. Ideas created in service design process are driven from the customer expectations and needs. They are based on information gained from interviews, online ethnography,

and prototype testing. Suggestions contain reliable information which is based directly on the customers' expectations and needs. Suggestions for this project are made only from the customer point of view.

As this was the first service design approach implementation to the product and the research size of project was quite small it was important to take all of the insights into account. Both, positive and negative, insights were necessary to look through to find the best solutions that bring value to the customer. Development ideas include key factors needed to be taken into account to provide customer orientated service. Suggestions are based on answers of the subjects and project conductors' interpretations.

Firstly, it is important to the customers that they see and understand how the product works and what are the effects on the environment. People are concerned about the technical aspects of the product. Is the filter efficient to reduce enough emissions to have an impact on the environment? Since the benefits of the product and the emission problem is mostly unknown to the people, educating in this field needs improving. This puts pressure on the staff. Customer-facing staff knowledge development and motivation are fundamental steps to accomplish success.

Secondly, the disbeliefs which people have toward the subject needs to be addressed. People need more accessible and reliable information. Customer's uncertainty regarding the product should be noticed in planning. Studies are usually long and hard to read, so more simpler ways to explain how emissions affect environment are needed. These can be provided by creating infographics or shorter compact reports.

The core of the service should be built around the quality and simplicity of the product. People are more likely to buy the product if the installation and maintenance of the product is easy. Best solution from the customer point of view is that they can do it themselves. Another idea is to use chimney sweepers to do the maintenance of the filter at the same time when they clean the chimney. Usually chimneys are cleaned once a year so people don't have to call different professional to the site.

Long life cycle and use of sustainable and recyclable materials should be taken into consideration in the manufacturing process. By using non-recyclable materials in production process, it would defeat the idea of it being an environmental friendly product. Also, the manufacturing of the filter should be local. Those aspects are important value adding factors to the customers and can give an advantage in front of the competition.

The price it is something that service design can have minimal effect on. On the other hand, it is one aspects that represents the value of the product and influences marketing. Nevertheless, one of the ideas that we received from prototyping was that if customers want to buy more than one filter it is good to think about a package price. If people have more than one wood burning device the sum price of independent filters price can put-off the customer.



Figure 8. How customer value is created

In marketing the product, it could be considered to emphasize preserving the environment and air quality, not to point out just the reduction of emissions. Besides, when conducting further researches it could be suggested to leave out the compulsory statement part or at least save the question including that as the last one. Often every topic that includes some legislation gives negative effect right from the start and people don't show their feelings about the product, because they associate the theme with negative emotions. In that way, true feelings about the product can be overridden and this sets the tone for the rest of the discussion.

#### 4.3 Limitations of the project

As with any research method, quantitative research apposes limitations. Service design research uses different analytical methods and is affected greatly by interpretations. The quality of the research is often reliant on the skills of the researcher and is more opened to

the researcher's personal biases (Anderson 2010). As we haven't conducted many interviews in the past some of the interviews were hurried and in some cases additional questions for clarification could have been added for more valid information.

When conducting face-to-face interviews presence of the researchers can affect subjects' answers. This might be seen in the face-to-face interviews where most of the interviewees had only positive reactions to the product.

Analyzing large amount of data gathered was difficult since categorizing all the answers is complicated. They don't fit into standards and there is a lot of emphasis on researcher's interpretation. Furthermore, the accuracy of the findings is hard to maintain and demonstrate. Researchers are not able to objectively check the data according to the respondents' scenarios (Datt & Datt 2016).

Beside those, limitations appear in online research. On Facebook forums it is impossible to determine if the participants of the discussion are really the ones who are targeted. Likewise, the problem with proving authenticity of research participants has often been raised. (Eun-Ok & Wonshik, 2013). In addition, it is demanding to analyze the data gathered in online forums, since the quality of the answers varies to such a high degree. Some of the answers posted didn't reflect the topic in question at all.

According to the main principles of service design co-creation is needed for the complete understanding (Stickdorn 2010, 38). Although we managed to get great results in data gathering from interviews with customers and forums, including organizations in the project failed. Due to that the overall outcome suffered and the complete co-design was not reached.

