



<input type="checkbox"/>	Bachelor's thesis
<input checked="" type="checkbox"/>	Master's thesis
<input type="checkbox"/>	Licentiate's thesis
<input type="checkbox"/>	Doctoral dissertation

Subject	International Business	Date	18.4.2019
Author	Lotta Salminen	Number of pages	70+appendices
Title	Supporting the growth of a design thinking culture – Action research at Telia Finland		
Supervisors	Elina Pelto, Eriikka Paavilainen-Mäntymäki		

Abstract

As the competition and need for innovativeness in different markets is getting more and more intense, many companies have taken on the challenge to build strong design thinking cultures across the organizations in order to boost creativity and innovation. In this thesis, a design maturity model was used to study the current design maturity level of a large Finnish telecommunications operator, Telia Finland, which has grown its design thinking culture since 2014. Three concrete actions were used to support the design thinking culture to reach the next maturity level.

The study was conducted as a mixed method action research, with a strong focus on the practical side of the issue, and an active participation of the researcher and the target organization. First, three different maturity models were compared, and the Maturity Solar System by InVision (2019) was chosen as the theoretical framework. Second, an organization wide survey was conducted, and the current design maturity level was determined based on the results. Third, interviews were conducted to deepen the understanding of the current culture and to better understand the obstacles employees were facing at the time. These methods were able to provide ideas about what the organization could do in order to move towards the next maturity level. Finally, three concrete initiatives were launched in hopes to move the organization towards the next level. The three initiatives included a Human Centred Design workshop, an internal webpage, and a weekly Design Clinic meetup. The initiatives got a positive welcome by the employees, although the face-to-face initiatives proved to be more effective based on the gathered feedback.

Key words	Design thinking, maturity model, culture change
-----------	---





<input type="checkbox"/>	Kandidaatintutkielma
<input checked="" type="checkbox"/>	Pro gradu -tutkielma
<input type="checkbox"/>	Lisensiaatintutkielma
<input type="checkbox"/>	Väitöskirja

Oppiaine	Kansainvälinen liiketoiminta	Päivämäärä	18.4.2019
Tekijä	Lotta Salminen	Sivumäärä	70+liitteet
Otsikko	Design thinking -kulttuurin tukeminen ja kasvattaminen - Toimintatutkimus yrityksessä Telia Finland		
Ohjaajat	Elina Pelto, Eriikka Paavilainen-Mäntymäki		

Tiivistelmä

Kilpailutilanne ja tarve innovatiivisuudelle kasvavat koko ajan eri markkinoilla, mistä johtuen useat yritykset ovat alkaneet kasvattamaan heidän design thinking -kulttuureita läpi organisaatioiden lisätäkseen luovuutta ja innovointia. Tässä tutkielmassa käytettiin designmaturiteettimallia, minkä avulla tutkittiin suomalaisen teleoperaattorin, Telia Finlandin, nykyistä designmaturiteetin tasoa. Telia Finland on kasvattanut design-kulttuuriaan vuodesta 2014 alkaen. Tutkimustulosten perusteella otettiin käyttöön kolme toimenpidettä, joiden tarkoituksena oli tukea design-kulttuurin kasvua seuraavalle tasolle.

Tutkimus toteutettiin toiminnallisena monimenetelmätutkimuksena, jossa painopiste oli vahvasti käytännössä sekä tutkijan ja organisaation aktiivisessa osallistumisessa. Ensimmäiseksi, kirjallisuuskatsauksessa verrattiin kolmea design maturiteettimallia, joista InVisionin (2019) 'Maturity Solar System' valittiin tutkimuksen teoreettiseksi viitekehikseksi. Toiseksi toteutettiin koko yrityksen laajuinen kyselytutkimus, minkä tulosten pohjalta määritettiin yrityksen nykyinen maturiteettitaso. Kolmanneksi toteutettiin haastattelut, joiden tarkoituksena oli lisätä ja syventää ymmärrystä kulttuurin nykytilasta sekä tunnistaa esteitä, joihin työntekijät törmäivät. Näiden metodien pohjalta voitiin tunnistaa ideoita, joiden avulla organisaation voisi olla mahdollista liikkua kohti seuraavaa maturiteettitasoa. Lopulta, kolme konkreettista toimenpidettä aloitettiin, toiveina tukea organisaation siirtymistä seuraavalle tasolle. Nämä kolme toimenpidettä pitivät sisällään ihmiskeskeisen designin työpajan, sisäisen verkkosivun ja viikoittaisen Design Klinikka -tapaamisen. Toimenpiteet saivat positiivisen vastaanoton työntekijöiltä, vaikkakin kasvotusten tapahtuvat toimenpiteet osoittautuivat tehokkaimmiksi kerätyn palautteen perusteella.

Avainsanat	Design thinking, maturiteettimalli, kulttuurimuutos
------------	---





**UNIVERSITY
OF TURKU**

Turku School of
Economics

SUPPORTING THE GROWTH OF A DESIGN THINKING CULTURE

Action research at Telia Finland

Master's Thesis
in International Business

Author:
Lotta Salminen

Supervisors:
Elina Pelto
Eriikka Paavilainen-Mäntymäki

18.4.2020
Turku

The originality of this thesis has been checked in accordance with the University of Turku quality assurance system using the Turnitin OriginalityCheck service.

TABLE OF CONTENTS

1	INTRODUCTION.....	7
1.1	Design thinking as a new organizational culture	7
1.2	Telia Finland – The next generation telco	8
1.3	Objective and structure of the study.....	10
2	USING MATURITY MODELS TO ASSESS ORGANIZATION’S DESIGN THINKING CULTURE	12
2.1	What is design thinking?	12
2.2	The role of design thinking within an organization.....	15
2.2.1	The Tension of Inclusion	16
2.2.2	The Tension of Disruption	18
2.2.3	The Tension of Perspective.....	19
2.2.4	Managing the three tensions.....	20
2.3	Evaluating company’s design maturity through maturity models.....	21
2.3.1	The Danish Design Ladder and Seven stages to a design-based innovation culture	22
2.3.2	The Maturity Solar System	25
2.4	Synthesis of the theoretical framework.....	29
3	METHODOLOGY.....	33
3.1	Research approach.....	33
3.2	Data collection	34
3.3	Data analysis.....	38
3.4	Data evaluation.....	39
4	MOVING TELIA FINLAND TOWARDS THE NEXT DESIGN MATURITY LEVEL	42
4.1	The journey of the design thinking culture at Telia Finland.....	42
4.2	The current design thinking culture at Telia Finland.....	47
4.2.1	The design maturity level at Telia Finland	47
4.2.2	Pain points in the current culture	49

4.3	Moving towards the next maturity level	55
4.3.1	Human Centred Design workshop	56
4.3.2	Telia Design internal webpage.....	57
4.3.3	Design Clinic.....	60
4.4	Evaluating the effectiveness of the actions	61
5	CONCLUSIONS	64
5.1	Main contributions of the study	64
5.2	Limitations of the study and future research	65
6	SUMMARY	67
	REFERENCES	69
	APPENDICES	73
	Appendix 1. Seven stages to a design-based innovation culture	73
	Appendix 2. Structure and content of the survey	77
	Appendix 3. Interview themes	80
	Appendix 4. The full list of the survey results	81

LIST OF FIGURES

Figure 1.	The Double Diamond model	13
Figure 2.	The Design Ladder	22
Figure 3.	Seven stages to a design-based innovation culture.....	24
Figure 4.	Visualization of a level snapshot	27
Figure 5.	The Maturity Solar System.....	28
Figure 6.	The journey of the design thinking culture at Telia Finland	42
Figure 7.	Design as a service function vs. design as a core function.....	44
Figure 8.	Design team at Telia Finland.....	45
Figure 9.	The current design thinking maturity level at Telia Finland	47
Figure 10	Design maturity level: comparing different respondent groups	48
Figure 11.	Survey results about executives and employees.....	50
Figure 12.	Survey results about experimentation and design strategy.....	53

Figure 13. Survey results about design management.....	55
Figure 14. Human Centred Design workshop in action.....	56
Figure 15. Telia Design internal webpage	58
Figure 16 The Design Clinic “reception”	60

LIST OF TABLES

Table 1. Structure of the survey	35
Table 2. List of the interviewees	36
Table 3. The research process in 2019	38

1 INTRODUCTION

1.1 Design thinking as a new organizational culture

Design thinking has become one of the buzz words of the 21st century when companies have tried to find new ways to create products and services that truly resonate with their end users (Björklund et al. 2020, 100–101; Carlgren et al. 2016, 344; Dunne 2018, 9). Many companies have taken on the challenge to build a strong design thinking mindset across the organization in order to boost creativity and innovation. During the past years, the role of design has changed significantly: previously design was seen as something that makes an already existing idea more attractive whereas now designers are challenged to create completely new services or business lines. The former role is tactical as it builds on what exists, and the latter is strategic as it unleashes the disruptive nature of design thinking. (Brown & Katz 2011, 381; Wrigley et al. 2020, 126.) One of the reasons that makes design thinking as a mindset compelling for companies is that anyone can become a design thinker because what it truly is, is problem solving (Brown & Wyatt 2010, 33). And when the whole company is using the design thinking approach, it can become more innovative, better differentiate its brand, bring its products and services to market faster (Brown & Katz 2011, 381; Brown & Wyatt 2010, 32; Björklund et al. 2020, 106; Smith 2015, 37), and eventually, outperform its competitors with the positive impact of design on business performance (Sheppard et al. 2018, 2; Björklund et al. 2020, 101–102; Gruber et al. 2015, 1). However, little is known about how an organization can integrate design as a strategic approach (Wrigley et al. 2020, 125).

Design thinking is a mindset and an approach to product and service development that brings the end users close to the development process (Mahmoud-Jouini et al. 2019, 50). The goal is to translate observations into insights, and insights into products and services that will improve end users' lives (Brown & Katz 2011, 382). However, designers cannot achieve the results only by themselves. They need a multidisciplinary team around them to tackle complex problems that all companies are facing these days. In order to create a skilled multidisciplinary team, designers have to first introduce design thinking to the organization and get others to adopt the mindset as well. (Smith 2015, 36.) This task, however, is not a simple one and designers usually face multiple challenges along the way. One of the biggest challenges, for example, is to find a balance between making

design thinking easy enough for other employees to understand but at the same time maintaining the true nature and innovativeness of design thinking without being assimilated into the mainstream culture. (Dunne 2018, 70.)

Companies worldwide have understood the value and importance of the design thinking approach and many have started to build and grow their design capabilities (Björklund et al. 2020, 101). However, many companies are struggling to track their progress and to identify what they should do next in order to build a stronger culture. To help these organizations out, many research institutes and companies have developed *design maturity models* to offer some structure and frameworks for others to use. Some of these models only provide an idea what the possible maturity levels might be and what the key attributes of a company on a certain level are, but there are also models that go deeper into detail and explain what challenges companies face on a specific level, what they can do to get to the next level, and how to actually measure on which level the company is at the moment. (Danish Design Centre; InVision 2019, 11; Katz 2015, 22.) In this study, I compared three different design maturity models and chose one to be used in the research in order to find out how the model can help an organization to identify its current design maturity level and the ways in which the company can strengthen its design culture.

From a broader perspective, this study can hopefully provide an example on how an individual company can assess its own design maturity by using a design maturity model as a framework. I conducted the research within a large Finnish telecommunications company where the design thinking culture has been growing for few years and is now facing new challenges. This study could prove to be essential for leaders who aim to build a stronger design thinking culture, and act as an example of how design maturity models can help tracking the development of the culture.

1.2 Telia Finland – The next generation telco

This research is conducted at Telia Finland, one of the biggest telecommunication operators in Finland. I chose this company as a context for the research because I work for the company as a service designer and I was asked to study the current design thinking culture at the company and come up with ideas on how to build a stronger design culture.

Telia Finland is a “new generation telco” with strong local presence and international mindset. Telia Finland is part of Telia Company, which comprises of nine countries: the main focus is in the Nordic and Baltic countries (Denmark, Estonia, Finland, Latvia, Lithuania, Norway, and Sweden), and in addition the company is present in Moldova and

Turkey. Out of these nine countries, Finland is one of the top three markets for the company. Headquartered in Stockholm, the company is set to change the industry and bring the world closer for its customers. (TeliaCompany.com/en/About-The-Company.) Telia Finland invests every year about 200 million euros in connections in Finland, employs directly about 3 500 people and indirectly thousands of others (Telia.fi). The company's history dates back to 1855 (Telia.fi), and at the moment it has two significant competitors in Finland: Elisa and DNA (yle.fi).

Telia Finland's goal is to create new connections and to bring people and companies closer to the things that matter to them the most by offering connections to both consumers and businesses. The company has three goals: (1) to create the best digital customer experience, (2) to offer best connections, and (3) to be the best ICT partner. In addition to the more traditional telecom services, such as mobile and home broadband connections, Telia Company has invested heavily in the entertainment business since 2014 which also affects significantly to Telia Finland's business opportunities: in 2017 it bought the broadcasting rights to Finnish national ice hockey league, Liiga, and in 2019 Telia Company acquired Bonnier Broadcasting, which includes e.g. one of the most popular Finnish TV channels, MTV3. (teliacompany.com/en/news.) Although, there have been substantial investments in new business areas, the company has not forgotten about its more traditional services: in 2018 Telia Finland launched the first online mobile subscription in Finland, called Telia Dot, which was created by an internal start-up team who built the service separate from the traditional development and marketing processes by using design thinking approach. Based on the extensive research and observation phase, the team found out that Finnish consumers are getting very frustrated with the current pricing policies used by all telecom operators. What also surfaced from the research findings was that people want more and more control over their subscriptions, and e.g. parents want better solutions for managing the amount of time their children spend on their phones. Based on these, and several other findings, the team created Telia Dot, which is priced purely based on how much data the user uses and that makes it easier to track your own data usage and manage e.g. your child's data usage. In addition to providing a new service for Telia Finland's users, Telia Dot has also played an important role when the designers have attempted to grow the design thinking culture across the organization. Telia Dot is a great case example on what can be achieved by taking a design thinking approach into problem solving.

In the later chapters you can find a more detailed description of Telia Finland's current design thinking culture, find out on which design maturity level the organization is at the moment, and what the designers have done to help the organization adopt more mature design thinking mindsets.

1.3 Objective and structure of the study

This thesis is conducted as a mixed method action research and it strives to better understand where Telia Finland is on its journey towards more customer-centric organization and ways-of-working. **The objective of the study is to find a way in which companies can determine on which design maturity level they are at a certain moment and how they can move from one level to another.** In order to be able to find answers to this objective, I divided the objective into the following research questions:

- How do design maturity models support the evaluation of organizations' design maturity?
- How can companies identify their design maturity level?
- What actions can organizations take to get to the next maturity level?

I used three different research methods in order to answer all the questions. First, I compared three different design maturity models by conducting a literature review. Based on this information I chose one model with the help of the project team from Telia Finland. Second, I conducted an organization wide survey in order to determine on which design maturity level the organization is at the moment and also to be able to compare different respondent groups: designers, other employees, and managers. Third, after I had determined the current maturity level, I interviewed 20 people from different teams of the organization in order to gather more insights about the situation. Based on the survey data and the interviews' insights, three concrete projects were kicked-off by the design team. The goal of these three projects or actions is to move the organization closer to the next maturity level.

The structure of the thesis is as follows: The theoretical framework is formed by exploring the theories on design thinking and design maturity models. Based on this literature review, a model is chosen for the basis of the study (Chapter 2). Next, the research methodology is explained (Chapter 3), followed by a detailed description on Telia Finland's design thinking culture and the research findings about on which level Telia Finland is at the moment and evaluation on the activities took by the designers (Chapter 4).

The report will end by concluding the key findings and presenting managerial implications and limitations to the study (Chapter 5).

2 USING MATURITY MODELS TO ASSESS ORGANIZATION'S DESIGN THINKING CULTURE

2.1 What is design thinking?

The discussion about the definition of *design thinking* is still ongoing between design theory and managerial discourse, which is primarily promoted by practitioners (Björklund et al. 100–101; Carlgren et al. 2016, 345). Due to its more recent nature, the focus in this thesis is on the managerial discussion, which determines design thinking as a mindset, an attitude, and a way of thinking that allows people to solve complex problems (Brown 2008, 86; Dunne 2018, 12,14). The goal is to reveal the underlying needs of the end users by involving them actively throughout the design thinking process. In other words, by bringing in the user insights, companies are able to address the needs of the people who use their products and services. (Brown & Wyatt 2010, 32; Gruber et al. 2015, 1; Prud'homme van Reine 2017, 57.) By listening to the real needs of the end users (Kolko 2015), companies are able to create “high-impact solutions which bubble up from below rather than are imposed from the top” (Brown & Wyatt 2010, 32). Ultimately, design thinking integrates business strategy and technology with the needs of the user:

“[Design Thinking is] a discipline that uses the designer’s sensibility and methods to match people’s needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity.” (Brown 2008, 86)

The more complex a problem the more useful design thinking approach becomes. Designers call these problems ‘wicked problems.’ These problems are chronic, beyond complex, with no clear boundaries or solutions. (Buchanan 1992, 15; Dunne 2018, 29; Wrigley et al. 2020, 126.) These problems occur in social contexts where the social complexity of wicked problems and their technical difficulties make them tough to manage. However, it is important to remember that not all problems are wicked, and you can recognize a wicked problem when a problem has innumerable causes, is tough to describe, and doesn’t have a right answer. (Camillus 2008, 100.) In order to solve wicked problems, designers use design thinking approach to come up with innovative solutions (Björklund et al. 2020, 101; Dunne 2018, 29).

There are many different design thinking processes modelled in literature (Wrigley et al. 2020, 126), however, all of them agree that the process is a system of overlapping spaces rather than a linear process of orderly steps (Brown & Wyatt 2010, 33). This means that there is no ‘right order’ when going through a design process and designers modify the process in a way that best serves their problem (Dunne 2018, 14). Even though, the process is not linear and never the same, there are models that aim to describe the nature of the design thinking process (Dunne 2018, 16-28). One of the most popular models is the Double Diamond model (Figure 1) by Design Council UK.

