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**BEYOND THEORY: DESIGN TEAM
STRUCTURES IN PRACTICE**
Insights from Finnish IT Companies

ABSTRACT

Mariana Perez Zamora: Beyond Theory: Design Team Structures in Practice – Insights from Finnish IT Companies
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This study investigates the application of design team structures in Finnish IT companies, their advantages, disadvantages, and impact on the organization's UX maturity. The thesis aims to create a bridge between the theory and practical application of the structures. With the goal of offering insights to leaders and managers involved in product development, empowering them to make informed decisions when selecting a structure for their design team. The study focused on answering three research questions: What type of team structures can be found in UX design teams of Finnish IT companies? What are the perceptions of the advantages and disadvantages of different team structures in Finnish IT companies? What impact does the structure of the UX design team have on the perceived UX maturity? To answer these questions, three case studies of Finnish IT companies were documented. Semi-structured interviews were conducted with four participants to obtain in-depth insights into their application of the team structures. In addition, a survey was conducted to collect further insights from different structures, with their advantages and disadvantages. The results show that the main structures found in Finnish IT companies are the Centralized team structure and the Matrix UX structure. From the case study and survey, a set of advantages and disadvantages was compared to those mentioned in theory. The result shows that the advantages and disadvantages found in practice resembled those mentioned in theory. However, this thesis also documents new additions to the theory. For example, Centralized team structure is perceived as advantageous to small teams with low UX maturity, a Decentralized team structure is perceived as creating a flat structure in the organization better for decision-making, and Matrix UX is perceived as having a better ground for collaboration between product managers, designers, and developers, creating a product trio. In addition, the results show that factors of UX maturity impacted by the team structure are culture and processes. In conclusion, results from this study showed a preference for team structures that centralized design teams. The advantages and disadvantages found in practice do mirror those found in theory. Finally, to select the most suitable team structure for developing UX maturity, it is essential to consider advantages and disadvantages compared to how the team works. Rather than in isolation, the team selection should be made while considering how design practices work within the organization.

Key words and terms: ux design, design operations, ux maturity, centralized team structure, decentralized team structure and matrix ux structure

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1 Introduction

User Experience (UX) has become an important part of product and service development processes, which has increased the demand for design practitioners and led to the growth of design teams. Due to this growth practices like design operations have become more popular encouraging the improvement of processes in design teams. While theories and concepts about organizing design teams exist, there are few documented examples of how these structures work in real-world scenarios. This thesis aims to bridge the gap between theoretical knowledge about design team practices and their practical application in Finnish IT companies. Additionally, the thesis explores how these structures impact the UX maturity of the organizations. The thesis is intended for leaders and managers, involved in UX design and product development within IT companies, as they play a role in shaping design processes and strategies within their organizations. By providing insights into the practical implementation of design team structures and their impact on UX maturity, this research aims to empower these professionals to make informed decisions that can improve the effectiveness and efficiency of their design teams.

This will be accomplished through an exploration of existing literature on design team structures and UX maturity. Further research will involve conducting in-depth semi-structured interviews with design professionals of Finnish IT companies to document case studies showcasing the practical implementation of the team structures. In addition, a survey will provide further data on the advantages and disadvantages of team structures in Finnish IT Companies. By analysing the findings from the literature, case studies, and surveys this thesis aims to provide an understanding of the advantages, disadvantages, and relationship between team structures and UX maturity in Finnish IT companies. The research focused specifically on companies in Finland, a key player in the global technology market. Described by the U.S. International Trade Administration (2022) as a “trend-setting global center for technology and design”. Technology is one of Finland’s main exports (Technology Finland, 2021) which makes it an excellent location to observe the development and design practices in action. With that in mind, the thesis aims at answering three main questions: What type of team structures can be found in in-house UX design teams of Finnish IT companies? What are the perceptions of the advantages and disadvantages of different team structures in Finnish IT companies? What impact does the structure of the UX design team have on the perceived UX maturity?