The implementation of the service design project was also kept very linear and no iterations were done between different stages. According to the theoretical framework, it is recommended to do iterations at some or at all stages at the process (Klaar 2016, 25). In this case, especially prototyping could have needed more iterations to improve the output. Considering all of the limitations the outcome of the project can be considered valid as it gave an overall look of people's attitudes and thoughts.

#### 4.4 Evaluation of the project

The purpose of the project was to gain customer understanding, provide ideas and suggestions for the further product development process. The development project was executed by using Marc Stickdron's service design framework. Based on the goal of the project only first three steps were implemented. To understand the process and the objectives of each separate stage learning and planning was done before starting a new step.

Different service design methods and tools were used to achieve the goal. The most informative tools used were face-to-face interviews with customers and prototyping. We were able to gather large amounts of customer insights. The results of each stage were analyzed separately in order to move forward with the project. Furthermore, analyzes were needed to evaluate the success of the stage, to avoid unnecessary information and to keep the process on the right track.

As we were novices in service design having more practical knowledge of service design approach could have increased the quality of the project and final results. Due to the fact that we failed in gathering business stakeholder insights the outcome of the results reflected only customers point of view. It would be advisable to include manufacturing and retail businesses into the future researches. They could provide a wider perspective on the topic.

The results of this project indicate a number of ideas, suggestions and opportunities. We were able to show what the customers value and what their expectations are. Although improvements in the project execution would have been needed. Based on that it can be said that the main objectives of the project were achieved.

Methods and tools used in the project were justified, we got the results that we were expected to deliver. The amount of the subjects in the interviews during the project was comparatively small, but the data received was considerable. I would suggest of using service design methods and tools also in further researches. It is an approach that has many possibilities and offers ability and capacity to gain deeper customer understanding which benefits the organization.

According to the feedback of the commissioner Sampo Saari, results were interesting since there has been no research on this matter done before. The work was considered valuable and gave versatile information about potential customers. He stated that the output of the project can be utilized as part of a more comprehensive market research in the

future. Prototype testing on customers was described as an interesting and very positive experiment.

Overall, the project would have needed more work to be done. But as it was out first attempt to do service design the results were good, especially we succeeded in gathering customer insights and their point of views on the subject. Furthermore, we were able to show that using simple and inexpensive tools can help gather a great deal of new information and results.

Results from this thesis and project can be used in further development of the product. Findings can be helpful in the constructional design of the product when thinking about the usability and environmental aspect of the product. The results give an insight to the customers' expectations and concerns and how to improve the product according to the needs and values of the users.

## 5 Conclusion

Innoscout course was fast based learning and introduction to service design. From a learning point of view practical part of the project brought plenty of new knowledges. During the development project and writing the thesis I got more experience in service design. I was able to familiarize myself with service design approach in a way that it will serve me later in professional life.

Personally, I feel like I benefited from the whole process. Through implementing the project and writing the thesis, an understanding how important the customer point of view is in the services was formed. Furthermore, how essential it is to include customers into the process of innovation and how detailed and meticulous service design can be.

If I should start again, my suggestion would be to write theoretical frame before the project starts or at least gaining a more comprehensive understanding of service design would be useful. In this way the process would have gone more smoothly. It is datable whether more time would have had any significant influence on the outcomes since a very tight timeframe resulted in a highly concentrated and fruitful work schedule.

The development project was conducted in spring 2017. Gathering materials and familiarizing myself with the literature about the approach was done during the summer. Due to the numerous sources and different approaches concerning service design approach, the writing part of the thesis lasted longer than initially anticipated.

Although the project and the thesis were conducted in relation to a specific product and was centered towards the goals of the commissioner, its results can be used by organizations in a similar field. Preliminary data gathering and customer insights can be useful as they are or serve as a basis for further researches. In addition, the service design process and methods described in the thesis are applicable to any organization. They just have to find a suitable solution for themselves.

Rising competition makes organizations think of something new, how to attract customers. Unfortunately, in many cases organizations are still thinking solutions to the problems only from their point of view. Resisting the novel approach can hurt the companies in the long run since customers are becoming increasingly aware what and how they want to purchase. This means that ignoring the customer is directly affecting the value of the company. Since the customers are the ones that organizations cannot live without not the other way around. In my opinion service design should be implemented more in ongoing

new developing projects, the benefits of that approach are undoubtable. The problem is getting the companies to see the value in customer service design.