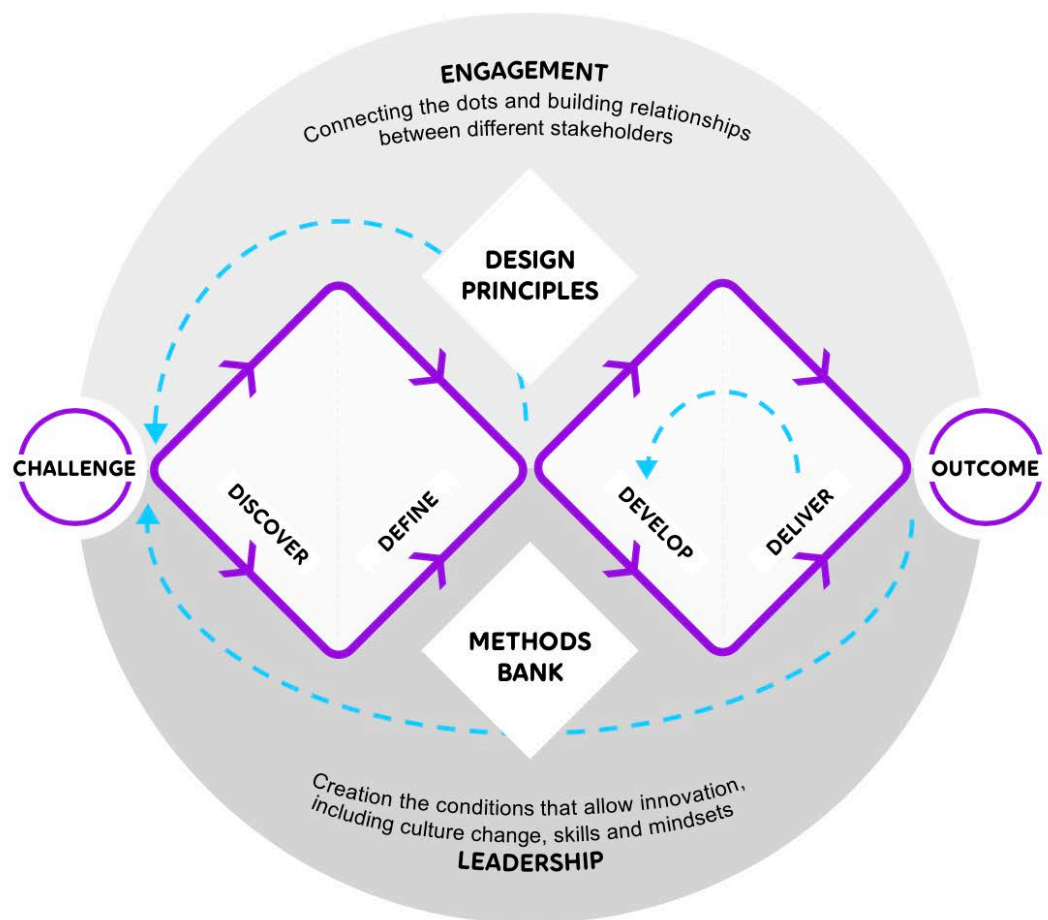


Figure 1. The Double Diamond model (based on Design Council UK)

According to this model, there are four main phases in the design thinking process: discover, define, develop, and deliver. The goal of the first phase is to expand the team’s understanding and knowledge about the problem space which is defined by the challenge

the team has found or been given. This can be done by, for example, finding more information about the topic online, interviewing and observing people who are part of the problem space, and by benchmarking other solutions to the problem. (Brown & Wyatt 2010, 33; Brown & Katz 2011, 382; Gruber et al. 2015, 1.) By using these tools, designers look for problems that others take for granted, assume to be unsolvable, or fail to notice (Dunne 2018, 16-28). After the team has more knowledge about the problem at hand, they put all the gathered information together and try to make sense of it all in order to find out what is the part they want to focus on (Brown & Wyatt 2010, 34). Here, it is important to understand that the challenge the team started with is probably not the one they end up solving after they've familiarized themselves with the problem in more detailed level. Therefore, when going through the define phase, the team should keep their minds open because by going through all the insights they collected, they may find more important problems to solve. When the team is done with the define phase, they should have a clear vision about the problem they want to solve, and a lot of insights so support that decision. (Gruber et al. 2015, 1; Liedtka et al. 2017, 52.)

When the team moves on to the next diamond, they start to think about possible solutions to the chosen problem. The develop phase can also be seen as the ideation phase where the team goes through intensive brainstorming and ideation. The goal is to come up with all possible solutions that could somehow solve the problem. (Gruber et al. 2015, 1; Liedtka et al. 2017, 52.) In order to come up with as many ideas as possible, it is important that the people affected by the issue are involved in the ideation. These people can include different stakeholders within a company, but when designing products and services for people outside the company, it is crucial that they are actively involved in the ideation because those are the people who will eventually use the solution. After the develop phase, it is time to narrow down the ideas and start prototyping and testing which of the solutions work best in the real life, in the use of real people (the deliver phase). The most important thing is that the team starts to prototype the ideas at small-scale and test the prototypes with real users in order to get feedback quickly. Eventually, after many rounds of prototyping and testing, the team will have a solution, a product, service or an experience, that is something the users really want and enjoy using. (Brown & Wyatt 2010, 35; Gruber et al. 2015, 1; Kleinsmann et al. 2017, 33; Kolko 2015.)

The Double Diamond model has evolved during the years and Figure 1 represents the latest version of the model. Previously, the model consisted only of the four phases explained above. However, now the council has added other important elements to the

picture. One of the most important additions are the arrows which link the ends of the process to the beginning of the process. This means that when the team eventually comes up with an outcome, the process doesn't stop there. Quite the contrary, this is where the continuous development begins. In today's world no product or service is ever ready. They have to be updated and developed to suit the ever-changing needs of the users. (Beverland & Farrelly 2007, 11; Gruber et al. 2015, 1.)

At first, design thinking can seem chaotic to those who are involved in it for the first time, which is completely understandable. However, after being involved in the process, participants come to see that the process makes sense and delivers results. (Brown & Wyatt 2010, 33.) The beauty in design thinking is that anyone can become a design thinker because what it truly is, is problem solving (Björklund et al. 2020, 107; Prud'homme van Reine 2017, 56; Wrigley et al. 2020, 126). Design thinking is based on capacities we all have, such as our ability to be intuitive, and recognize patterns, but that are overlooked by more conventional problem-solving practices (Brown & Wyatt 2010, 33; Mahmoud-Jouini et al. 2019, 51). In that sense, we as a humankind, have always been designers and you can see design everywhere: in the cups we drink from, the applications we use every day on our phone, and in the way we get from point A to B. Someone has designed them all, and they have been designed by different people from different backgrounds. (Dunne 2018, 11.) What makes a successful design team is its diversity. In order to achieve divergent thinking, the team must have "T-shaped" people from different backgrounds and strengths in two dimensions. What this means is that on the vertical axis, a person needs to possess a depth of skill that will allow him or her to make tangible contributions to the outcome. On the other hand, the top of the "T" is what makes a person a design thinker. This means openness, curiosity, optimism, experimentation, and empathy. (Brown & Wyatt 2010, 34.)

2.2 The role of design thinking within an organization

The role of design thinking has changed significantly during the past few years. Before, designers existed to make an already developed idea more attractive. However, now designers are being asked to create ideas at the outset of the development process. The former role was a tactical one, whereas the latter is a strategic one; it unleashes its disruptive potential. (Brown & Katz 2011, 381; Gruber et al. 2015, 1; Von Stamm 2004, 11.) Due to its game-changing nature, more and more companies have adopted design thinking as a new approach to boost innovativeness and to create more sustainable growth for their

businesses (Brown & Wyatt 2010, 32; Carlgren et al. 2016, 344). However, in order for design thinking to reach its full potential, it is not enough that designers are the only ones thinking differently. To make the biggest impact, designers need a multidisciplinary team of skilled design thinkers around them. (Björklund et al. 2020, 106; Brown & Katz 2011, 381; Smith 2015, 37.) This mindset however has to be learned before the team can fully embrace the benefits of design thinking and often the designer's openness, curiosity, and fluidity sit uncomfortably in the rigid process of large organizations (Dunne 2018, 32-33; Björklund et al. 2020, 100). Adopting this new way of thinking requires a lot of effort, and many companies, especially the large ones, face challenges when trying to spread design thinking across the company (Dunne 2018, 9; Carlgren et al. 2016, 345; Kolko 2015; Martin 2010, 41). However, when design thinking is integrated within an organization, it can be the foundation of a competitive advantage (Wrigley et al. 2020, 127; Björklund et al. 2020, 100-101). In this chapter, I am going to describe these challenges by using a framework created by Dunne (2018), who found out that initiatives which aim to introduce design thinking to a broader organizational audience live in a persistent state of tension around three issues: "their cultural engagement with the organization; how radical their innovations are; and taking on the user's point of view". These three tensions are called the *Tension of Inclusion*, the *Tension of Disruption*, and the *Tension of Perspective*. (Dunne 2018, 44.)

2.2.1 The Tension of Inclusion

The first of the three tensions affecting companies when adopting design thinking mindset is called the *Tension of Inclusion*. As mentioned above, designers can reach the best outcomes only when the whole team consists of design thinkers who all have different areas of expertise. In order to create such an interdisciplinary group, other employees need to understand the concept of design thinking and know how the design process works. Therefore, designers often launch initiatives within companies through which they want to introduce the new way of thinking and approaching problems to other employees. (Carlgren et al. 2016, 355; Wrigley et al. 2020, 127; Björklund et al. 2020, 105-106.) In order to do this, they have to make design thinking understandable and as easy as possible so that others would start using it. However, this might make design thinking sound and look "too" simple and designers risk losing their innovativeness by being assimilated into the mainstream (and often bureaucratic) cultures (Dunne 2018, 70; Carlgren et al. 2016, 353-354). On the other hand, by being so different to the standard approach to problems,

design thinking can be seen too different which can lead to cultural isolation (Dunne 2018, 70; Carlgren et al. 2016, 354).

There are two reasons why the tension of inclusion arises: “First, the pressures of day-to-day business often work against design thinking. Second, the design mindset and approach to problems are distinctly different from those of most large organizations, and this difference can lead to clashes with the mainstream culture”. (Dunne 2018, 76; Björklund et al. 2020, 102.) When teams have set quarterly goals which they have to reach, it can be difficult to devote their time and other resources to design thinking activities whose benefits may be visible only in the long-term – or perhaps never (Dunne 2018, 77). Also, as the design thinking mindset is different from organizations’ normal routines, it can be difficult to fit in and prioritize (Carlgren et al. 2016, 349, 352). In order for large organizations to work, different parts of the organization have to know what the other ones are doing so that the company operates as efficiently as possible. There is no room for uncertainty which slows the system down, and since design thinking process is nothing but uncertain, the design process can be an exercise in frustration when you have limited time and a need for clarity. (Dunne 2018, 79.)

According to Dunne (2018, 83) there are three ways in which designers can manage the tension of inclusion: through support from the top, by distributing design thinking throughout the organization, and by demonstrating the value of design thinking programs to business units. Designers should not rely only on the support from the top management especially because leadership inevitably changes (Dunne 2018, 84), and design has become too important to be left only to designers to lead (Brown & Katz 2011, 381). Instead, the biggest effect can be seen through grassroots approaches. By using grassroots initiatives, designers can prototype the design culture first with a small group of people and then scale up from there. (Wrigley et al. 2020, 127; Mahmoud-Jouini et al. 2019, 54.) At Telia Finland, many managers have already witnessed the power of design thinking and now act as advocates for the approach. Also, there have been several attempts on grassroots initiatives and later in this study, you can find a detailed description of one of the design thinking initiatives through which designers are attempting to spread design thinking mindset throughout the company. Designers at Telia Finland have also tried their best to talk about success stories and in that way demonstrate their value to the organization. The problem here is how you measure the performance of design thinking (Dunne 2018, 86; Schmiedgen et al. 2016, 157).

The tension of inclusion creates a notable challenge for design thinkers in organizations. They have to find a way to create initiatives that can eventually stand on their own even though support from top management is essential. Designers have to find ways to work within, and at the same time change, the organization's culture while delivering results. This means that even though design thinking can be revolutionary for organizations, for most it is a slow revolution – “more like lighting a candle than a fuse”. (Dunne 2018, 94.)

2.2.2 The Tension of Disruption

The second tension that designers have to deal with is the *Tension of Disruption*. This means that designers have to balance between disruptive innovation and incremental improvements to the already existing services – it is not easy to do both simultaneously. (Carlgren et al. 2016, 352; Dunne 2018, 98; Prud'homme van Reine 2017, 69.) According to Dunne (2018, 99) there are at least three reasons for why the tension of disruption arises: “First, disruption is about tomorrow, but organizations need to focus on today”. Often this can be seen when the organizational dynamics squeeze out the disruptive ideas. Second, it is difficult to “attract and retain people who have both the creativity and the organizational knowledge needed for disruption (Dunne 2018, 103; Wrigley et al. 2020, 138). This has also happened at Telia Finland where the internal changes in positions and roles is very frequent. The third reason is related to organizational dynamics: “the self-censorship that comes with organizational life can stifle radical ideas” (Björklund et al. 2020, 109; Dunne 2018, 104). This can especially be seen when the organization faces difficult times, times when disruptive innovations are most needed. Therefore, leaders should create a culture that embraces risks and allows people to take chances (Kolko 2015; Beverland & Farrelly 2007, 16).

The Tension of Disruption can threaten a design thinking initiative if the streams of innovation, both incremental and disruptive, are not managed effectively (Dunne 2018, 105). The challenge is to find a balance between these two: too far towards incremental innovation and designers lose the focus on “the raison d'être” of design thinking; on the other hand, focusing too much on disruptive projects, and you bring pressure for short-term results. (Dunne 2018, 105.) However, most of the design thinkers felt that they are doing too much incremental innovation or that they start out with disruptive ideas, but they change over time and end up incremental (Dunne 2018, 105-106). One way to manage the Tension of Disruption is to offer the organization examples of early wins with

more disruptive projects and thereby provide concrete evidence that design thinking could work. Together, these can help reduce the pressure toward incremental innovation. (Björklund et al. 2020, 115; Dunne 2018, 112; Mahmoud-Jouini et al. 2019, 56.)

2.2.3 The Tension of Perspective

The third tension affecting the success of design thinking initiatives is the *Tension of Perspective*. As we learned in Chapter 2.1, design thinking is, at its core, very user centric. The Tension of Perspective challenges this point of view by reminding us that in addition to the end user, there are many other stakeholders involved in any service or a product (Gruber et al. 2015, 1). Therefore, while still keeping the end user in the focus, design thinkers also have to take into account the perspective of other stakeholders when designing new services because you need an inside-out perspective to get anything done in an organization (Björklund et al. 2020, 101; Dunne 2018, 120-121; Wrigley et al. 2020, 126). This means that design thinkers must practice empathy also with internal stakeholders, same as they use it with the outsiders (i.e. end users) because at the end, products and services are a compromise between the interests of users and those of organisation's and therefore the internal perspective is just as important as that of the user (Brown & Martin 2015; Dunne 2018, 121–122). Also, if design thinkers rely only on the users' perspective, they're understanding will be incomplete which many times is irresponsible (Dunne 2018, 123). However, designer empathy can be difficult for organizations to sustain when internal teams tend to focus on managing the organizational complexity by creating closer relationship with colleagues, who can help them promote their projects, rather than with the end users (Kolko 2015; Liedtka 2014, 40–45 Wrigley et al. 2020, 127–128).

The reason why the Tension of Perspective arises lays in the wicked complexity of large organizations. Just as we learned in Chapter 2.1, wicked problems are very complex and difficult to lead, and large organizations are one example of that with multiple – often competing – stakeholders, overlapping systems, and a lot of ambiguity. (Dunne 2018, 124.) These complex environments also create challenges for design thinkers and “user-centred design” is really an oversimplification because designers can never be completely sure who the real end user is and which perspectives to take into account (Dunne 2018, 128–129). If not managed effectively, the Tension of Perspective can result in great ideas floundering at the implementation stage or ending up different from the original idea if implemented (Carlgren et al. 2016, 352; Dunne 2018, 129; Wrigley et al. 2020, 139). According to Dunne (2018, 131–135) there are two ways in which design thinkers can

manage the Tension of Perspective: First, they could loosen control by “handing over “unfinished” innovations that allowed internal stakeholders to design the final product”. However, this means that the designers lose control over the outcome. Second, they could extend the reach of designers into the implementation process through collaboration where design thinkers would have a lot to offer, but at the same time there are “strong forces working against you”, meaning that it might be challenging to introduce an iterative problem solving method to organizations which are used to using more linear approaches (Carlgren et al. 2016, 355; Mahmoud-Jouini et al. 2019, 50). The first approach could work if the whole organization had adopted the design thinking mindset and applied it in their work. The key for success in this approach is strong leadership, which faces its challenges when the people in the leadership positions change frequently. (Bucolo et al. 2012, 19; Carlgren et al. 2016, 358; Dunne 2018, 135.) It is especially important that the senior leadership not only mandates design thinking, but adopts it, role models it, and invites others to adopt it too (Dunne 2018, 138).

2.2.4 Managing the three tensions

In order to better understand and manage the three tensions, Dunne (2018) suggests three reframes. The first reframe is *Design Thinking as a Mindset* according to which organizations should escape, model, and prototype the design thinking mindset. (Dunne 2018, 152.) First, organizations should create a specific space and location for design thinking and innovation activities which provides an escape from the routine (Carlgren et al. 2016, 353; Dunne 2018, 154; Smith 2015, 37). The physical space also displays the company’s commitment to design, and the lack of a designated space can result in design activities being perceived as temporary, with the impression of limited support from the company’s leadership (Wrigley et al. 2020, 137). It is also important to develop a reflective practice that allows design thinkers across the organization to meet regularly to share their challenges and experiences (Dunne 2018, 155). This however requires prioritization which can be challenging when things are busy (Carlgren et al. 2016, 349). Second, the organization should model the design thinking mindset. This can be done by educating leaders on what design thinking means and what needs to be done in order for it to flourish. Surface understanding leaves design thinking initiatives vulnerable to hostile forces within the organization. (Dunne 2018, 158.) Björklund et al. (2020, 106) suggest that the organization should invest concurrently in both deep expertise in design practices, and wide understanding and application of design thinking. It is important to demystify design

thinking for the organization and make its underlying logic transparent (Dunne 2018, 159). Finally, the organization should prototype the mindset by starting out small and learning from the mistakes (Dunne 2018, 159; Wrigley et al. 2020, 127). Building and protecting the mindset are crucial for the initiative to survive. Success stories can play a big role when trying to engage the organization and demonstrate the power of design thinking. (Dunne 2018, 159–161.)

The second reframe discusses *Design Thinking as a Technological or Collaborative Platform*. On one hand design thinkers can build technological platforms that “allow individual departments to take the lead within their own spheres” (Carlgren et al. 2016, 352; Dunne 2018, 161-162). On the other hand, design thinkers can collect a diverse group of stakeholders who bring knowledge from different perspectives and integrate them into a coherent innovation. (Dunne 2018, 161-162.)

The third reframe is called *Design Thinking Within a Bigger System* which reminds us that a design thinking initiative or a project is always part of a system that consists of different stakeholders both inside and outside of the company. It is important to remember that the internal stakeholders are a diverse user group in themselves whose perspectives need to be built into the design process. (Dunne 2018, 166.)

2.3 Evaluating company’s design maturity through maturity models

When building a design thinking culture and tackling the three tensions through the cultural change, companies need a framework through which they can evaluate the maturity of the design thinking culture. As we have established by now, design thinking brings the most value when it is used company wide and adopted by a broad range of professionals. Even though, design thinking has become more significant for many companies and its role is becoming more and more significant, design thinking still needs to move closer to the executive leadership where strategic decisions are made. (Brown & Katz 2011, 381.) In order to better understand the role of design thinking within companies and industries, many *design maturity models* have been created. These models and frameworks try to explain different levels of maturity that most of the organizations go through while aiming to reach the highest maturity level where design thinking is part of the company strategy. For this study, I chose three different maturity models for comparison, and at the end of this literature review, I will conclude which one of the models works best for the purpose

of this study. The three models reviewed are *The Design Ladder* by Danish Design Centre, *Seven stages to a design-based innovation culture* by Aviv Katz, and *The Maturity Solar System* by InVision.