The following chapters explore the literature on User Experience (UX), Design Operations (DesignOps), organizational models of design teams, and UX maturity. The methodology chapter dives into the research methods, describing how the case studies and surveys were conducted and analyzed. Afterwards, the case studies for Company A, Company B, and Company C are described, followed by the results from the survey. The

discussion section then analyses the literature, case studies, and survey to provide insights. By exploring literature and practical applications, this thesis aims to document insights that bridge the gap between theory and practice in UX design, contributing to the improvement of design teams in technology companies.

2 User Experience (UX)

User Experience (UX) has become essential for organizations that want to stand out in the market with a differentiator in their products and services. According to the International Organization for Standardization (2016), user experience is a user's thoughts and behaviours resulting from using a product or service. Norman and Nielsen (1998) mention that user experience involves all interactions and experiences that happen between a user and a company, including its services and products. In the context of IT companies, UX plays an important role in designing and developing digital solutions. It involves understanding the needs of users, designing interfaces, improving usability, and making sure there is a cohesive experience through the product. User Experience Design specifically focuses on designing those interactions to ensure they will meet the user's needs. According to Interaction Design Foundation (2016), designers cannot control users' perceptions or responses. However, designers can control how the product behaves and looks to provide a specific experience. In many IT companies, user experience is developed by a group of UX designers, who can also be called product designers. Part of bringing a good user experience for users is having good practices and processes established by that team of designers. The following section explains further the practice of Design Operations, which oversees the development of operations in the design team to bring the best user experience to products and services.

3 Design operations (DesignOps)

As design teams scale, both in size and complexity, so does the need to operationalize the work to bring the value of design into organizations. According to Malouf (2020), Design Operations is "the pieces of the system necessary to support the practice of design and amplify its quality." Meanwhile, Kaplan (2019) describes it as the "orchestration and optimization of people, processes, and craft to amplify design's value and impact at scale." From both definitions, we understand that DesignOps aims to support design work to increase its value in an organization by developing and improving design processes. A combination of people, business, and workflow operations specifically targeted toward supporting and improving design outcomes (Malouf et al., 2019). Depending on the design team, Design Ops may be handled by a combination of or dedicated design operations specialist, design manager, design producer, design program manager, research operations specialist or in some cases senior designer (Kaplan, 2019). From the

different definitions, Design Ops aims to improve the people, workflow, and impact to ensure further support and development of design in an organization.

In the context of Design Ops, people operations entail hiring and onboarding, role definition and career development, environment and tools, team rituals and meetings, and team composition and organizational structure. Hiring and onboarding involve understanding the future needs of the team for recruitment and establishing interviewing practices that would fit the role. Role definition and career development involve establishing the right expectations for the roles and possibilities for designers to develop their careers in the organization. For example, small teams have generalist designers who work throughout the design process from discovery to delivery. Generalist designers rarely are experts in all areas of the design process, often having strong and weak areas which can create inconsistency in the output of design work. Growing design teams establish specialist titles such as Interaction Designer, UX Researcher, and Motion Designer, allowing each design specialty to work in their area of expertise during a project and ensuring high quality of output from each area (Malouf, D., 2020). Environment and tools involve having the right working environment and tools for designers. The environment and tools will vary depending on the need, this could go from a simple set of working desks to full research labs to conduct usability tests. Team rituals and meetings involve establishing activities engrained in the team processes, specifically targeted to support the work of designers (Malouf, D., 2020). Rituals include design critiques, coffee meetings, daily stand-ups, and 1:1 with team members. Team composition and organizational structure involve understanding the arrangement of designers within a team and locating needs for the future. Organizational structure involves selecting the type of structure that would bring the best outcome considering the composition of the team. Three common structures often used in design organizations include the Centralized UX Team, Decentralized UX Team, and Matrix UX Team (Kaplan & Pernice, 2019). Each structure has its advantages and disadvantages which impact collaboration between the designers and cross-functional teams.