In today's economy services make up a significant part in customer experience. Organizations should shift their focus from the organizational point of view to the customer point of view to exceed the expectations, give the customer something they don't even know they want yet. Service design holds a great advantage for organizations. Physical elements and technology can be copied, excellent service and customer experience on the other hand are hard to replicate (Polaine et al. 2013, 37). Meeting the needs of the customers and providing them with great service is a recipe for success.



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## Appendices

### Appendix 1. Interview base questions for face-to-face interview

1. Mitä ympäristöarvot merkitsevät sinulle? Millaiset ympäristöarvot ovat sinulle tärkeitä? Miksi?
2. Mitä mieltä olet ympäristön ilmalaadusta? Mitkä asiat ovat mielestäsi tärkeimpiä ilmanlaatuun vaikuttavia asioita?
3. Mitä mieltä olet puusaunan ja puutakkojen vaikutuksesta ilmanlaatuun?
4. Onko sinulla itselläsi puusaunaa tai takka?
5. Tutkimusten mukaan pienhiukkaset (esim. saunan, takan käytöstä) aiheuttavat merkittäviä ympäristöhaittoja. Mitä mieltä olet asiasta?
6. Ovatko nämä asiat vaikuttaneet puusaunan tai takan hankintapäätökseen tai käyttöön?
7. Jos markkinoilla olisi helposti asennettava suodatin, mikä vähentäisi päästöjä kuinka todennäköisesti olisit valmiina hankkimaan sellaisen?
8. Millaisia ajatuksia herättää pakollinen suodattimen käyttö hormissa ja saunan yhteydessä?
9. Jos olisit hankkimassa uuden takan/saunan haluaisitko, että siihen olisi jo valmiiksi asennettu suodatin päästöjä varten? Miksi kyllä? Miksi ei? Onko jotain mikä edistäisi päätöstä? Olisiko jotain mikä estäisi päätöstä?

## Appendix 2. Interview base questions for businesses

1. Millainen on Teidän yrityksenne asiakaskunta?
2. Miten koette kuinka ympäristötietoisia ovat teidän asiakkaat? Mistä he ovat kiinnostuneita? Mitä he kysyvät?
3. Millaisin keinoin otatte huomioon ympäristön yritystoiminnassa? Miten jatkuvasti lisääntyvät ympäristövaatimukset ovat vaikuttaneet yrityksen toimintaan? Entä siihen millaisia tuotteita otatte myyntiin/ valmistatte?
4. Mikä on näkemyksesi siitä, kuinka ympäristövaatimukset vaikuttavat yritystoimintaan tulevaisuudessa? Entä siihen millaisia tuotteita otatte myyntiin/ valmistatte?
5. Puun pienpoltto on tutkimuksien mukaan nykyään suurin pienhiukkaspäästöjen aiheuttaja paikallisesti. EU: ssa on tulossa uusi direktiivi ECO-design 2020 joka on muuttamassa tilanteen, sillä siinä on luonnosteltu pienpolton päästöjen kontrollointia ja vähennystarpeita. Millä lailla näette Eco-design 2020 vaikuttavansa teidän yritystoimintaan?
6. Helpoin keino vähentää päästöjä on käyttää erillistä suodatinta. Mitä mieltä olette suodattimien tarpeellisuudesta?
7. Mitä mieltä olette, onko sellaisella suodattimella käyttöä ja kysyntää jo ennen direktiivin voimaantuloa?
8. Jos yrityksessä on ollut aikaisemmin keskustelua uudesta direktiivistä tai tämän tyyppisestä suodattimesta, oletteko keskustelleet asiakkaiden kanssa asiasta? Mikä heitä asiassa huolestuttaa /mietityttää? Oletteko asiasta keskustelleet tavarantoimittajien kanssa? Mitä he ovat sanoneet?
9. Mitä teidän mielestänne olisi hyvää ottaa huomioon suodattimia suunniteltaessa? Mikä voisi edistää suodattimien myyntiä? Mikä voisi estää suodattimien myyntiä?

### Appendix 3. Prototype in a flyer form

Oletko puusaunan tai -takan ystävä?

Puunpolton savuille altistumista voi nyt omin toimin helposti vähentää.

Suomessa valmistettu korkealaatuinen sähkösuodatin vähentää tehokkaasti pienhiukkaspäästöjä ja täyttää EU Eco Design 2020 direktiivin vaatimukset.

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