2.3.1 The Danish Design Ladder and Seven stages to a design-based innovation culture

The Design Ladder is one of the most popular maturity models used in companies and in research to help organizations understand on which maturity level their design culture is (Björklund et al. 2018). This model was developed by Danish Design Centre in 2001 with a hypothesis that “there is a positive link between higher earnings, placing a greater emphasis on design methods in the early stages of development and giving design a more strategic position in the company’s overall business strategy”. The model consists of four maturity levels (Figure 2).



Figure 2. The Design Ladder (Danish Design Centre)

On the first level, “non-design”, are companies that do not have trained designers and design is an invisible part of, e.g., product development where the end users’ perspective

plays little to no role in the process. On the second step, “design as form-giving”, design still plays a small role and is only something visual to make services and products look nice. On this level, design can be carried out by professional designers but is usually handled by people with other professional backgrounds. When a company gets to the third maturity level, “design as process”, it already uses design more comprehensively by integrating design at an early stage in the development process. Created solutions are problem driven and stem from a problem users face in their everyday lives. Finally, on the highest maturity level, “design as strategy”, designers work with the company leadership to rethink the business concept. At this stage, design is part of the company’s strategy and plays a significant role in the value chain. (Danish Design Centre.) Based on a survey conducted by the Danish Design Centre in 2016, 40 per cent of Danish companies were on the first level, 15 per cent on the second, 30 per cent on the third, and 13 per cent on the fourth maturity level (Danish Design Centre). Even though, the Design Ladder provides a fairly simple framework to help people understand the different stages of a company’s design journey, the model itself doesn’t provide any clues about how a company can assess its own maturity or tools on how to get to the next maturity level.

The second model evaluated for this survey is called *Seven stages to a design-based innovation culture*. Although, this model is not as widely known as the Design Ladder, I wanted to include it to the possible frameworks as this model is very concrete and multi-dimensional. In addition to naming the seven different maturity levels, the framework also suggests the activities that in-house designers can do to support the design thinking culture (the green balloons), and it points out the existing conditions that may make the move towards the next step challenging (the red weights) (Katz 2015, 22; see Figure 3).

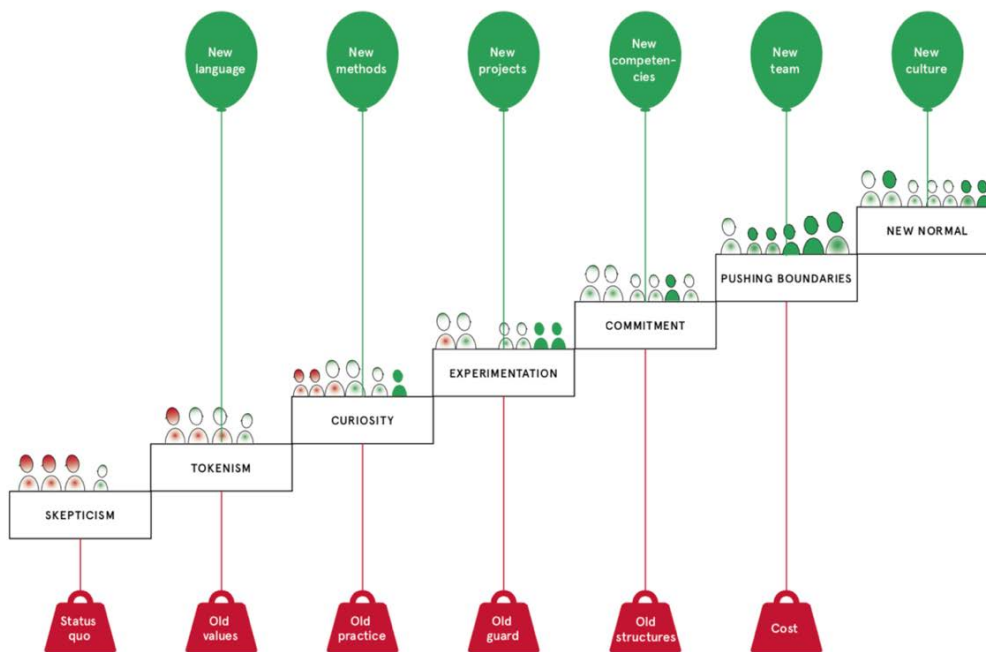


Figure 3. Seven stages to a design-based innovation culture (Katz 2015, 22)

I will describe the most important elements of the model here. The detailed description of each of the maturity levels can be found in Appendix 1. The core idea of this maturity model is the same as the one in Design Ladder: the higher a company's maturity level the more significant role design plays in the company's strategy. On the first two levels of the model (scepticism and tokenism), design plays a small role in the company culture. The employees don't yet understand the real value of design thinking and design thinking is more of a "fashionable veneer" used by managers wishing to display a level of sophistication than a new practice. In order to get to the next maturity levels, designers should build awareness and share success stories so that other employees can see the concrete value design thinking can bring to the organization. They should also involve managers to get resources for design thinking initiatives.

On the third maturity level (curiosity) there is increasing interest from the senior leadership and it is likely that at this point designers get some resources to prove the value that design thinking methods and processes can deliver. However, designers have to be prepared to receive some criticism from other employees who challenge the use of resources on non-conventional practice. To get to the next maturity levels, designers should invite external design thinkers to help convince and prove to the organization that the

approach works. By inviting other employees to participate in, e.g., a design sprint, designers can demonstrate the effectiveness of the design process. On the fourth and fifth level (experimentation and commitment), there is a growing acceptance of design thinking and design resources are rather hired in-house than by consultant agencies. Even though, there is now a team of in-house designers, there is no clear leadership and the few experienced design thinkers pull the practice in different directions. To guide the organization towards the next maturity levels, designers should create a common language for design within the design team to make sure that everyone is on the same page. On the sixth level (pushing boundaries), the design team has a senior design leader to set the direction and the value and impact of the team are measured to ensure the continuity of their activities. The risk is that the team increasingly focuses on justifying its existence rather than the impact it seeks to create. To reach the highest maturity level, the design lead should keep the design team rather small and build a network of advocates across the organization. It is important to create a culture of inclusion by inviting everyone interested in the topic on board rather than a culture of exclusion which highlights the importance of designers themselves. Finally, on the highest maturity level (new normal), leaders, managers, and the employees see themselves as instrumental in a design process and the design thinking approach is the normal way to approach any problem. However, even if a company reaches the highest maturity level, it does not mean that they are “ready” and can stop developing the culture. Quite the contrary, sustaining the culture is difficult relies on leadership that honours the principles and culture of design thinking. (Katz 2015, 23-25.)

Even though, both of these models describe different maturity levels and the second model also describes the challenges designers are facing and the opportunities for improvement, neither of the models provide concrete guidelines on how to actually know on which level a company is. Therefore, the third maturity model, the Maturity Solar System, was chosen as a theoretical framework for this study as it includes all the needed information to evaluate and measure on which design maturity level a company is. This model is described in detail in the next chapter.

2.3.2 The Maturity Solar System

In the fall of 2018, InVision surveyed designers from more than 2 200 companies (2 229 to be exact) about company demographics, design team resources, executive involve-

ment, practices, and outcomes (InVision 2019, 2). Based on the survey results, the company created the Maturity Solar System which differs from earlier models in the following ways (InVision 2019, 4):

- It is the largest global study of design in business
- It examines companies from all industries, regions, and company types
- It was developed with advanced statistical methods to identify the trends

The study included all types of companies (large enterprises, small businesses, agencies, governments, and non-profit organizations) which makes this model interesting for almost all companies because when a company finds out on which maturity level it is at the moment, it can compare itself to other similar companies or organizations. All in all, the study contains 24 industries including e.g. aerospace, advertising, insurance, technology, and education from around the world (77 countries). (InVision 2019, 5.) There were three key findings from the study: First, the design is well integrated into the product development process, with the senior team, and in the product roadmap among the most design-oriented organizations. Second, there is a direct correlation between the number of business benefits that design drives and the degree of organizational adoption of design. Third, organizations that embrace and integrate design practices also report more positive business outcomes. (InVision 2019, 7.)

The aspects of design studied in the research are divided into three main groups: people, practices, and platforms; and these groups are divided further into nine sub-groups which all include a number of statements as follows (InVision 2019, 37-41). **People**: design team (6 statements), key partners (9 statements), executives & employees (17 statements); **practices**: user research (8 statements), design strategy (10 statements), experimentation (11 statements), UI design (17 statements); **platforms**: design operations (9 statements), design systems (13 statements) (see Figure 4).

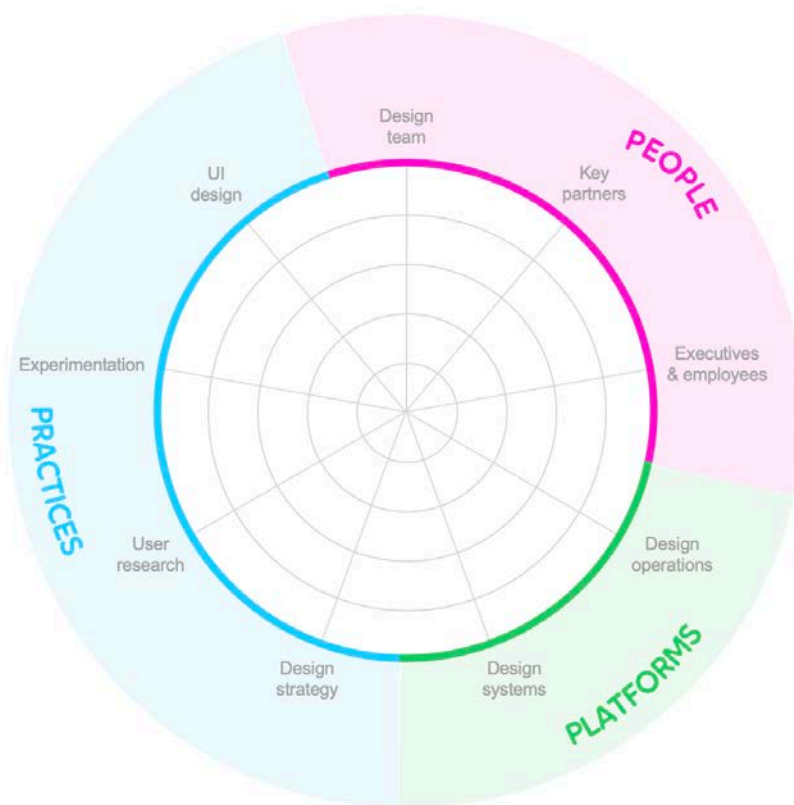


Figure 4. Visualization of a level snapshot (based on InVision 2019, 17)

The centre of the Figure 4 represents level “zero” and each circle going outwards represents the five maturity levels. So, when the average responses to each of the statements are counted for each sub-group, the number is marked on the respective line and when all the dots of each of the sub-groups are connected, the area between the dots represents the maturity of a company. The larger the area between the dots, the more mature the company is. Based on the research insights, InVision created their five-level design maturity model (Figure 5; InVision 2019, 11).

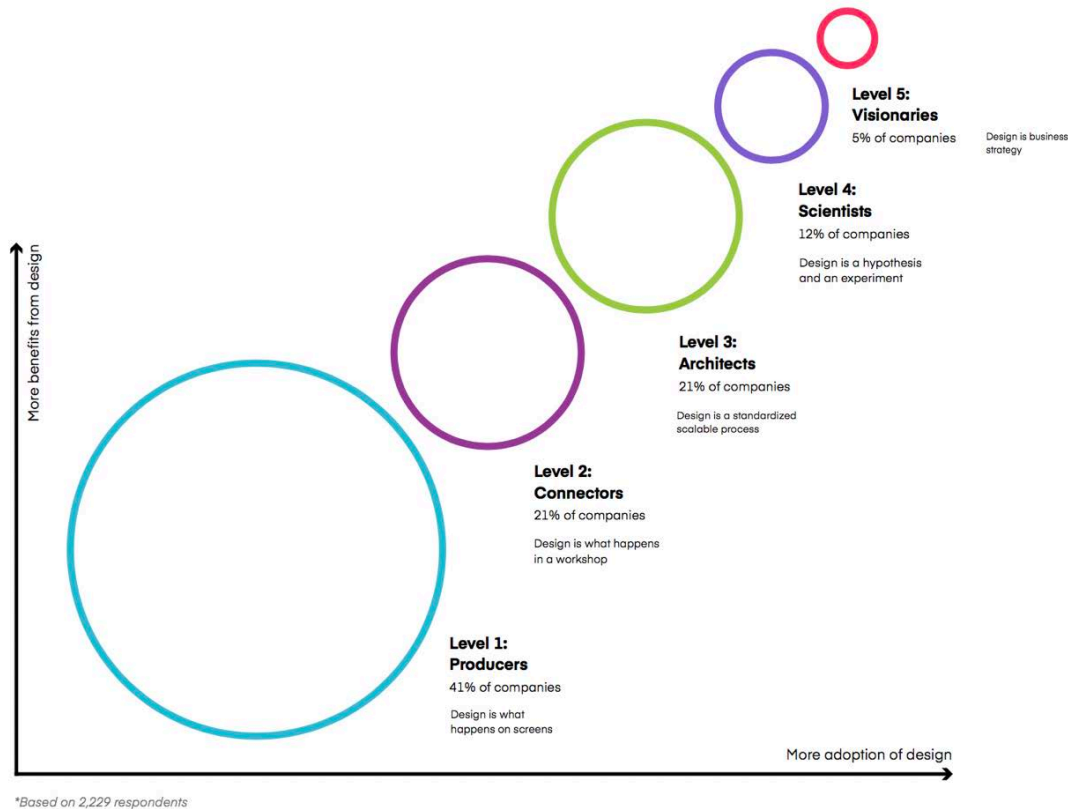


Figure 5. The Maturity Solar System (InVision 2019, 11)

On the surface, the model seems similar to the Design Ladder with only one extra level, but in fact, it goes way deeper into detail on how a company can evaluate its own maturity, what to do to get to the next maturity level, and by providing findings from thousands of other companies around the world, the report also provides a tool to compare a company to other companies on the same field. The underlying idea behind the model is similar to the two previous models where companies on the first level focus only on visual design and companies on the highest maturity level have design as business strategy.

Companies on the first level, the “producers”, focus only on the most visible aspects of design and there is often a disconnect between what designers design and what developers build. Companies can move to the next level by incorporating more user research and collaboration into digital product design. According to the study, 41 per cent of companies are on the first level. On the second maturity level, design teams have developed more collaborative processes, making the company a “connector”. All in all, there is more talk about design thinking in the air across the company, and the design team uses more user-centred tools, such as user research, user stories, usability testing, and personas. 21

per cent of companies have reached this level where stakeholders and key partners are engaged more broadly through joint working sessions and by integrating designer/developer tools. In order to get to the third maturity level, the design team should fill in the types of roles associated with a systematic approach. The companies on the third level, the “architects” (21 per cent of companies), have a scalable design thinking process which enables design to support more complex product ecosystems, and design as a function is integrated into the company’s internal operating structures. The roles between design, development, and product management become clearer and there is a more efficient documentation process to smooth the handoff between design and development. Although companies on the third level might look very mature, they do not yet have good enough experimentation practices, mechanisms and routines around developing hypotheses, running tests, or measuring results.

As soon as these are fixed, the company can move to the fourth maturity level and become a “scientist” and join the 12 per cent of the companies currently on this level. Level four companies are masters of data-driven design who have sophisticated practices for analytics, experimentation, recruiting for user research, and measuring the success of specific efforts. The design team can operate more independently and take part in developing a design strategy. In addition, on this level, teams across the company use data-driven approaches that integrate ideation, experiments, and analytics. To reach the highest maturity level, the “visionary”, a company has to make design core to their business strategy. The visionaries are robust in all dimensions of maturity but the most important factor that separates them from the other maturity levels is design’s involvement in strategy. Only 5 per cent of companies have reached the highest maturity level by using technology and design to redefine the standards for customer experience and business process excellence.

2.4 Synthesis of the theoretical framework

In this study, all the three theoretical aspects discussed above are combined: the Double Diamond model, the three tensions designers have to tackle in order to create a long-lasting change, and finally, the design Maturity Solar System. First, the Double Diamond model describing the design thinking process is the underlying mindset and approach which Telia Finland’s designers want to introduce to and integrate within the whole organization. The goal is to make design thinking easy enough for everyone to understand

and more importantly easy enough to implement in everyone's work. However, there are many challenges designers are facing when trying to introduce a new way-of-working.

These challenges can be described as three tensions (Dunne 2018) where designers have to first balance between making design easy to understand for others in the organization but at the same time maintain their expertise. Second, designers have to find a balance between incremental and disruptive innovation as it can be challenging to do both at the same time. They also have to find ways to produce quick wins through which they can prove the effectiveness of the design thinking approach. Finally, even though the design thinking process emphasises the importance of taking the outside-in perspective, meaning involving the end users into the design process, it is also important for the designers to maintain the inside-out perspective and include a broad range of internal stakeholders into the process in order to understand if it is possible to create something the users want to have. These three tensions create challenges for designers on multiple levels and therefore it can be difficult to perceive the overall progress and change. In order to know how well the organization has adopted the design thinking approach, and what challenges the designers should tackle next, it is important to be able to track the organizational progress towards more design-led organization culture, and this is where the design maturity models play an important role.

In order to find the best design maturity model for this study, I compared three different models. As mentioned above, the underlying logic behind all of the models is the same: the higher the level the more significant role design plays in the company's strategy. At the end, the decision about what framework to use in this study came down to how well the models work as a comprehensive tool. The Design Ladder provides only the idea of four levels, but it does not provide any information on how to evaluate on which level a company is. The framework also does not offer ideas on how to get to the next maturity level. The Seven stages to a design-based innovation culture provides more maturity levels and suggests the activities that in-house designers can do to support the design thinking culture, and it points out the existing conditions that may make the move towards the next step challenging. However, the model is not widely tested, and it does not include information on how to evaluate on which level your company is. At the end, the best possible framework for this study is the Maturity Solar System as it is based on a study of thousands of companies and gives the most accurate picture of the current design maturity of companies worldwide. Next, this theoretical framework is put into test

as current design maturity level of Telia Finland is studied through empirical research, and the findings of the current pain points are discussed.

3 METHODOLOGY

3.1 Research approach

This research is conducted as a mixed method action research study. During the whole research process, I have had a very active role in recognizing the current challenges Telia Finland's design culture is facing, conducting the research, and taking part in the actions through which the design culture could achieve more maturity. This is why an action research approach was a natural choice for the research. Together with other designers, we wanted to find out what the current design maturity level at Telia Finland is, and to use that as a base line for the future. Our goal is to continue growing the design culture, and therefore, we thought it was important to be able to track our progress and find a tool which would help us communicate the growth and changes of the design culture to other Telians and the management.

The goal of this research is to support a change in mindsets on an organizational level. By adopting an action research approach, the research can support the change by providing the employees with the means to take action themselves and in that way create a bigger impact (Brydon-Miller et al. 2003, 11; Eriksson & Kovalainen 2008, 198-199). After all, the goal is that this action research will eventually lead to new patterns of thinking and action (Eriksson & Kovalainen 2008, 200). The action research process is always iterative and therefore it suited well the context of this research as the design thinking process itself is iterative by nature. In action research (and in an iterative process), "the planning is followed by acting, observing and reflecting, with a revised plan, acting, observation and reflection following again, most often in real time and not retrospectively". (Eriksson & Kovalainen 2008, 200; French 2009, 188-189.) This was also the case in this research where the survey, interviews and the actions were modified and adjusted along the way.