In the context of Design Ops, workflow operations entail standardizing, harmonizing, and prioritizing design tasks. Standardization involves defining and documenting the design process (Kaplan, 2019). With established and documented processes, onboarding a new designer becomes considerably faster for the organization. Having clear information of what is expected for designers, improves their experience by allowing them to focus solely on their design work. Harmonizing design work involves establishing practices and tools that create consistency and cohesion in the design work. Some of the tools, such as Design Systems require continuous collaborations in cross-functional teams. Design System use reusable components and patterns to set standards of work for designers (Fessenden, 2021). Additional tools include Research repositories,

which serve as centralized storage for research data, often accessible to other team members (Pernice, 2020). Both are examples of practices and tools that will ultimately harmonize the work of multiple designers in a team. Prioritizing design work involves estimating and allocating the design work needed in the organization. Some examples include understanding design capacity and allocating that into projects and prioritizing features and projects that would require higher design capacity. These principles aim to achieve optimal workflow for designers. In the context of Design Ops, impact entails measuring and advocating. Measuring starts with designers defining what quality means in their work. By defining quality, designers can be accountable for their work and clarify expectations (Malouf, D., 2020). Additionally, metrics can be selected to understand the effectiveness of the design work. These enables team members to measure the impact of their work while also allowing other stakeholders within the organization to recognize the value of design contributions. Examples of metrics include task success rate, user error rate, and time on task. Advocacy involves creating a consistent message of the value of design, sharing openly design projects, and having metrics available for the whole organization. When all the practices are combined, it creates a design organization that can adapt, and change based on the needs of the organization. The need for DesignOps practices is continuous and ensures that designers can focus on their craft. Areas of improvement will vary from organization to organization, and so will the focus on the practices. Once the current practices stop working for the organization, it is essential to re-consider what practices need focus and how they can be improved. Information Technology companies change constantly and rapidly, which means DesignOps practices need to adapt to constant change.

4 Organizational structures for design teams

An organizational structure, as defined by Cambridge English Dictionary (n.d.) is a model that explains how a company is organized and describes the relationships between managers and employees. As Kaplan and Pernice (2019) mentioned, the organizational model for design teams aims to improve collaboration and relationship practices within the design organization. As Duhigg (2016) mentions, there is no exact approach to building the perfect team. However, knowledge of different methods can be combined to build a good structure for a team. Selecting the proper structure for a team, therefore, requires an understanding of each structure's advantages and disadvantages. In addition, factors that affect the selection of the team structure include the organization's culture, resources, business goals, size of the teams, number of designers within the organization, and type of product. Nielsen Norman Group mention there are three structures commonly used by design organizations: Centralized UX Team, Decentralized UX Team, and Matrix UX Team (Kaplan & Pernice, 2019). Meanwhile, the book *Org Design for Design*

Orgs (2016) describes the structures similarly but with different names, such as the Centralized Internal Services, Decentralized and Embedded, and Centralized Partnership. Understanding the theory allows us to analyze the case study companies by identifying similarities or changes in the theoretical organizational models.

The first model, represented by Figure 1, is the Centralized UX Team, also called Centralized Internal Services. The structure groups designers under a design manager within a team, working independently from other departments. Collaboration with other teams resembles that of a consultancy firm, where project needs determine the designer assigned to the task (Kaplan & Pernice, 2019). Therefore, the Design Manager becomes an important key member of the team, to distribute the work correctly according to the skillset needed. The advantages of the structure include supporting the design community and culture by having designers working in the same team, establishing clear authority and responsibility, encourages consistent user experience, having a variety of projects for designers which improves their professional growth (Merholz & Skinner, 2016). In addition, having a UX manager places design at a more strategic position within the organization, having a wide range of design skills within the team, sharing research and design resources among the UX team which improves skill development, and creating efficient ways of working by having centralized team practices (Kaplan & Pernice, 2019).