When it comes to the action research approach, it is important to understand that the most important task of the researcher is to solve and help the organization to find solutions to the specific problem at hand, and in that process, engage people involved in the process to find solutions. It is also very common that the researcher has a support team from the organization which provides insights and history of the organization. This team helps in planning, implementing and reflecting the project. (Eriksson & Kovalainen 2008, 199; French 2009, 189-190.) In the case of this research, I already had a close relationship with

the company since I work for the company as a service designer. During the research, I worked closely with the internal design team that helped with designing the survey and implementing the concrete actions.

In addition to the action research approach, I also used mixed methods approach, which makes this research a *mixed method action research*. In a mixed method action research, both quantitative and qualitative methods are used within an action research framework in order to find more insightful answers to the practical problem of interest and to incorporate both meaning and quantity into the study (Cameron 2011, 249; Gorard 2015, 237; Morse 2010, 237, 339; Plano Clark & Ivankova 2017, 145-146). In other words, by combining the two methods, it is possible to bring out different perspectives and to provide more comprehensive understanding of the problem than either method alone could provide (Cameron 2011, 248; Hurmerinta-Peltomäki & Nummela 2006, 441). According to McKim (2017, 202), mixed method research gains deeper and broader understanding of the problem than the studies that do not take the advantage of both methods. Mixed methods research suits business context well because the questions raised by organizations vary often and require different levels of analysis (individual, group, organizational units, and organizations) (Cameron 2011, 248).

3.2 Data collection

The data for this research was collected in three parts by using both quantitative and qualitative methods. First, a survey was conducted in order to find out on which design maturity level Telia Finland is at the moment. Second, based on the survey results, two groups and 14 people were interviewed to get more understanding about the current situation and to find out what could be the possible ways to move the organization closer to the next maturity level. Third, after three different actions were implemented, feedback about their success was gathered from feedback surveys, discussions with people who took part in those activities and from the company's internal discussion forum. For a mixed method action research, it is very common to have more than one data-collection method, and surveys, observations, interviews, and action experiments are often used together (Eriksson & Kovalainen 2008, 201-202; Johnson & Onwuegbuzie 2004, 17).

In order to determine the current design maturity level at Telia Finland, I designed a survey based on the InVision report (InVision 2019, 37-41) together with the internal design team. InVision's report includes a detailed list of all the aspects they measured in their study, however, the list is very long and in order for us to create a survey that people

would like to answer, we had to make some alterations and remove some of the statements from the InVision study. After several rounds of redesigning the survey, the final content was ready (full list of the survey statements can be found in Appendix 2). Following the structure of the InVision report, the survey was divided into three parts and nine sub-groups:

Table 1. Structure of the survey

People	Design team
	Key partners
	Executives and employees
Practices	User research
	Design strategy
	Experimentation
	UI (user interface) design
Platforms	Design operations
	Design systems

Each of the sub-groups presented in Table 1 include several statements (Appendix 2), and for each of the statements, the respondents had a scale from 1-5 from which they could choose their answer from. The scale was from “strongly disagree” to “strongly agree” on all of the statements other than the statements regarding user research and UI design where the question was about how often the respondent uses the tool in question and the scale was from “never” to “in every project”.

Because the survey was quite long, we made two different versions of it by using Typeform survey tool. The complete version of the survey was sent out to designers and developers. However, “other employees” (meaning everyone else other than designers and developers) received a shorter version of the survey where all the statements that don’t concern their day-to-day work were excluded. For example, we didn’t ask employees to answer questions about UI design because that is not part of their job, and therefore they could not be able to give their opinion on the topic.

We also planned to which teams we wanted to send the survey to beforehand. We did this because we wanted the people who responded the survey to have even some kind of an idea about what design thinking means, otherwise they wouldn’t have been able to answer the survey. I discussed the content of the survey together with people from different business units who had better understanding about what different teams do and how

they work, and based on those discussions, I recognized the teams who could take part in the survey. After the complete list of the target teams was ready, I sent the survey personally through email to each person on the list. In order to get as many answers as possible, I did some pre-marketing for the survey and attended different teams' and business units' info meetings where I told others about the upcoming survey and why it would be important for them to answer. This was an important thing to do as employees in large companies receive a lot of information on a daily basis and they have to prioritize what messages they pay attention to and which ones they do not. When they have the memory trace of hearing about the topic beforehand, and they know why it is important, they are more likely to take a closer look at your message. I also sent three reminder emails before the survey closed.

After the survey results were in and I had analysed them, I contacted people from different teams who took part in the survey and interviewed all together two groups and 14 individuals (Table 2).

Table 2. List of the interviewees

Interviewee	Team/Unit	Interview length	Date	Interview style and place
Interviewee 1	HR	60 min	13.8.2019	Face-to-face at Telia Finland HQ
Interviewee 2	Business Development B2C	60 min	13.8.2019	Face-to-face at Telia Finland HQ
Interviewee 3	Customer Channels	60 min	13.8.2019	Face-to-face at Telia Finland HQ
Interviewee 4	Customer Insights	75 min	14.8.2019	Face-to-face at Telia Finland HQ
Interviewee 5	Service Development	60 min	15.8.2019	Online via Skype call
Interviewee 6	Top Leadership	60 min	15.8.2019	Face-to-face at Telia Finland HQ
Interviewee 7	Marketing	30 min	15.8.2019	Face-to-face at Telia Finland HQ
Interviewee 8	Service Development	60 min	15.8.2019	Face-to-face at Telia Finland HQ
Interviewee 9	Technology	30 min	15.8.2019	Face-to-face at Telia Finland HQ
Interviewee 10	Business Development B2C	60 min	19.8.2019	Face-to-face at Telia Finland HQ
Interviewee 11	Business Development B2C	60 min	19.8.2019	Face-to-face at Telia Finland HQ
Interviewee 12	Marketing	30 min	27.8.2019	Face-to-face at Telia Finland HQ
Interviewee 13	Top Leadership	30 min	21.8.2019	Face-to-face at Telia Finland HQ
Interviewee 14	Business Development B2C	60 min	22.8.2019	Face-to-face at Telia Finland HQ

Interview group 1 (4 people)	Service Design	60 min	12.8.2019	Face-to-face at Telia Finland HQ
Interview group 2 (9 people)	User Experience and Service Design	30 min	14.8.2019	Face-to-face at Telia Finland HQ

The two group interviews were both held during designers' weekly meetings. The first one included service designers and the other one included mostly user experience designers and some service designers. The individuals were chosen based on their role and whether they had taken part in the survey or not. I wanted to interview people who had answered the survey so that they knew the context of the interview better beforehand. All the interviews were held in Finnish and face-to-face at Telia Finland headquarters, with the exception of one interview which was held in English and another that was held via Skype online call. The interviews and discussions lasted 30-75 minutes and were recorded for further analysis.

Since the survey included many topics regarding design, I had to decide which were the most important topics to focus on together with other designers. Finally, we decided that the themes we wanted to focus on the most were: customer centricity in everyday work, design management, and the next steps towards the next design maturity level. Of course, the final content varied based on each interview, but the basic structure was the same every time. The more detailed interview structure can be found in Appendix 3. Third, I collected feedback data about the actions we undertook in order to help the organization to move towards the next maturity level. This feedback was collected face-to-face at the end of each human centred design workshop, through a post-workshop feedback survey, face-to-face at design clinic meetups and by collecting comments from Yammer, the internal communication tool.

The research question called for multiple data collection styles as I had to first determine the current level of design maturity and then broaden my understanding of the problem in order to come up with ideas on how to help the organization to move towards the next maturity level (Table 3). What was also important was that in order to come up with the ideas, I had to conduct the earlier phases before. In other words, the pacing of the different methods could not have been the opposite. (Morse 2010, 340-341; Plano Clark & Ivankova 2017, 37.)

Table 3. The research process in 2019

Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
Survey planning and design			Survey data collection		Survey data analysis	Interviews and analysis	Three actions: HCD workshops, design clinics, and internal web page			
									Collecting feedback about the actions	

However, even though mixed method research often has a core component (qualitative or quantitative) and a supplemental component (qualitative or quantitative), I feel that both components were equal in my research. Without knowing the current level of design maturity, it would have been impossible to know which actions would move the organization forward, and without better understanding of the current situation (interviews) and taking action to change the culture, the survey results wouldn't have had any real impact other than that we would have known where we are on a specific scale. (Hurmerinta-Peltomäki & Nummela 2006, 442; Morse 2010, 352.)

3.3 Data analysis

As the data was collected in three different parts, it was also analysed in three different parts. The goal of the data analysis was to create deeper understanding of the current design culture and use that understanding as a basis for further action (Rowley 2014, 239). Even though, the data was analysed in three different parts, the findings of the previous analysis guided the analysis of the later data sets (Greene et al. 1989, 270; Rowley 2014, 239).

First, the survey answers were analysed in order to find out on which level the company's design maturity was at the moment. As there were two different surveys (one for designers and developers, and one for other employees), the answers were first combined and then the average response was calculated for all of the respondents and for the three different respondent groups: designers, managers, and other employees. I used Excel for the numeric data analysis as the required calculations were very basic. After this, I visualised the results in a way that would make it as easy as possible to explain the results to others.

Second, the insights from the interviews were combined with the survey data in order to create an overall picture of the current situation. The interview data was analysed by

grouping the answers in different themes based on the interview structure. I did this by listening to all of the interview recordings and writing down what each of the interviewees said about the different themes. (Rowley 2014, 241; Jang et al. 2008, 229; Schreier 2013, 178.) All of the interviews took somewhat different paths because the only thing guiding the interviews along were the five different themes. Therefore, analysing the interview data was not as straight forward as the analysis of the survey data. However, there were many topics which all of the interviewees pointed out and agreed on. Third, the feedback from the three activities were analysed and suggestions for improvement were made based on the feedback.

Through all the phases, the analysis was done collectively with other designers, which enabled them to be part of the process and recognize opportunities for development. Also, other designers had more experience working within the company and the industry and therefore they were able to notice different opportunities and challenges as I could. In that sense, their participation was crucial for the research to be successful. (Eriksson & Kovalainen 2008, 201-202; Rowley 2014, 240.) By involving other designers in the research process, I was also able to get them to be more committed to the outcome, and empower the whole team to make an extra effort in actively trying to help the whole organization move towards the next maturity level (Eriksson & Kovalainen 2008, 203).

3.4 Data evaluation

There are many frameworks for qualitative (Eriksson & Kovalainen 2008; Lincoln & Guba 1985) and quantitative (Bryman et al. 2008; Vogt 2011; Haertel 2010) data evaluation, but as this research was done by using a mixed method approach, a different approach was needed. Therefore, the data evaluation for this research was done by using the quality framework for mixed method research created by O’Cathain (2015, 541-544). In this evaluation, I am going to focus on the following quality aspects of this research: planning, design, and data quality.

I am going to evaluate the planning quality based on the foundational element, rationale transparency, and feasibility. In order for the research to have the foundational element, its research question and study design must be shaped by the literature. In other words, a critical review of the literature is needed to situate the study. Because this is an action research, it is natural that the research question stemmed from a problem the organization was facing. However, the study design was created based on the literature review on different design maturity models, and the literature review provided the context

for both the quantitative and qualitative parts of the study. Second, it is important that the study has rationale transparency, meaning that the study provides justification for using a mixed methods approach. I believe that the need for both quantitative and qualitative components is clear in this research and the research could not have provided as meaningful results if only one approach had been used. The third element of the planning quality is feasibility, which means the evaluation of how well the planned research was possible to conduct. Even though I believe that the research was well conducted, more resources on the survey design would have made it possible to get even deeper and more reliable results. (O’Cathain, 545.)

When evaluating design quality, O’Cathain (2015, 546) suggests focusing on design transparency, sustainability, strength, and rigor. When it comes to design transparency, the study should describe the key aspects of the design: priority of approaches, purpose of combining methods, sequencing of methods, and the stage at which integration takes place. In this research, the quantitative approach was first used to determine the current design maturity level of the organization. After this I deepened my understanding of the current situation by interviewing people around the company. Even though the methods were used in the order they were, they are both equally important as they provide information that the other method could not provide. The integration of the methods happened when the insights from both of the approaches were combined to come up with ideas on how to move the organization towards the next maturity level. Second, the design suitability should be evaluated based on how well each of the approaches addresses the research questions within the overarching research question and how well the research design addresses the overall research question. This research was design so that the literature review answers to the first sub-question, the quantitative approach addresses the research question about on how a company can identify its design maturity level, and the qualitative approach discusses the possibilities on how an organization can get to the next level of maturity. Together these methods provide insights on the main research objective. Third, this study can be considered a strong mixed method research as both of the methods (quantitative and qualitative) fill in gaps that the other approach leaves. Fourth, it is considered that rigor is compromised if methods are not implemented concurrently and independently. In this research the methods were implemented independently and concurrently.

Finally, the evaluation of data quality includes data transparency, data rigor, sampling adequacy, analytic adequacy, and analytic integration rigor. Data transparency

means that each of the methods is described in detail, including its role within the study, data collection, sampling, sample size, and analysis. Each of the methods have been described in detail in chapters 3.1 (research approach) and 3.2 (data collection). Data rigor discusses whether a method has been compromised because it is part of a mixed methods study. This means that the used method may not be as developed as it needs to be due to lack of resources. Even though the quantitative survey reached a good response rate, there are still some things that could have been improved in the survey in order to get even more reliable results. For example, the terminology of the survey (e.g. customer centricity and design) can be understood differently by each of the respondents. Also, the survey was quite long which affects the reliability of the answers and the survey was sent to a validated group of people. This was necessary in order to reach people who understand the context of the survey but at the same time some parts of the organization (e.g. the sales people) were not heard. Third, the sampling adequacy can be considered relatively good as the survey collected 167 answers and two groups and 14 individuals were interviewed. Fourth, the analytic adequacy means that appropriate data analysis techniques were used and undertook properly. The purpose of the survey was to get an overall picture on how people across the company evaluate Telia Finland's customer centricity, and therefore, the emphasis was not on a statistical data analysis. Instead, the survey answers were analysed by using Excel to count the average answers of each of the respondent groups. The interview data was analysed by grouping the answers in different themes and by forming an overall picture about what each of the respondents thought of a certain theme. Finally, the analytic integration rigor evaluates the quality of any integration taking place at the analysis stage of the study. The goal is to evaluate the use of findings from one component of a study to guide the analysis of another component. In this research, the findings from the quantitative survey guided the focus of the qualitative interviews and provided the context for the interview data analysis. Also, the findings from the quantitative and qualitative approaches guided the actions taken after the research part. (O'Cathain 2015, 547.)

4 MOVING TELIA FINLAND TOWARDS THE NEXT DESIGN MATURITY LEVEL

4.1 The journey of the design thinking culture at Telia Finland

Over the past few years, the design thinking culture at Telia Finland has grown and developed, and over time, its position, place, and role within the company has changed. Internally, it is thought that Telia Finland's design thinking culture took its first steps when some teams started to involve design agencies into their projects back in 2014 (Figure 6). Before that, design had been something visual the marketing and website designers did.

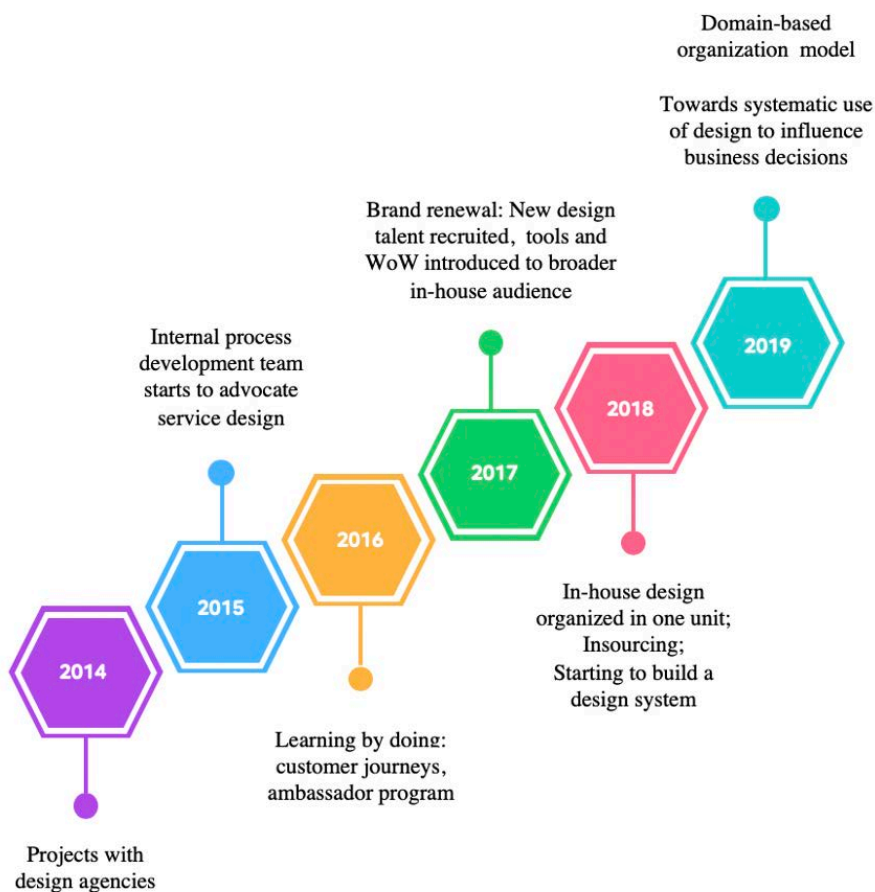


Figure 6. The journey of the design thinking culture at Telia Finland

However, from that point forward, the role of design has grown continuously, and different teams have started to involve more and more end users into their design thinking processes. Quickly, after the design agencies introduced the employees to a more holistic

approach to design, they started to build their own know-how and understanding about design. In 2015, the internal process development team started to advocate design thinking. After the team grew and the team members learned more about design thinking, other teams got excited about the approach as well, and started to create, e.g. their own customer journey maps. This led to an ambassador program in 2016, which was done together with Futurice, one of the leading design agencies in Finland. Futurice has developed their own design process, called *Lean Service Creation* (LSC), which is an open source tool kit that anyone can use to build better products and services (leanservicecreation.com). They trained few people from Telia Finland who then brought the tools into their own projects and spread the way-of-working within the company. In 2017, when the company (previously known as Telia Sonera) became part of the Telia brand, new design talent was recruited. This is also the point in time when I, the researcher, joined the design team as a service designer. At the same time, the LSC process was introduced to a broader in-house audience. The LSC program lasted for five weeks during which nine different teams from the B2C unit worked by using the LSC framework in order to find new ideas and ways we could better respond to our customers' needs. Despite of the initial excitement that LSC brought to the teams at first, the way-of-working didn't quite stick, and eventually the teams returned to the old-way-of working. The designers realized that the organization might need another (simpler) framework that would make the design thinking process easier to understand and adopt.

Telia Finland's design thinking culture got a new kick-start when, in 2018, the in-house designers were organized into one unit, and the company insourced a lot of the design work and started to build design systems. At this point, we (the designers) started to use the Double Diamond model when talking about design thinking, and this model seemed to resonate well with the rest of the organization due to its straight forward and simple structure. Even though we were able to raise awareness about design thinking internally, at this point, we felt we were still too far from the business lines where the decisions about our products and services were made. Therefore, in 2019, the design team was re-organized, and a domain-based organization model was created, through which we were able to systematically use design thinking to influence business decisions. What this means is that, at the moment, all the service designers are divided into different teams within B2C and B2B units. This enables the designers to be more closely involved in the decision making. A similar change in organizational structure was also made, for example, at Philips, where the design unit previously acted as an external service function.

However, this meant that its influence on business performance was limited. In order to have a bigger impact, Philips Design was integrated within different Philips sectors. (Gardien & Gilsing 2013, 57.) I used the model by Gardien and Gilsing (2013) to visualize the design team's organizational change at Telia Finland (Figure 7).

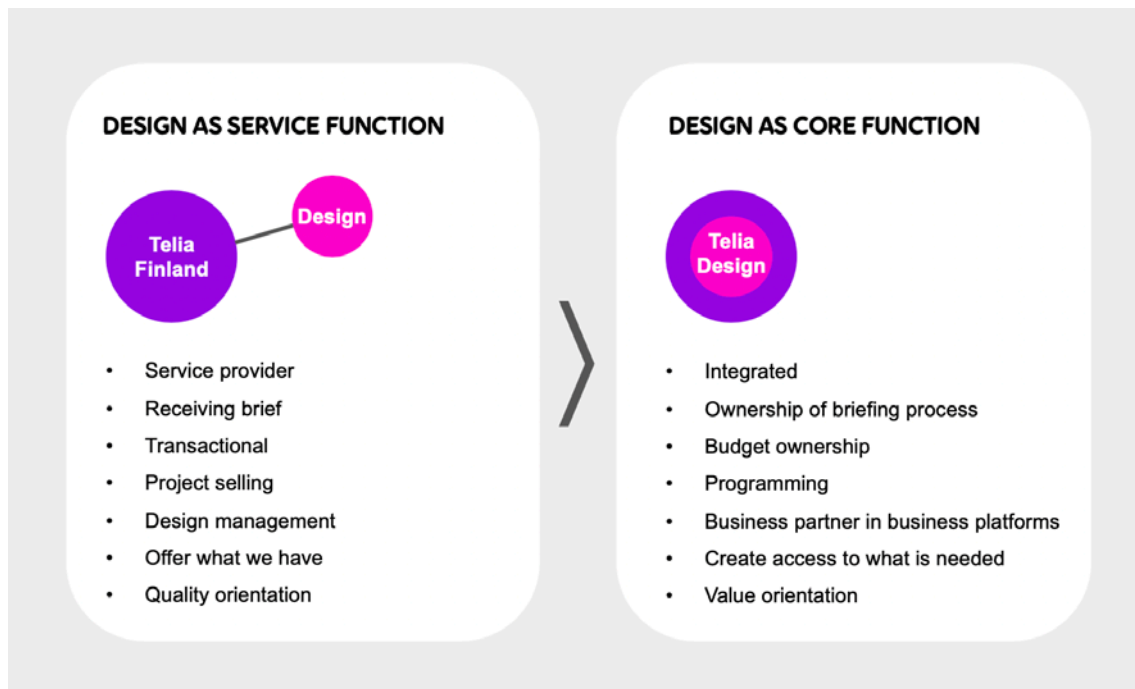


Figure 7. Design as a service function vs. design as a core function (Gardien & Gilsing 2013, 57)

The main difference between the design team being a service function versus a core function is the ability to take part in the important decision making. When design thinking is seen as a core function of the company, it has closer relationships with the key partners, it is integrated into the decision-making processes and has ownership over the briefing process and the budget. This is a significant improvement compared to a situation where the design team serves as a separate service provider. This was the situation at Telia Finland before changing to the domain-based organization model and designers were frustrated because they were not involved into the projects early enough in order to be able to affect the course of the project.

At the moment, there are 33 people working around design at Telia Finland in the fields of service design, user experience (UX) design, graphic design, and content creation (Figure 8).

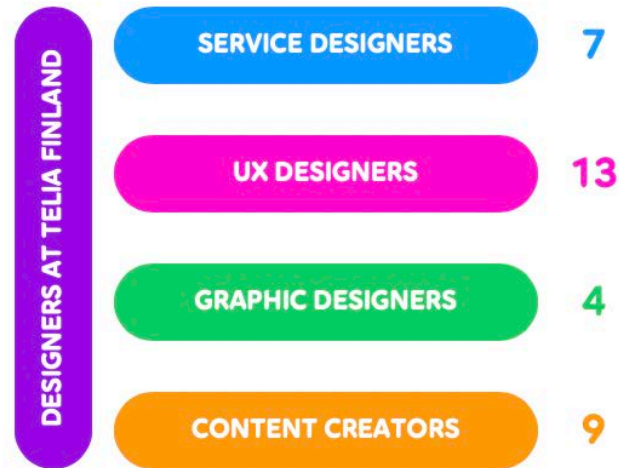


Figure 8. Design team at Telia Finland

Even though we all work around design, we have been placed in different parts of the organization. The service designers are situated within the business units they work for in B2C and B2B, UX designers are part of our technology unit, and graphic design and content creation work under the marketing unit. However, we all have one common goal, which is to introduce more customer-centric approaches to the whole organization. One of the most important goals of Telia Finland is to become more customer centric, and the designers should play an important role on our way towards that goal. However, at the moment, the designers do not yet have as big of a role as they could, and there is still a lot to be done in order to integrate the designers into the decision processes.

For the purpose of this research, I am going to focus on the work of the service designers, because it is the design thinking mindset of service designers that we want to introduce to the whole organization. Our goal is to spread customer-centric way-of-thinking across the organization so that every employee understands how impactful the design thinking process can be. Currently, there are seven service designers working at Telia Finland. Each of us are working with a certain business unit. Four of us work with different teams within business-to-consumer unit, two of us work within business-to-business unit, and one of us works within the technology unit. The role of service design has evolved quite a lot during the past couple of years at Telia Finland as mentioned above. At first, we were placed far away from the business units and were involved at the later part of the projects which meant that many, and often important, decisions were made before we came along. This made our job challenging since there was not a lot we could do at the point when we got involved. Another challenge was also that since we were

always “visitors” to the projects, the managers who were responsible for the business lines, didn’t quite understand our role and the value that we could have brought to the projects if we had been involved from the beginning. Of course, it was also our responsibility to communicate our value, but in order for people to truly understand the power of design thinking, they often have to be part of it themselves.

Fortunately, we have had few successful business cases that have been completely based on design thinking, and through them we have been able to show others the value of the approach. During the latest re-organization of the whole Telia Finland organization, service designers were included into the business units and our managers are now the business managers who previously were far away from our work. This has had many positive effects, for example, for us designers, it is now easier to understand the context of the projects we work with since the context stays the same and we have more time to get to know the teams we work with. Second, the teams that we work with can more easily get help from us since we work in the same space and with the same projects as they. Third, the managers can see the value of our work more closely and continuously which makes it also possible for them to manage our work better.

In addition to dividing designers into different functions within the company, Philips Design also created one central design team which is focused on the design function, brand and innovation across all sectors (Gardien & Gilsing 2013, 57). This is something Telia Finland does not have yet and something designers would appreciate. A central design team would play a significant role in helping to spread the design thinking approach across the company, a task that relies heavily on service designers at the moment while they have their own projects going on. This sets one of the challenges designers face currently at Telia Finland. Another role which was crucial for Philips’ success, was the new role of chief design officer (CDO) who reports to the chief executive officer (CEO) (Gardien & Gilsing 2013, 57,59).

All in all, there are many teams within Telia Finland who somehow utilize design thinking tools and ways-of-working. However, there is no common way of doing this and often the activities rely on active individuals. Telia Finland has taken many important steps towards more customer-centric organization, but there is still a lot of work to be done in the way design is managed and how it is involved in the decision making. The goal of this research is to get a more concrete understanding about the current situation of our design culture and also to develop concrete actions which could help us to grow our culture.

4.2 The current design thinking culture at Telia Finland

In order to paint the accurate picture of Telia Finland's current design maturity and culture, I combine the insights from the conducted interviews and the survey results to describe the current pain points. Based on the survey results, I recognized, with the help of other designers, the most important themes we should focus on in order to understand how we could help the organization get to the next maturity level. Since the survey was quite long, I won't dive into all areas covered in the survey. Rather, I will focus on the biggest pain points pointed out by the interviewees and reflect their points of view to the survey results. The full set of survey statements and answers can be found in Appendix 4. First, I will discuss the current design maturity level of Telia Finland based on the survey results, and secondly, I will discuss the pain points Telia Finland's employees face at the moment regarding design thinking.

4.2.1 The design maturity level at Telia Finland

To understand which of the pain points pointed out by the interviewees were the most important in the current situation, it is important to first know the survey results which point to the design maturity level on which Telia Finland is at the moment. Based on the average survey answers, Telia Finland is currently between levels 2 and 3 on the In-Vision's solar system (InVision 2019, 18-21; see Figure 9).

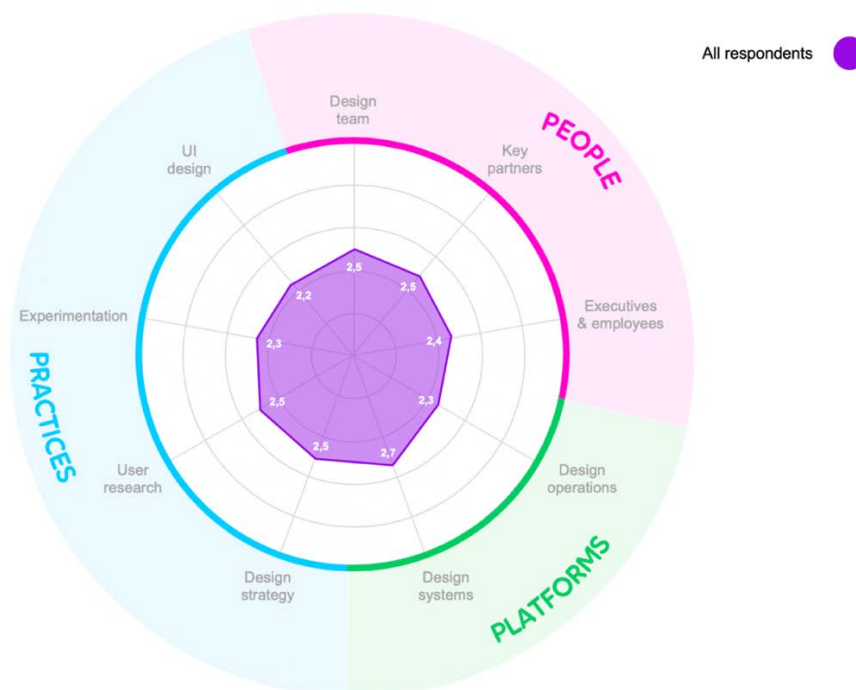


Figure 9. The current design thinking maturity level at Telia Finland

Level 2 companies, the “connectors”, use some user insights, conduct some user-informed design and engage stakeholders and key partners more actively. Designers involve stakeholders through collaborative processes and workshops. The most used tools on this level include user research, user stories, usability testing, and personas. One of the key characteristics for companies on this level is that executives and managers start talking more about the value of design and employees start to express more interest and empathy towards customers. (InVision 2019, 18-19.) On the other hand, companies on level 3, the “architects”, have already a scalable design process which enables the design function to integrate itself into complex internal operating structures. On this level, teams pay more attention to clarifying roles between design, development, and product management. They also create ways-of-working for more efficient communication and documentation to smooth the handover between design and development. (InVision 2019, 20-21.)

When shown the results of the survey, all the interviewees would place Telia Finland on the second level, the “connector” level, even though different respondent groups had slightly different opinions about the current situation based on the survey results (Figure 10).

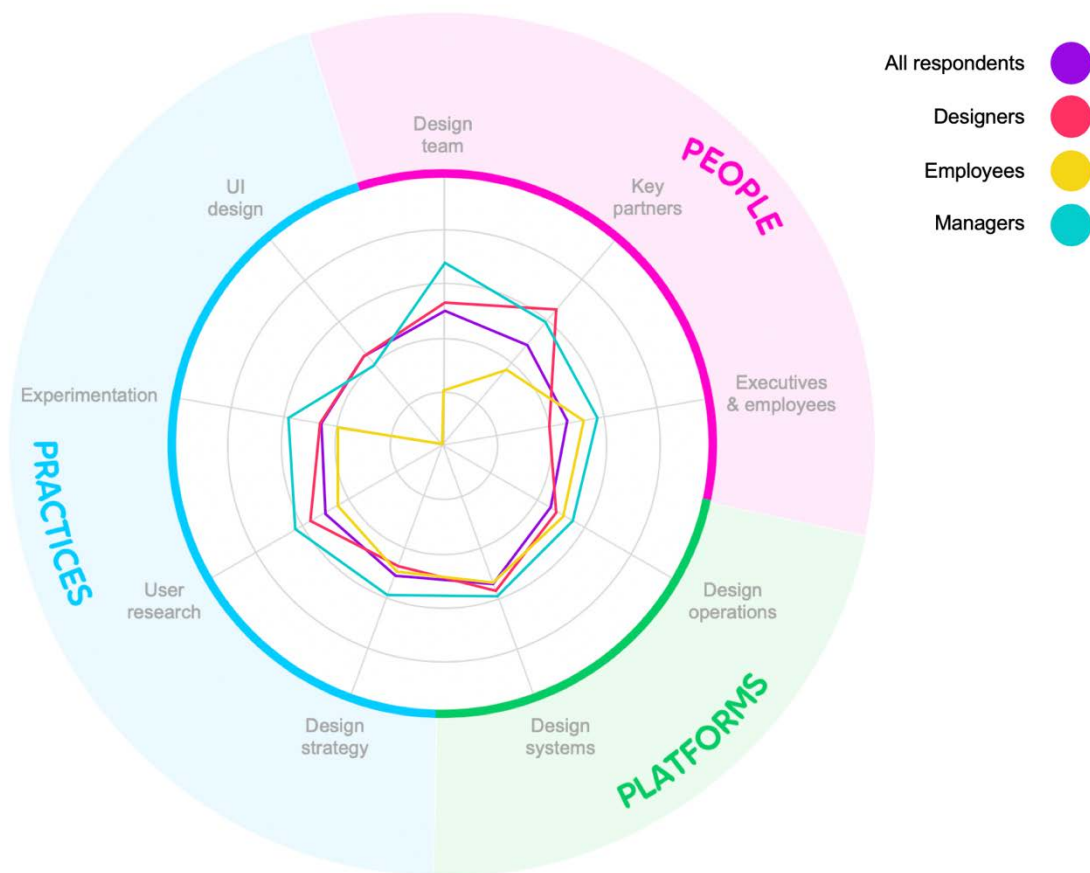


Figure 10 Design maturity level: comparing different respondent groups

Based on the survey results, managers were the most positive about the current situation and their average answers were closer to the third level whereas the employees (not including designers) were the most critical ones. Please note, that the gap regarding the UI design category is due to the fact that employees were not asked the questions regarding this category. However, all in all, all the respondent groups had pretty similar views on the current situation and the survey results point between the second and the third levels. The biggest difference between levels 2 and 3 is that on level 2 design is occasional whereas, on level 3, companies already have a common way-of-doing design. As Telia Finland doesn't yet have a common design practice, the consensus is that the company is on the second maturity level.

To put Telia Finland's situation into a perspective, I compared the organization to other companies in different industries and with different company sizes on the InVision report. Compared to other telecommunication companies (category also includes technology, internet, and electronics companies), Telia Finland is one step ahead of the majority (37%) which is on the first level. However, what is interesting is that telecom companies have the fewest companies on the first level together with healthcare and pharmaceuticals compared to other industries which indicates that the industry itself is becoming more and more mature. Even though the industry is getting more mature, the maturity also depends on the company size as larger organizations face a greater challenge in reaching design maturity. It is not enough only to invest in large design teams, the biggest challenge is to incorporate design into business strategy overall. 49% of large enterprises, such as Telia, are on the first maturity level and only 18% have gotten to the second one. (InVision 2019, 28-33.)

The pain points pointed out by the interviewees represent well the struggles companies on the second level usually have. Even though the following pain points are represented as the common pain points, it is important to remember that there are differences between different business units and teams; some teams are more mature in their design practices than others, and some teams have longer history in implementing design practices.

4.2.2 Pain points in the current culture

Even though there are many pain points in the current design culture at Telia Finland, I will only focus on the most important ones, which when fixed, will help the organization move towards the third maturity level. I divided these pain points into four groups: know-

how of the employees, lack of design resources, design management, and communication. The first, and perhaps the biggest, pain point at the moment for Telia Finland’s design culture is to find ways how to get more people involved in design activities and develop employees’ know-how on design. As mentioned earlier, there are seven service designers at Telia Finland at the moment and each of them is responsible for one business area. This means that there are many teams and units without a dedicated design resource. In order to get the whole organization to the next design maturity level, customer centric way-of-working has to be everyone’s job. As one of the interviewees put it:

“We have to get rid of the idea of one task force driving customer experience, it should be on everyone’s agenda.”

(Interviewee 3, Customer Channels)

However, there is not a common understanding about what design is and there is not a handbook which employees could use in order to implement design activities in their work. This can also be seen from the survey results (Figure 11, statements 12-14).

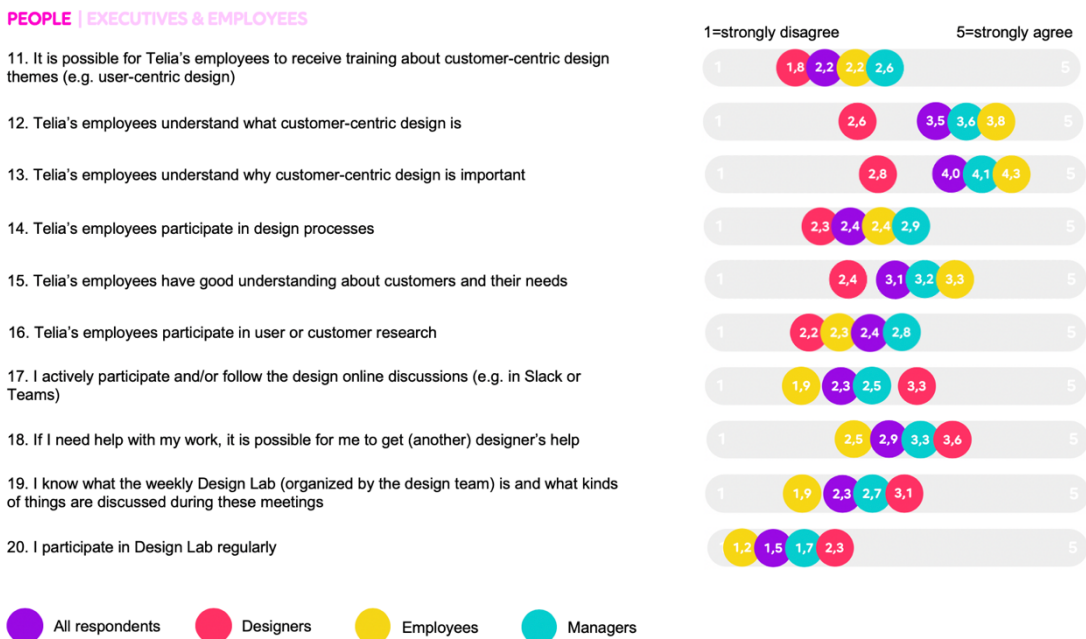


Figure 11. Survey results about executives and employees

Even though managers and employees think that the employees have rather good understanding about what customer-centric design is and why it is important, they don’t

participate actively in design processes. Designers on the other hand are more critical towards employees' know-how and see that there is a lot to improve. This is also a very natural reaction since people evaluating themselves are easily more positive about their capabilities and designers as experts of customer-centricity have probably a higher standard and expectations towards themselves and others.