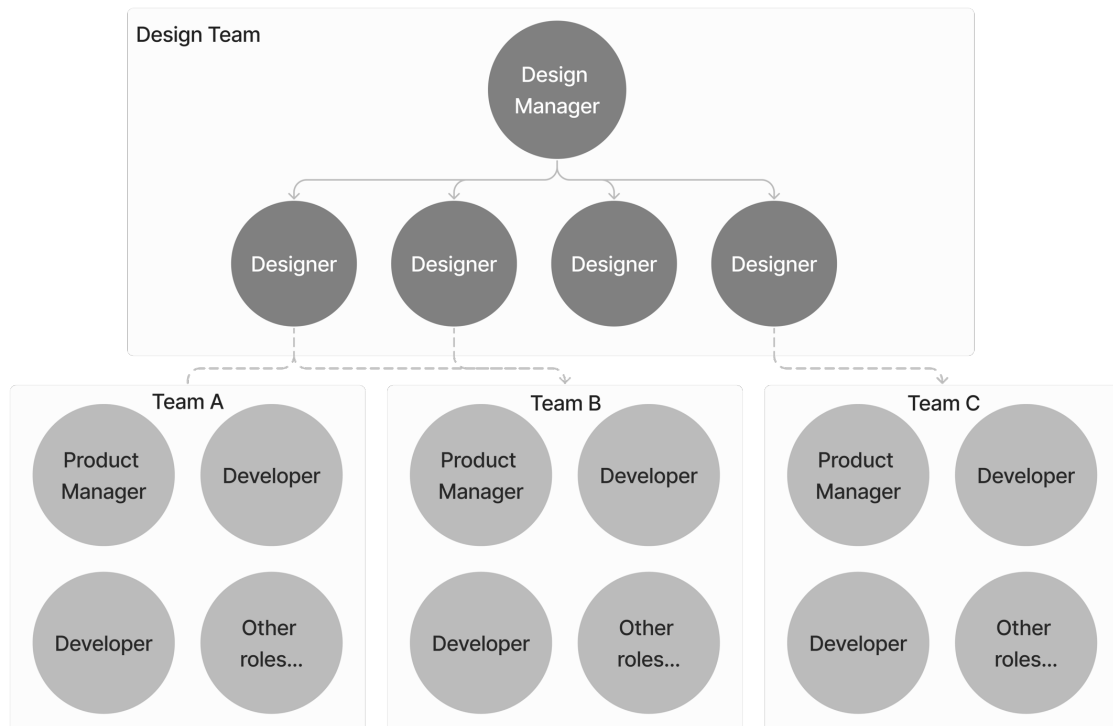


Figure 1. Centralized UX Team redrawn based on Kaplan and Pernice (2019).

The structure's disadvantages include limited collaboration between designers and other teams, possibility that design is forgotten and not requested by other teams, product teams and designers may not fully understand each other due to the low interaction with each other, if there is no proper communication of upcoming projects there is risk that there are not enough design resources, and lack of clarity for other teams about the priority design assigns to tasks (Merholz & Skinner, 2016, Kaplan & Pernice, 2019). Although the structure allows designers to be assigned freely to projects, the drawback is that the collaboration between designers and product team members will be limited based on the product team's knowledge of design practices. For example, a team that requests design work at later stages of a project will lose the value design brings at the beginning of the project. From a different perspective, a designer who joins at a later stage in a project will not have a full understanding of the project. In addition, the designer will not have the influence to make changes to the outcome of the project if all decisions have been made before. These limited interactions will affect the output that design creates, potentially impacting the trust in the design craft and practices. A lack of trust and understanding can cause further issues, like product teams needing reminders to include design expertise and designers having to work harder to advocate for design practices within the organization. These challenges will raise a strong feeling of opposition between teams, further reducing trust. (Merholz & Skinner, 2016)

The second model, represented by Figure 2 is the Decentralized UX Team, also called the Decentralized and Embedded Model, is characterized by having designers working embedded into product teams. Organizations following this structure often work with Agile methods, which encourage autonomous teams. The organization may have a Head of Design; however, the role becomes more strategic and less about people management. (Merholz & Skinner, 2016; Merholz, 2022) The advantages of this structure include faster development, designers engage as full team members, designers having more influence in the outcome of the development, and higher quality of output (Merholz & Skinner, 2016). Meanwhile, Kaplan and Pernice (2019) highlight that design craft gains trust and knowledge from team members and that design is included from the beginning of projects. Having designers embedded into product teams allows them to become familiar with specific areas of the product and, therefore, be able to provide better solutions to the problems being solved. In contrast, the challenges are related to lack of variety of projects as teams are focused on a single problem for a long time, designers being disconnected from other designers, silos between designers can also promote solutions that are not cohesive across the product, often there are little resources for user research, and inefficiencies as design efforts can be duplicated due to lack of communication (Merholz & Skinner, 2016). Furthermore, Kaplan and Pernice (2019) highlight the lack of process improvement, often resulting from the absence of a UX manager responsible for