There have been previous attempts to introduce design thinking and tools to the employees but one of the problems designers have faced when trying to involve other team members into the design process is the lack of resources, e.g. time and money. People have so many projects going on at the same time that it takes them their whole time to get the projects moving forward. Some parts of the design process take a longer time and that is when designers find it often difficult to involve other team members. Even though it has been challenging sometimes to get people involved, there are also many success stories where design has played a big role when new services have been developed. One of the interviewees said that:

“I am not worried about our “big” design projects. What I am worried about is the “daily game” and how to implement design activities in the way-of-working for the teams working in a very hectic environment.”

(Interviewee 10, Business Development B2C)

Although there is a lot of work to do in order to create a common way-of-working for all Telians, there is also hope because customer experience plays a big role in the company's strategy and people are very open to learn more about design and want to find ways in which they can start using the tools themselves. As one of the managers put it:

“No one questions the value of service design anymore.”

(Interviewee 11, Business Development B2C)

The designers have the momentum and now we have to find ways to make it as easy as possible for others to start using the design thinking approach in their work. The designers have said jokingly for a long time that “our job is to make ourselves unemployed.”

The second pain point is strongly related to the first one and it is the lack of design resources. As mentioned before, there are only few service designers working at Telia

Finland at the moment which means that they cannot be involved in every project imaginable. However, even if more and more employees adopt the design thinking mindset, they will still need help and guidance in their work. Many of the interviewees hoped for a possibility to consult designers when they need help setting up design goals and plans for their projects or when they need help going forward. Based on the survey, designers think that it is relatively easy to get help from other designers which makes sense since they share the same language. However, employees didn't see it as easy to get a designer's help when needed and gave the statement 1.1 unit lower score. (See Figure 11, statement 18.)

Third, the biggest challenge regarding design management is the ongoing balancing between financial goals and customer experience. As mentioned before, customer experience plays a big role in the company's strategy and success stories are shared frequently. For example, Telia DOT service (a new generation phone subscription) is one of the best examples at Telia Finland about how it is possible to create desirable experiences through the design thinking approach and how this all can lead to better financial outcomes as well. However, case DOT is a totally independent project which uses its own information systems, marketing channels etc. and operates as an independent agile team apart from the organization.

“DOT is a good example of how to create great customer experiences, but it would be very difficult to work in a similar manner within the big organization and achieve same results.”

(Interviewee 6, Top Leadership)

Even though the bigger organization has its challenges, some managers have seen positive changes in attitudes already:

“CX has a stronger role in goal setting now than it did few years ago.”
“There are no longer situations where no one would ask how the ideas have been validated and projects don't move forward without some kind of customer insight.”

(Interviewee 10, Business Development B2C)

However, even though the attitudes are changing, the survey results show that there is still a lot of work to do regarding e.g. how often ideas are validated before the team starts to develop them (Figure 12, statement 33).

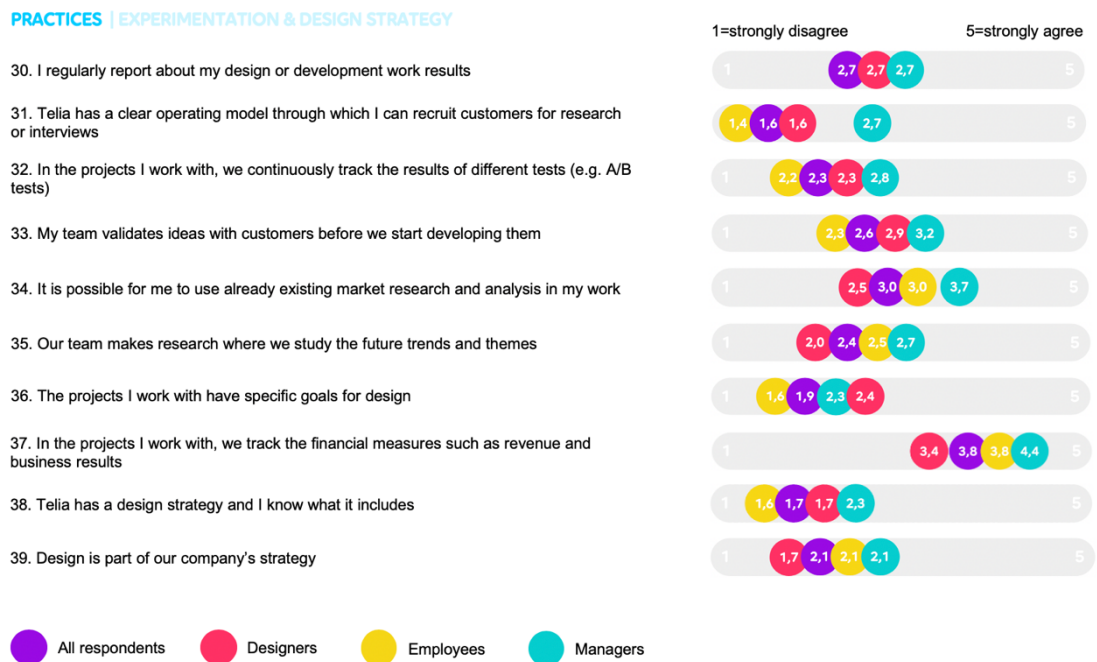


Figure 12. Survey results about experimentation and design strategy

Another indicator that there is still room for improvement in design management is that only few projects have specific goals set for design (Figure 12, statement 36). One of the reasons for this might be that there is still a lot of confusion about how to actually measure design activities and design's effect on financial results. Finally, one of the biggest challenges for design management at Telia Finland is the nature of the telecom market in Finland. Due to the highly competitive environment, managers are under a lot of pressure to hit the short-term targets while at the same time they should try to maximise the customer experience.

“It is then when we have to reach certain goals when the willingness to put customer experience before financial goals is weighted.”

(Interviewee 6, Top Leadership)

“We should shift our focus from the short-term focus to long-term focus. At the moment, because some of our processes are poorly designed from the beginning, we have to make a lot of effort at the end (through sales channels, campaigns etc.) to get the results we want. If we would focus on

fixing the process, the services would “sell themselves.” We have made many improvements and the focus has moved further from the monthly focus but there is still a lot of work to be done.”

(Interviewee 3, Customer Channels)

The fourth pain point is related to communication and more specifically, the lack of it. Based on the interviews and the survey results, there are three areas where the lack of communication can be seen related to the design culture. First, there is a lack of communication between designers and other employees. What I mean by this is that at the moment, there is no clear and common understanding what design thinking means at Telia Finland and designers haven't yet formed a clear role in the teams in which they work. Also, the employees don't yet have a clear understanding about what design thinking is and what they can expect from the designers. One very common misunderstanding is that the employees don't know (or designers haven't explained) how much time and resources should be reserved for design activities. This misunderstanding can lead to confusing situations where, for example, the employees assume that the user insights can be gathered within one week, whereas the designers automatically estimate the time to be way longer. Second, there is a lack of communication between designers and developers. At the moment, there is a notable gap between service designers who gather user insights and the developers whose job it is to actually build the services.

“The insights and other information don't transfer from designers to developers which slows down developers' work significantly, and they cannot do their work as well as they could if they had the information.”

(Group interview 2, User Experience Design)

This leads to a situation where developers would like to validate their ideas based on the user insights, but the data is nowhere to be found. Third, there is also miscommunication between designers and managers (Figure 13).

PEOPLE | EXECUTIVES & EMPLOYEES

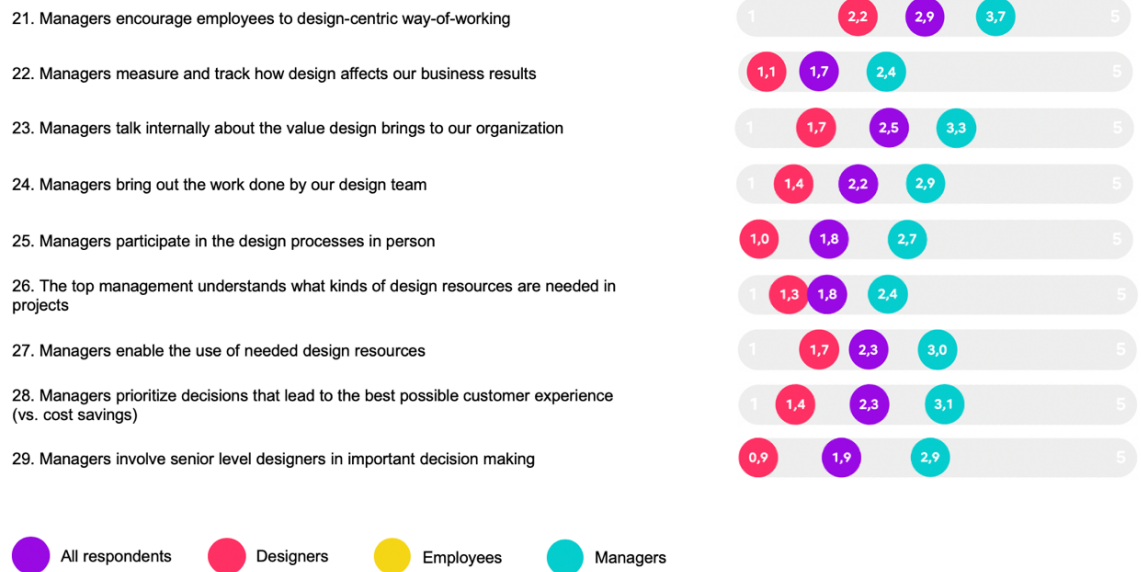


Figure 13. Survey results about design management

The survey results show that designers and managers have on average 1.5-unit difference in their opinions about design management. Of course, these are matters of opinion and it is natural that managers give themselves a higher grade than the designers, and again, the situation differs between teams.

4.3 Moving towards the next maturity level

Based on the survey results, the interviews, and the design team's previous planning, we undertook three concrete actions which could help the organization get closer to the third maturity level. We knew that it would require a lot of time, effort, and resources to get the whole organization to the third maturity level. In order to succeed, we also needed the management's support. However, we knew that gathering all the resources and getting the management level on board would take a long time and we wanted to start doing something right away. So, as a result, we started to push our activities forward at the same time as we were talking to the management. Also, we wanted to demonstrate the design thinking approach here as well by not staying at our desks planning how to help the organization to move towards the next maturity level for too long but to go out there and test our ideas and iterate them along the way. The three actions we undertook were 1) human centred design workshops, 2) Telia Design internal webpage, and 3) design clinics.

The idea is that first, we get people to attend the workshop where we give them a quick run through of the whole design thinking process in one day. After they have some kind of an idea what the whole process is all about, they can start using different tools in their everyday work by finding all the needed information from the internal Telia Design webpage. If at some point, they run into a problem, they can then come to the weekly design clinic where the designers help them overcome the problems and give them tips and guidance. I discuss all these three activities in more detail in the following chapters.

4.3.1 Human Centred Design workshop

The goal of the human centred design (HCD) workshop is to introduce Telia Finland's employees to the design thinking process during one day. At the core of this one-day workshop is to let people experience design thinking themselves by going through all the phases of design thinking process by using different design thinking tools (Figure 14). The content of this workshop was created by one of Telia Finland's service designers based on IDEO's human centred design workshop template (IDEO.org).



Figure 14. Human Centred Design workshop in action

This research includes two workshops, each of which had 20 participants. The participants were invited from all over the organization, but were encouraged to invite their team members to join as we believe that it is easier to adopt design thinking methods in the everyday work if the whole team or at least few of the team members know what they are supposed to do. There were three designers facilitating the workshop and helping the teams when they faced a problem. The participants were divided into four teams of 3-4 people beforehand and together they had to first find a problem worth solving. Since the purpose of the workshop is to understand the philosophy of design thinking and get concrete experiences of using the different design thinking tools, we gave the teams a task outside our business areas. We did this because we wanted people to focus on the tools rather than actually solving a current business problem because then the discussion would easily focus only on the technical restrictions or the usual “we’ve tried this before” way of thinking. We asked the teams to find problems that people face when they are trying to keep up healthy habits in their everyday lives and then come up with solutions to those problems. This gave the participants permission to truly think outside the box and not restrict their ideas.

The workshop day is divided into four parts following the Double Diamond model: discover, define, develop, and deliver. The teams work through the whole process by e.g. interviewing people on the streets to get better understanding about the problems people face when trying to maintain healthy lifestyle, gathering the insights from the interviews and grouping the findings into categories, finding the most lucrative problem to solve, prototyping the idea with possible users, and developing the idea further based on the feedback. After the workshop, the participants have a hands-on experience on how to use the different tools and are more prepared to take these tools into their own projects. If, at any point, they face challenges when trying to adopt the design thinking tools into their own work, they can go Telia Design internal webpage to look up any tools they might need in their work and find tips on how they can use the tools. The webpage and its content is presented in the next chapter.

4.3.2 Telia Design internal webpage

We created the internal Telia Design webpage to act as a platform that connects designers to other employees. The webpage offers us (the designers) a space where we can share our design work, explain what we mean by design and what is the role of different design disciplines. We also hope that the page can act as a tool for other employees to adopt

design thinking tools and mindsets. At the moment, the page is open for every employee in Finland, but we are still in the process of developing the site and creating more content. By opening up the site before we were completely ready, we are able to collect feedback continuously and quickly respond to the needs of the users. Next, I will introduce the content of the site more closely (Figure 15).

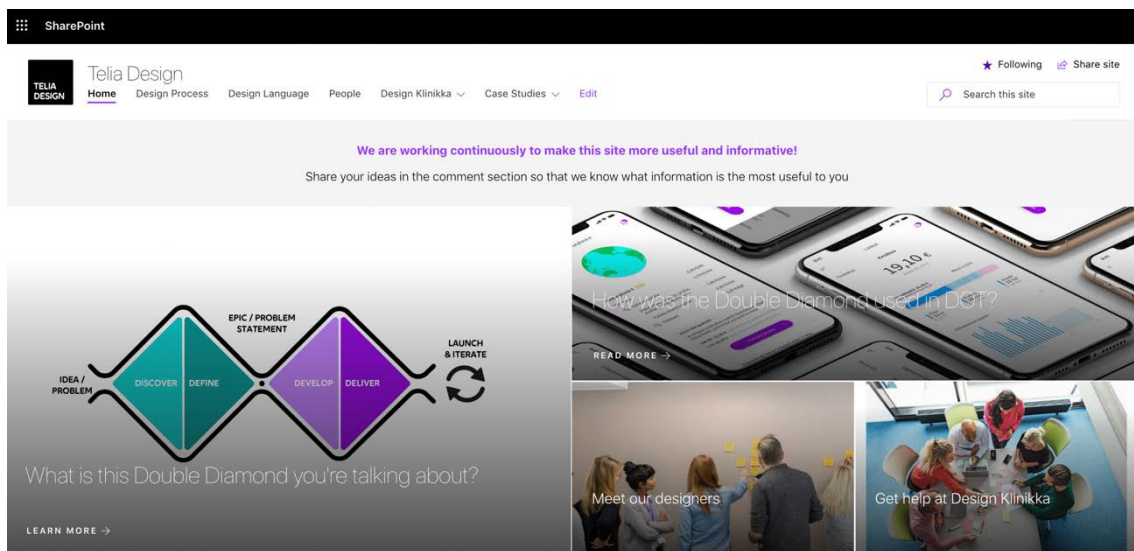


Figure 15. Telia Design internal webpage

First, on the home page, we highlight the newest and the most relevant content for the user. We also have Telia Design calendar on the home page where employees can find the design related events and meetings, such as our weekly Design Lab where current design issues are discussed. Design Clinic (see chapter 4.3.3) and workshops. On the menu on top of the page, we have five different topics: design process, design language, people, design clinic and case studies. On the “Design Process” page, we briefly introduce the Double Diamond process in order to explain how the process should be approached. The main content on this page, however, is a list of different design tools which should be easy to use by employees. We have divided the tools in groups based on the phase of the Double Diamond. The goal is that when an employee feels like they need design resources in their projects, they can come to this site and find out which tools they could use, for example, to validate their concepts with users. Each of the tools can be downloaded as a “tool card” with directions on how to use that tool. If the employee faces problems in using the tool, he/she can come to the next design clinic (explained in the next chapter) and ask designers’ help.

Third, on the “Design Language” page, we have gathered all the relevant information about our design language on one page. We explain why we need a solid design language and what does atomic design mean. We have also added relevant links through which the users can find our component library and Telia Brandhub which includes our fonts, colours, images, illustrations etc. The goal of this page is not to try to make everyone an expert on design language. Instead, we wanted to gather all the relevant design topics under the site to give employees as comprehensive understanding about design as possible. Also, many service designers, who don’t work closely with design language, use the site regularly and this gives us an opportunity to share knowledge between different design disciplines as well.

Fourth, we introduce all the people working with design: service designers, user experience designers, graphic designers, and content editors. We have also highlighted the people who employees can contact if they need design resources. Fifth, we created a page for the design clinic and on this page, we tell more about what kinds of problems we solve during the design clinic meet-ups and what kinds of questions other people have asked the designers during these sessions. One of the goals for this page was to lower the threshold to attend the meetings and make it as easy as possible for people to attend to. Finally, we wanted to create a space where we could share stories about different design projects and that is why we created the “Case Studies” section on the site. Here we want to gather different examples of what the design process can look like and show that you can use design in both big and small projects. Ideally, we could also demonstrate the struggles people might face during a design process. All this is important to show people that design doesn’t have to be magical or big in order for it to be useful.

This is the structure and content of the page at the time of writing, but the site evolves continuously. Also, what makes the site an interesting project is that all the designers who are interested in contributing to the site, get editing rights on the content and this makes it possible to create content quite quickly and whenever someone sees room for improvement, they can make the changes themselves instantly. If the employees adopting the new design thinking mindset cannot find helpful tips on this webpage, they always have the option to take part in one of the Design Clinics where they can meet designers face-to-face and get their help and tips on how what tools to use, and how to use them.

4.3.3 Design Clinic

One of the reasons why earlier attempts to get employees to use design thinking in their everyday work have failed is that after the employees have attended an intensive crash course they return back to the “old way-of-doing” things and realize that it is not that easy to change the way-of-working due to the pressures set by the organization. Design Clinic was created to offer support for employees who need help in using design thinking tools. Design Clinic is a weekly meet-up where all the employees are welcome to join and bring their questions to designers.

First, we thought about how we could reach out to the whole organization, but that seemed too big of a challenge to manage with our current resources. So, in the spirit of design thinking, we decided to start small, test the concept and see if the clinic really was something people were interested in, and if it was successful, we could then start to grow it. Since most of our service designers work within Telia Finland’s consumer business, we decided to start from there. We also knew that the people working in our consumer business were quite familiar with the design thinking approach and would therefore be more active in participating in the clinic. So, we started the clinic as a pilot within the B2C business unit but welcomed everyone interested in taking part in the meetups. The clinic got a positive welcome and the attendance was high right from the beginning. In addition to our visual presence during the clinic (Figure 16), we also advertised the meetup on different channels on Telia Finland’s Yammer and sent out a recurring calendar invitation to all the employees working in B2C and marketing.



Figure 16 The Design Clinic “reception”

At first, we were a little suspicious whether people would show up, but as the people who I interviewed told me, there was a need for such an initiative. During the first meetup we heard seven problems about how to implement design tools into different projects. Since then we have answered different questions ranging from visual design to HR questions and how to design a better visitor experience for people visiting Telia Finland headquarters.

4.4 Evaluating the effectiveness of the actions

All in all, all of the initiatives undertaken by the designers have been welcomed eagerly by the employees. The feedback collected from the two human centred design workshops through discussions and feedback surveys was very positive and people got a better understanding about the process and were excited to implement the tools in their own work. Based on the feedback, the participants were especially happy that they got a hands-on experience and felt that it will help them adopt the tools in their daily work. They felt that the workshop was well planned, and they appreciated the group work, collaboration, and the iteration of their initial ideas. One of the participants said:

“Even though, it felt hard to go and talk to strangers on the streets, it turned out to be one of the best experiences during the workshop along with ideation with our team.”

After we talked with the participants after each of the workshops, many people pointed out that before the interviews they were very nervous about going to talk to strangers, but almost all of them were very happy with themselves afterwards and realized that it was not as scary as they had thought beforehand. After experiencing the design thinking process from the beginning to the end (although it was simplified a lot due to the time restriction), the participants were eager to find ways in which they could use the tools with the teams and projects they work with:

“I think we should adopt this approach across the organization. The workshop was a good way to learn more about the topic and it makes it easier to adopt the mindset in my own work.”

“By interviewing people on the streets, I realised that the way I think, and my opinions are not necessarily the same thing as the customer need.”

The only thing the participants found challenging during the workshop was time management. As we went through the whole design thinking process in one day, there was not a lot of time for each part of the design thinking process and therefore teams had to be very efficient when e.g. choosing the problem they wanted to solve or deciding how to prototype their idea. However, based on the feedback survey, all of the participants would recommend their colleagues to take part in the future workshops (answers 8-10 on the NPS question) and many of them are planning on applying the tools in their own work by using more qualitative methods to gather user insights, spending more time on iterating ideas before implementing them, and by involving managers and employees in different projects. If more people would take part in the workshops, it would definitely help the designers' work in spreading the knowledge about design thinking across the organization. One of the challenges for the designers at the moment is to find time to organize these workshops. As one workshop takes a whole day and requires three to four designers to facilitate the workshop, it can sometimes be challenging to find designers who are available. However, some of the workshop participants have expressed their interest in taking part in the facilitation which would help a lot.

Fortunately, we now have the internal Telia Design webpage which offers employees a platform where they can find basically the same information as the workshop, although a shorter version of it. Our goal is to develop the page to serve as an interactive tool that evolves, and changes based on what Telia Finland's employees need at a given time. At the moment, the site usage is still quite low as we have not advertised it actively due to the limited amount of content. However, some of the designers' internal partners have found the site useful because they can now find the people whose help they need more easily. Also, our colleagues from Estonia and Sweden have been interested in the site and its content and are using the content in their countries or developing their own content further. Because the website has been under construction, so to speak, it has not yet had the effect we are hoping it can have one day, and therefore the Design Clinic has been the most visible platform for employees where they can get help for their problems.

The first clinic was held in September 2019 and during the same time Telia Finland had one of its biggest organizational restructurings, and as a result also the design organization faced some big changes. Previously all the designers had formed one team and

acted as an internal agency. After the organizational changes, the service designers were moved into different business lines within B2C and B2B businesses. What this meant was that after the change, all the B2C business lines had a dedicated service designer who worked only within that business area. For the Design Clinic this meant that the teams working with B2C now had their very own service design resource which led to a decreased need for the Design Clinic. At the beginning, we had a high participation rate at the Clinic, but the closer we got to Christmas time the less we had new participants. After we realised that B2C might not be the best target group for the Clinic, we decided to start an internal “tour” during which we would visit different areas of the organization every week and after we had made the concept of the Clinic familiar to people around the company, we could have one spot where others would find us every week. At the time of writing this thesis, this tour has had one stop outside the B2C business and therefore it is difficult to say yet how effective this approach will be. However, based on the meetups we had at B2C, we are clearly on to something as many participants thanked us for giving our time to help them with their problems. We also got some positive feedback on the internal communication tool, Yammer:

“I warmly recommend the Clinic for everyone! I’ve participated in it a few times and have always received valuable feedback and ideas.”

“This is a great opportunity to get some feedback for your projects. I am working on an app and I got good tips from the Clinic on how to collect user feedback and which tools to use for that. You should definitely go and try it out!”

We have collected all the feedback we have gotten from the Clinic participants, and are continuously improving the concept of the Clinic to better suit different teams’ needs.

5 CONCLUSIONS

5.1 Main contributions of the study

The objective of this research was to find a way in which companies can determine on which design maturity level they are at a certain moment and how they can move from one level to another. The study was divided into three parts: First, three different design maturity models were compared in a literature review in order to find the most suitable one to support the research. Second, the selected maturity model was adopted for an empirical research that aimed at finding out on which maturity level the researched company was at the moment. Third, based on the research findings, three concrete actions were undertaken by the designers at the company in order to support the growth of the design thinking culture.

Three different maturity models were compared for this research: the Design Ladder (Danish Design Centre), Seven stages to a design-based innovation culture (Katz 2015, 22), and the Maturity Solar System (InVision 2019, 11). The best model for this research was the Maturity Solar system, which had been widely tested and provided concrete tools that could be used to determine the current design maturity level of a company. After the most suitable model had been chosen, a companywide quantitative survey was conducted at one of the biggest telecommunication companies in Finland, Telia Finland, and a range of interviews were held in order to get a deeper understanding of the company's current design thinking culture. Two findings were identified from the research: First, the evaluation of a company's design maturity level requires multiple research methods in order to get as comprehensive understanding of the current situation as possible. Without one another the qualitative and quantitative methods would give an incomplete picture of the current situation if used only by themselves. Second, the knowledge on which maturity level a company is at a certain moment does not help anyone by itself. In addition of finding out the current maturity level, the research should also find out what the organization can do in order to get to the next level (if it is the goal of a company to improve its maturity forward).

In this research, three actions were undertaken in order to support the growth of the design thinking culture: Human Centred Design workshops, internal Telia Design webpage, and Design Clinics. Based on the collected feedback about these actions, I found out that the face-to-face actions (HCD workshop and the Design Clinic) had a

stronger affect than the internal webpage (although the webpage is not yet completely ready).

Since the whole research was made from a practical point of view and the gap between theory and practice was small from the beginning, the managerial implications have been clearly stated throughout the survey. To conclude, there are two important findings for managers wishing to recreate this study in their own organizations: First, the survey, if conducted only on its own, tells you only about the current situation, but it does not reveal why things are as they are or what challenges employees face in their daily work. The survey can point you to areas which need improvement, but it does not necessarily tell you how to level up. That is why it is important to involve employees into the process and figure out together what would be the best initiatives to undertake in order to help the organization evolve.

Second, when starting the initiatives, it is important to start small and quickly, and then build up from there. This enables the people responsible for the initiatives to learn and change the approaches if need be. Also, it makes it possible to easily kill an initiative if it does not work or there are not enough resources to keep growing the idea. For example, when Telia Finland started the Design Clinic, designers were eager to take part in the weekly meetings. However, as time went by, it became more and more difficult to get enough designers to join the meetings. On the other hand, fewer and fewer people took part in the meetings and due to the small size of the initiative. Due to the small size of the initiative, it was easy for the designers to rethink the approach and take the initiative to another direction.

5.2 Limitations of the study and future research

This research was conducted as a mixed method action research where both quantitative and qualitative methods were used. Through the quantitative survey, enough responses were gathered to evaluate the current design maturity level at Telia Finland. However, the language and expressions used in the survey can be understood differently by people and all of the statements were given an equal value which might be an important thing to consider if a similar survey is conducted in another company as the statements used in the survey might have different level of importance to different companies. Also, every company is different and therefore all the statements used in the survey conducted at Telia Finland are not applicable in other companies (e.g. statements focusing on our internal weekly meetings). One aspect which was left outside of the scope of the survey are the

financial contributions that design thinking can have on business results. This was studied in the InVision's (2019) research and therefore it might be an interesting perspective to add to a design maturity study.

Due to the complex nature of design thinking and the multiple different forms it takes, the initiatives created at Telia Finland might not work at all companies who are trying to move from the second maturity level towards the third one. It is also important to notice that the helpful actions differ depending on which level the company is currently, where it is aiming to end up, what the organizational structure and size are, how many people there are to help with the cultural change, and how much resources they have.

Due to the nature of this research, the findings are very context specific and cannot be directly applied to other companies. For further research, similar issues should be studied by using both qualitative and quantitative approaches and the aspect of design's financial contributions should be added to the scope of the research. In order to get the most out of the research findings, the same study should be conducted regularly, and measures should be taken accordingly to ensure the continuous development of the organization, so that the company can track the growth of its design maturity in the long run.

6 SUMMARY

In this thesis, the use of design maturity models as a tool to support the growth of design thinking cultures was observed. The study was conducted as a mixed method action research, with a strong focus on the practical side of the issue, and an active participation of the researcher and the target organization. The research was conducted in the context of a Finnish telecommunication operator, Telia Finland, which has grown its design thinking culture since 2014. The topic for this study was driven by a problem the organization was facing: how mature is the company's design culture and how the design thinking mindset could be spread across the organization. This problem was targeted by first finding out through a literature review what would be the best design maturity model to use as a reference for the research. Three different maturity models were compared and the Maturity Solar System by InVision (2019) was chosen as the framework. Then, an organization wide survey was conducted, and the current design maturity level was determined based on the results. According to the results, Telia Finland is currently on the second maturity level which means that there are some design activities undertaken by different teams, e.g. including stakeholders in workshops and conducting user research. Based on the survey results, interviews were conducted to deepen the understanding of the current situation and to better understand the obstacles employees were facing at the time. These methods were able to provide ideas about what the organization could do in order to move towards the next maturity level. Finally, three concrete initiatives were launched in hopes to move the organization towards the next level.

The three initiatives included a human centred design workshop, an internal webpage, and a weekly Design Clinic meetup. The human centred design workshop aims to train Telia Finland's employees on the design thinking mindset and process. The workshops offer employees a possibility to get a hands-on experience on the tools used in a design thinking process hopefully making it easier to adopt the tools in their daily work. The second initiative was an internal webpage of Telia Design which gathers all the useful information related to design in one place. The site includes e.g. a wide range of tools that employees can use in their own projects. Finally, if the employees need help in using the tools in their work, they can go and meet designers in a weekly Design Clinic where the designers help them decide which tools to use and how to use them. The initiatives have gotten a positive welcome by the employees, although the face-to-face initiatives have proven to be more effective based on the gathered feedback.

REFERENCES

- Beverland, M. – Farrelly, F. J. (2007) What Does It Mean to Be Design-Led? *Design Management Review*, Vol. 18 (4), 10-17.
- Björklund, T. A. – Hannukainen, P. – Manninen, T. (2018) Measuring the impact of design, service design and design thinking in organizations on different maturity levels. *Service Design Proof of Concept*, June 2018, 500-511.
- Björklund, T. A. – Maula, H. – Soule, S. A. – Maula, J. (2020) Integrating design into organizations: The coevolution of design capabilities. *California Management Review*, Vol. 62 (2), 100-124.
- Brown, T. (2008) *Change by design: How design thinking transforms organizations and inspires innovation*. Harper Business, New York, NY.
- Brown, T. – Katz, B. (2011) Change by design. *Journal of Product Innovation Management*, Vol. 28, 381-383.
- Brown, T. – Martin, R. L. (2015) Design for action. *Harvard Business Review*.
< <https://hbr.org/2015/09/design-for-action>>, retrieved 4.2.2019.
- Brown, T. – Wyatt, J. (2010) Design thinking for social innovation. *Stanford Social Innovation Review*, winter 2010, 30-35.
- Bryman, A. – Becker, S. – Sempik, J. (2008) Quality criteria for quantitative, qualitative and mixed methods research: A view from social policy. *International Journal of Social Research Methodology*, Vol. 11 (4), 261-276.
- Buchanan, R. (1992) Wicked problems in design thinking. *Design Issues*, Vol. 8 (2), 5-21.
- Bucolo, C. S. – Wrigley – Matthews, J. (2012) Gaps in organizational leadership: Linking strategic and operational activities through design-led propositions. *Design Management Journal*, Vol. 7 (1), 18-28.
- Brydon-Miller, M. – Greenwood, D. – Maguire, P. (2003) Why Action Research? *Action Research*, Vol. 1 (1), 9–28.
- Cameron, R. (2011) Mixed methods in business and management: A call to the ‘first generation’. *Journal of Management & Organization*, Vol. 17, 245–267.
- Camillus, J. C. (2008) Strategy as a wicked problem. *Harvard Business Review*, May 2008, 99-106.

- Carlgren, L. – Elmquist, M. – Rauth, I. (2016) The challenges of using design thinking in industry: Experiences from five large firms. *Creativity And Innovation Management*, Vol. 25 (3), 344-362.
- Danish Design Centre (2015) The design ladder: Four steps of design use. <<https://danskdesigncenter.dk/en/design-ladder-four-steps-design-use>>, retrieved 18.3.2020.
- Design Council UK. The evolved Double Diamond. <<https://www.designcouncil.org.uk/news-opinion/what-framework-innovation-design-councils-evolved-double-diamond>>, retrieved 13.4.2020.
- Dunne, D. (2018) *Design thinking at work: how innovative organizations are embracing design*. University of Toronto Press, Toronto, CA.
- Eriksson, P. – Kovalainen, A. (2008) *Qualitative methods in business research*. SAGE Publications, London.
- French, S. (2009) Action research for practicing managers. *Journal of Management Development*, Vol. 28 (3), 187–204.
- Gardien, P. – Gilsing, F. (2013) Walking the walk: Putting design at the heart of business. *Design Management Review*, Summer 2013, 54-66.
- Gorard, S. (2015) Research design, as independent of methods. In: *Handbook of mixed methods in social and behavioral research*, eds. Tashakkori, A. – Teddlie, C., 237-252.
- Greene, J. C. – Caracelli, V. J. – Graham, W. F. (1989) Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis*, Vol. 11 (3), 255-274.
- Gruber, N. M. – De Leon – George, G. – Thompson, P. (2015) Managing by design. *Academy of Management Journal*, Vol. 58 (1), 1-7.
- Haertel, G. (2010) Quantitative research. In: *Encyclopedia of curriculum studies*, ed. Kridel, C., 708-711. Sage Publication, Thousand Oaks, CA.
- Hurmerinta-Peltomaki, L. – Nummela, N. (2006) Mixed methods in international business research: A value-added perspective. *Management International Review*, Vol. 46 (4), 439–459.
- IDEO.org. Facilitator’s guide for introducing human-centered design. <<https://www.designkit.org/resources/7>>, retrieved 9.3.2020.
- InVision (2019) The New Design Frontier. <<https://www.invisionapp.com/design-better/design-maturity-model/>>, retrieved 15.4.2020.

- Jang, E. E. – McDougall, D. E. – Pollon, D. – Herbert, M. – Russell, P. (2008) Integrative mixed methods data analytic strategies in research on school success in challenging circumstances. *Journal of Mixed Methods Research*, Vol. 2 (3), 221-247.
- Katz, A. (2015) Seven stages to a design-based innovation culture. *Touchpoint Journal by Service Design Network*, Vol. 7 (2), 20-25.
- Kleinsmann, M. – Valkenburg, R. – Sluijs, J. (2017) Capturing the value of design thinking in different innovation practices. *International Journal of Design*, Vol. 11 (2), 25-40.
- Kolko, J. (2015) Design thinking comes of age. Harvard Business Review. <<https://hbr.org/2015/09/design-thinking-comes-of-age>>, retrieved 10.4.2020.
- Lean Service Creation. Futurice. <<https://leanservicecreation.com/>>, retrieved 4.7.2020.
- Liedtka, J. (2014) Innovative ways companies are using design thinking. *Strategy & Leadership*, Vol. 42(2), 40-45.
- Liedtka, J. – Salzman, R. – Azer, D. (2017) Democratizing innovation in organizations: Teaching design thinking to non-designers. *Design Management Review*, Vol. 28 (3), 49-55.
- Lincoln, Y. S. – Guba, E. G. (1985) *Naturalistic Inquiry*. Sage Publications, Beverly Hills.
- Mahmoud-Jouini, S. B. – Fixson, S. K. – Boulet, D. (2019) Making design thinking work: Adapting an innovation approach to fit a large technology-driven firm. *Research-Technology Management*, September-October 2019, 50-58.
- Martin, R. (2010) Design thinking: Achieving insights via the “knowledge funnel”. *Emerald Group Publishing Limited*, Vol. 38 (2), 37-41.
- McKim, C. (2017) The value of mixed methods research: a mixed methods study. *Journal of Mixed Methods Research*, Vol. 11 (2), 202-222.
- Morse, J. (2010) Procedures and practice of mixed method design: Maintaining control, rigor, and complexity. In: *Handbook of mixed methods in social and behavioral research*, eds. Tashakkori, A. – Teddlie, C., 339-352. Sage Publications, California.
- Plano Clark, V. – Ivankova, N. (2017) *Mixed methods research: a guide to the field*. SAGE Publications, California.
- Prud’homme van Reine, P. (2017) The culture of design thinking for innovation. *Journal of Innovation Management*, Vol. 5 (2), 56-80.

- Rowley, J. (2014) Data analysis. In: *Encyclopedia of action research*, eds. Coghlan, D. – Brydon-Miller, M., 239-242. Sage Publications, London.
- Schmiedgen, J. – Spille, L. – Köppen, E. – Rhinow, H. – Meinel, C. (2016) Measuring the impact of design thinking. In: *Design Thinking Research*, eds. Plattner, H. et al., 157-170. Springer International Publishing, Switzerland.
- Schreier, M. (2013) Qualitative content analysis. In: *Handbook of qualitative data analysis*, eds. Flick, U., 170-183. Sage Publications, London.
- Sheppard B. – Sarrazin H. – Kouyoumjian, G. – Dore, F. (2018) The business value of design. *McKinsey Quarterly*, October 2018, 1-15.
- Smith, B. (2015) Intuit's CEO on building a design-driven company. *Harvard Business Review*, Vol. 93 (1-2), 35-38.
- O’Cathain, A. (2015) Assessing the quality of mixed method research: Toward a comprehensive framework. In: *Handbook of Mixed Methods in Social and Behavioral Research*, eds. Tashakkori, A. – Teddlie, C., 531-556. Sage Publications, Thousand Oaks, CA.
- Teliacompany.com – Telia Company Acquires Bonnier Broadcasting. <<https://www.teliacompany.com/en/news/press-releases/2018/7/telia-company-acquires-bonnier-broadcasting/>>, retrieved 7.4.2020.
- Telia Company – About the company. <<https://www.teliacompany.com/en/about-the-company/>>, retrieved 12.2.2020.
- Vogt, W. P. (2011) *Quantitative Research Methods*. Sage Publication, Thousand Oaks, CA.
- Von Stamm, B. (2004) Innovation – What’s design got to do with it? *Design Management Review*, Vol. 15 (1), 10-19.
- Wrigley, C. – Nusem, E. – Straker, K. (2020) Implementing design thinking: Understanding organizational conditions. *California Management Review*, Vol. 62 (2), 125-143.
- Yritysesittely, Telia Finland. <<https://www.telia.fi/telia-fi/telia-yrityksena>>, retrieved 12.2.2020.
- Yle.fi: Teleoperaattorien kilpailu jatkuu kieränä – Elisan tulos säilyi ennallaan. <<https://yle.fi/uutiset/3-10874523>>, retrieved 7.4.2020.

APPENDICES

Appendix 1. Seven stages to a design-based innovation culture

<i>EXISTING CONDITIONS</i>	<i>WHAT CAN YOU DO?</i>
Stage 1: Scepticism	
Service design is seen as ‘fluffy’ and peripheral, there is no in-house design capacity, no understanding of the value that designers can add to current organisational activity and a limited understanding of user-centred service development processes.	Build awareness and confidence by introducing key concepts and sharing stories and evidence of the impact of human-centred, design-led processes by other organisations. Measure your success by building senior managers’ curiosity to invest resources in a limited and safe way to test new ways of working.
Stage 2: Tokenism	
People use terms such as ‘design thinking’ and ‘co- design’ and use Post-it notes liberally (but not always effectively). Design thinking is more of a fashionable veneer used by managers wishing to display a level of sophistication than a new practice.	Reinforce the importance of adopting new ways of thinking and working to tackle complex, persistent challenges. Build awareness of the mismatch between the organisation’s design-devoid practice, and its use of the language of design-based innovation. Help leaders to identify ways of bridging this gap in a way that adds integrity to the organisation’s mission and strategy. Measure your success through senior leaders’ desire to invest resource in testing new ways of tackling organisational challenges using service design methods.
Stage 3: Curiosity	
There is curiosity among senior leadership about the value that service design methods and processes can deliver and some resource has been allocated to test its viability. Often, during this stage, we find growing opposition by some members of staff to spending precious	It is important to invite external design professionals that have the experience and confidence to confront internal sceptics and introduce new, evidence-based practices that are demonstrably different to existing ones.

<p>resources on non-conventional practice. Adopting a user-centred design process and prototyping new solutions can be profoundly threatening to professional orthodoxies and existing power structures.</p>	<p>Make sure that any new project has clear objectives and success criteria that were agreed by senior leadership. Use your resource to run a demonstration project that involves colleagues alongside service designers, to tackle a real, live challenge. As a minimum, you could organise a service design ‘sprint’ for colleagues who want to learn and experience a new way of working. This could range from a 48-hour hackathon-type event to a week-long residential course, during which colleagues’ time is fully dedicated to this project.</p> <p>Measure your success through a growing desire by colleagues to adopt service design practices in their work, as well as an appreciation of the value that professional, expert service designers and innovation facilitators bring to this type of work.</p>
<p>Stage 4: Experimentation</p>	
<p>There is growing curiosity and acceptance of the value of service design practice among staff at all levels. Managers and leaders would like to see more capacity in-house, rather than develop a dependency on external consultants.</p>	<p>Build legitimacy for a small group of internal change-agents to grow their knowledge and skill in facilitating design-based innovation projects. Do this by identifying and inviting internal change agents, who are open-minded and respected professionally to join a new community of practice that is focused on achieving significantly better outcomes through innovative practice. Invite them to participate in service development projects alongside external service design partners.</p> <p>Measure your success through the enthusiasm and capability of internal design ‘intrapreneurs’ to facili-</p>

	<p>tate research and co-design projects and advocate for designers' involvement in future work.</p>
<p>Stage 5: Commitment</p>	
<p>There is a recognised team of internal 'service design champions' who spend some or all of their time on design-based innovation projects. However, there are barriers to this team working effectively:</p> <ul style="list-style-type: none"> • There is no clear leadership or boundary that defines who can or cannot lead an innovation project. • There is no adequate physical space for innovation projects, and insufficient design skills, software and resources. • Few members of the team are experienced service designers or have any design training, and they pull the practice in different directions, leading to a generalist and non-distinct practice. 	<p>Connect the innovation team with service design and other relevant communities of practice through conferences and knowledge sharing activities. Help team members to adopt and disseminate a shared language around design and innovation, such as those developed in the UK by the Design Council, Nesta or Policy Lab. Work with your human resource team to develop an organisational competence framework for innovation that will align skills and knowledge with recruitment and promotion of staff.</p> <p>Measure your success through the growth of in-house service design capacity that has a clear vision and strategy, and whose skills are aligned to broader organisational needs.</p>
<p>Stage 6: Pushing boundaries</p>	
<p>The organisation has an in-house design-based innovation team and a senior design leader who sets direction and advocates on their behalf. There is a pipeline of projects and there are attempts to measure the value and impact of the team in order to sustain their activity.</p> <p>However, the success of the team becomes its own enemy: as it grows and becomes more expen-</p>	<p>Keep the size of your team small, and build a diffuse network of advocates across the organisation. Do not be afraid to involve external consultants and experts, as well as internal colleagues from different departments, even if it is easier and cheaper to do things yourselves. Promote the role of the team as an inclusive hub of design-based innovation activity, not an exclusive one.</p>

<p>sive it increasingly focuses on justifying its existence rather than the impact it seeks to create.</p>	<p>Measure your success by building the sustainability of your team, ensuring that project budgets significantly outweigh your staff budget. Refine the success metrics of your team to ensure it focuses on outcomes and experiences of users, as well as economic and social sustainability.</p>
<p>Stage 7: New normal</p>	
<p>Leaders, managers and staff from across the organisation see themselves as instrumental in a design process. Designing with users and communities is the norm, and there are known roles within the organisation that include a range of design specialists, researchers and facilitators. Internal indicators are used to monitor areas such as collaboration, creativity, distributed leadership as well as performance and outcomes.</p>	<p>Organisations that have embedded design culture laterally and have an in-house team of design experts that support a range of innovation processes are energy-rich and closely attuned to their users and communities. Sustaining this culture is difficult and rests on leadership that honours the principles and culture of human-centred, design-based innovation.</p>

Appendix 2. Structure and content of the survey

People	Design Team	There are designers at leader positions at Telia
		Our team shares our design work in all-hands meetings and in important executive meetings
		I have a possibility to improve my skills and get training about design
		In my opinion, Telia's design community is an attractive option for job seeking designers
		I actively participate and/or follow the design online discussions (e.g. in Slack or Teams)
		If I need help with my work, it is possible for me to get (another) designer's help
	Key Partners	Me and the key stakeholders have clear understanding about our roles and responsibilities in the projects
		I work in the same space with the key stakeholders
		I have joint working sessions with the key stakeholders (e.g. workshops)
		I feel that me and the key stakeholders develop and own the products, services or processes together
		The key stakeholders are well-integrated into the design process (e.g. by participating in design sprints)
		I feel that I get a lot of support from my key stakeholders
	Executives and employees	Telia's employees understand what customer-centric design is
		Telia's employees understand why customer-centric design is important
		It is possible for Telia's employees to receive training about customer-centric design themes (e.g. user-centric design)
		Telia's employees participate in design processes
		Telia's employees have good understanding about customers and their needs
		Telia's employees participate in user or customer research
		Managers encourage employees to design-centric way-of-working
Managers talk internally about the value design brings to our organization		
Managers bring out the work done by our design team		
Managers participate in the design processes in person		
The top management understands what kinds of design resources are needed in projects		

Practices		Managers enable the use of needed design resources
		Managers measure and track how design affects our business results
		Managers prioritize decisions that lead to the best possible customer experience (vs. cost savings)
		Managers involve senior level designers in important decision making
	User research	User / customer surveys
		User / customer interviews
		User / customer journeys
		Customer profiling / personas
		Co-creation with customers
		Usability tests
	Design strategy	The projects I work with have specific goals for design
		In the projects I work with, we track the financial measures such as revenue and business results
		Telia has a design strategy and I know what it includes
		Design is part of our company's strategy
		It is possible for me to use already existing market research and analysis in my work
		Our team makes research where we study the future trends and themes
	Experimentation	I regularly report about my design or development work results
		In the projects I work with, we continuously track the customer behavior and satisfaction (e.g. NPS scores)
		Telia has a clear operating model through which I can recruit customers for research or interviews
		In the projects I work with, we continuously track the results of different tests (e.g. A/B tests)
		My team validates ideas with customers before we start developing them
	UI design	Design brief
		Ideation workshop
		Rapid sketching
		Prototypes
		Copywriting
		Motion design
		A/B testing
Accessibility tests		

Platforms	Design operations	The managers of designers plan regularly with the top management the needed number of designers and budget
		We track the design team's actions (e.g. the number of designers, experiments, used hours etc.)
		The projects I work with, have retrospectives where we go through the project after it's finished and review how the team succeeded
		We have established prioritization criteria through which we decide on which projects the designers work with and we use these criteria in practice
		The projects I work with have weekly stand-ups
		I know what the weekly Design Lab (organized by the design team) is and what kinds of things are discussed during these meetings
		I regularly participate in Design Lab
		Telia has a "Design Handbook" that tells about e.g. different customer-centric design tools and design's goals, values and principles
	Design systems	Telia has a team whose responsibility It is to maintain the design system
		With the projects I work with, we regularly go back to already launched products, services or processes and make the needed improvements
		There are integrations between design and developer tools (e.g. JIRA)
		We have a set of determined best UI (user interface) practices (e.g. accessibility, usability and web vs. mobile design)
		I know what Telia's design principles are (e.g. brand values, purpose and goals)
		I use Telia's design system (e.g. style, tone of voice, colors, font, component library etc.) in my work

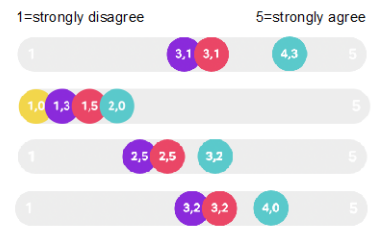
Appendix 3. Interview themes

- Introduction
 - Introduction to the topic
 - Who is the interviewee and what does s/he do?
- Theme 1 – Customer centricity
 - What role does customer centricity play in your work?
 - How well can you make an impact on customer experience in your work?
How does your manager support you?
 - How customer centric do you think the Telians are?
 - How do you understand the role of design thinking?
 - What role does design thinking play in your daily work?
 - What pain points do you recognize regarding to Telias customer centricity at the moment?
- Theme 2 – Leadership
 - How is customer experience represented in your goals?
 - What role does customer experience play in decision making?
- Theme 3 – How to get to the next maturity level?
 - What concrete actions could we do during the fall (2019) and spring (2020) in order to get closer to the next maturity level?
- Feedback on the survey and the visualization of the survey results

Appendix 4. The full list of the survey results

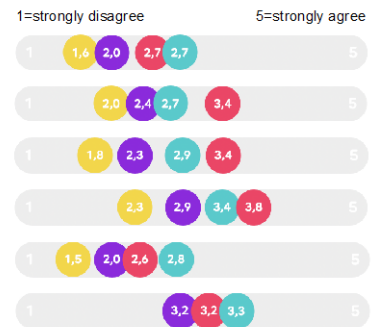
PEOPLE | DESIGN TEAM

1. Our team shares our design work in all-hands meetings and in important executive meetings
2. There are designers at leader positions at Telia
3. In my opinion, Telia's design community is an attractive option for job seeking designers
4. I have a possibility to improve my skills and get training about design



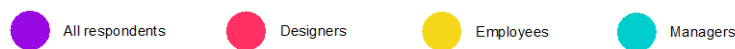
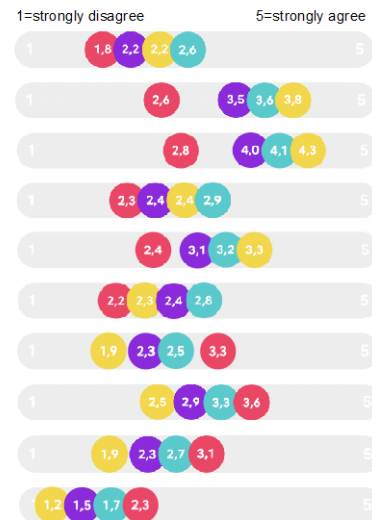
PEOPLE | KEY PARTNERS

5. The key stakeholders are well-integrated into the design process (e.g. by participating in design sprints)
6. I feel that me and the key stakeholders develop and own the products, services or processes together
7. Me and the key stakeholders have clear understanding about our roles and responsibilities in the projects
8. I have joint working sessions with the key stakeholders (e.g. workshops)
9. I work in the same space with the key stakeholders
10. I feel that I get a lot of support from my key stakeholders



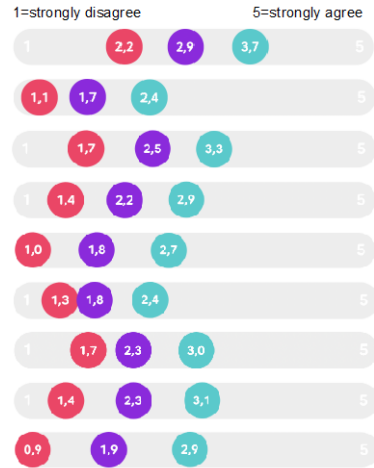
PEOPLE | executives & employees

11. It is possible for Telia's employees to receive training about customer-centric design themes (e.g. user-centric design)
12. Telia's employees understand what customer-centric design is
13. Telia's employees understand why customer-centric design is important
14. Telia's employees participate in design processes
15. Telia's employees have good understanding about customers and their needs
16. Telia's employees participate in user or customer research
17. I actively participate and/or follow the design online discussions (e.g. in Slack or Teams)
18. If I need help with my work, it is possible for me to get (another) designer's help
19. I know what the weekly Design Lab (organized by the design team) is and what kinds of things are discussed during these meetings
20. I participate in Design Lab regularly



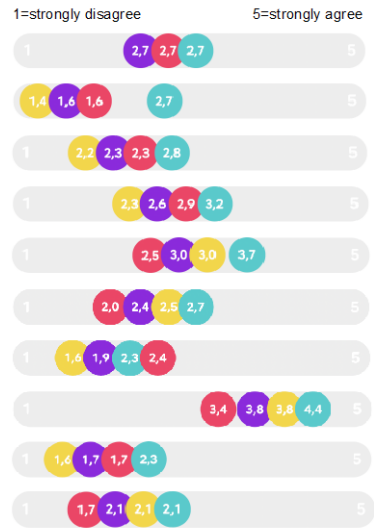
PEOPLE | executives & employees

- 21. Managers encourage employees to design-centric way-of-working
- 22. Managers measure and track how design affects our business results
- 23. Managers talk internally about the value design brings to our organization
- 24. Managers bring out the work done by our design team
- 25. Managers participate in the design processes in person
- 26. The top management understands what kinds of design resources are needed in projects
- 27. Managers enable the use of needed design resources
- 28. Managers prioritize decisions that lead to the best possible customer experience (vs. cost savings)
- 29. Managers involve senior level designers in important decision making



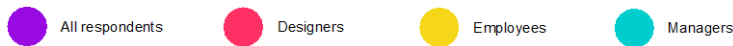
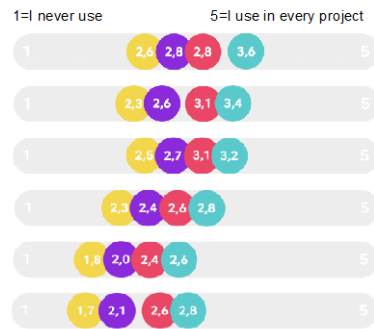
practices | experimentation & design strategy

- 30. I regularly report about my design or development work results
- 31. Telia has a clear operating model through which I can recruit customers for research or interviews
- 32. In the projects I work with, we continuously track the results of different tests (e.g. A/B tests)
- 33. My team validates ideas with customers before we start developing them
- 34. It is possible for me to use already existing market research and analysis in my work
- 35. Our team makes research where we study the future trends and themes
- 36. The projects I work with have specific goals for design
- 37. In the projects I work with, we track the financial measures such as revenue and business results
- 38. Telia has a design strategy and I know what it includes
- 39. Design is part of our company's strategy



practices | user research

- 40. User / customer surveys
- 41. User / customer interviews
- 42. User / customer journeys
- 43. Customer profiling / personas
- 44. Co-creation with customers
- 45. Usability tests



practices | ui design

46. Design brief



47. Ideation workshop



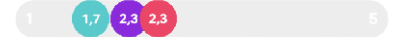
48. Rapid sketching



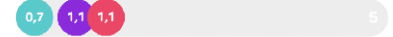
49. Prototypes



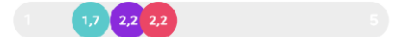
50. Copywriting



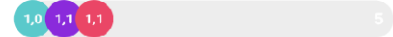
51. Motion design



52. A/B testing

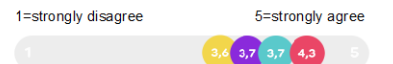


53. Accessibility tests

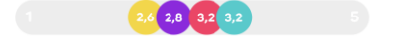


platforms | design operations

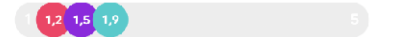
54. The projects I work with have weekly stand-ups



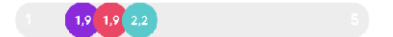
55. The projects I work with, have retrospectives where we go through the project after it's finished and review how the team succeeded



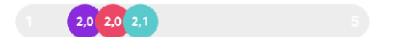
56. The managers of designers plan regularly with the top management the needed number of designers and budget



57. We track the design team's actions (e.g. the number of designers, experiments, used hours etc.)



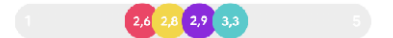
58. We have established prioritization criteria through which we decide on which projects the designers work with and we use these criteria in practice



59. Telia has a "Design Handbook" that tells about e.g. different customer-centric design tools and design's goals, values and principles



60. In the projects I work with, we continuously track the customer behavior and satisfaction (e.g. NPS scores)



platforms | design systems

61. With the projects I work with, we regularly go back to already launched products, services or processes and make the needed improvements



62. Telia has a team whose responsibility it is to maintain the design system



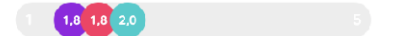
63. There are integrations between design and developer tools (e.g. JIRA)



64. I use Telia's design system (e.g. style, tone of voice, colors, font, component library etc.) in my work



65. We have a set of determined best UI (user interface) practices (e.g. accessibility, usability and web vs. mobile design)



66. I know what Telia's design principles are (e.g. brand values, purpose and goals)