developing practices. Therefore, designers are left to implement practices independently, relying on their own expertise. In this type of structure, varying skills and expertise levels between designers will generate inconsistencies in the solutions. Merholz (2022) mentioned that if a junior designer is embedded into a development team without support, the quality of the final output will be affected. Moreover, having designers in silos decreases communication and increase the inconsistencies between the design work. Additionally, designers can become isolated in their teams, decreasing satisfaction and motivation (Merholz & Skinner, 2016). When designers only focus on their team's work, it hinders the growth of design practices and limits chances for learning from one another, which could lower the quality of their work.

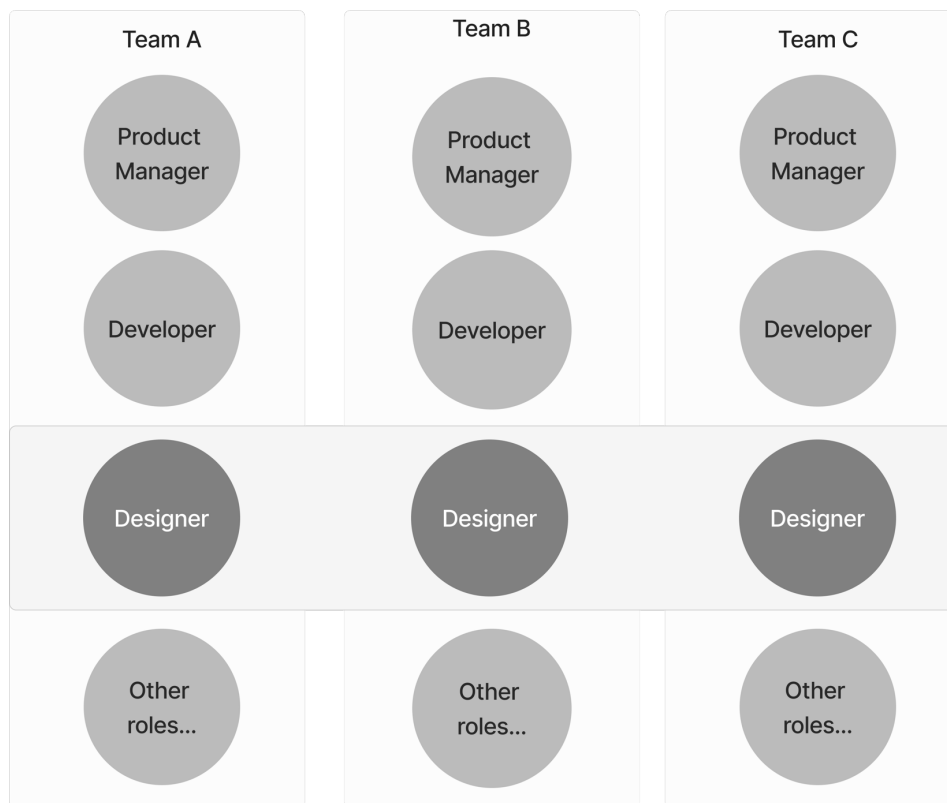


Figure 2. Decentralized UX Team redrawn based on Kaplan and Pernice (2019).

The third model, represented by Figure 3, is the Matrix UX, also known as the Centralized Partnership, which combines a Centralized UX Team and a Decentralized UX Team. The model works by having designers together in a team, under a UX manager, and working embedded into development teams, such as in the Decentralized structure. Designers work with two managers; the Product Manager collaborates on everyday tasks, and the UX Manager supports their professional development. In practice, the structure takes into consideration the skills of designers. Experienced designers will be embedded into teams, while junior designers will float between teams based on their skills, always working with another more experienced designer (Merholz, 2022). The structure also

considers different types of specialties, as they can provide helpful expertise when needed. The goal is to merge the best aspects of both structures into one model. In addition, building a Matrix UX team aims to balance skills between different designers. The advantages of the Matrix UX include having a UX manager and product team lead increases the number of people responsible for advocating for user experience in the product, improved partnership by having designers working in teams for longer period and benefits from having more flexibility with design resources (Kaplan & Pernice, 2019).

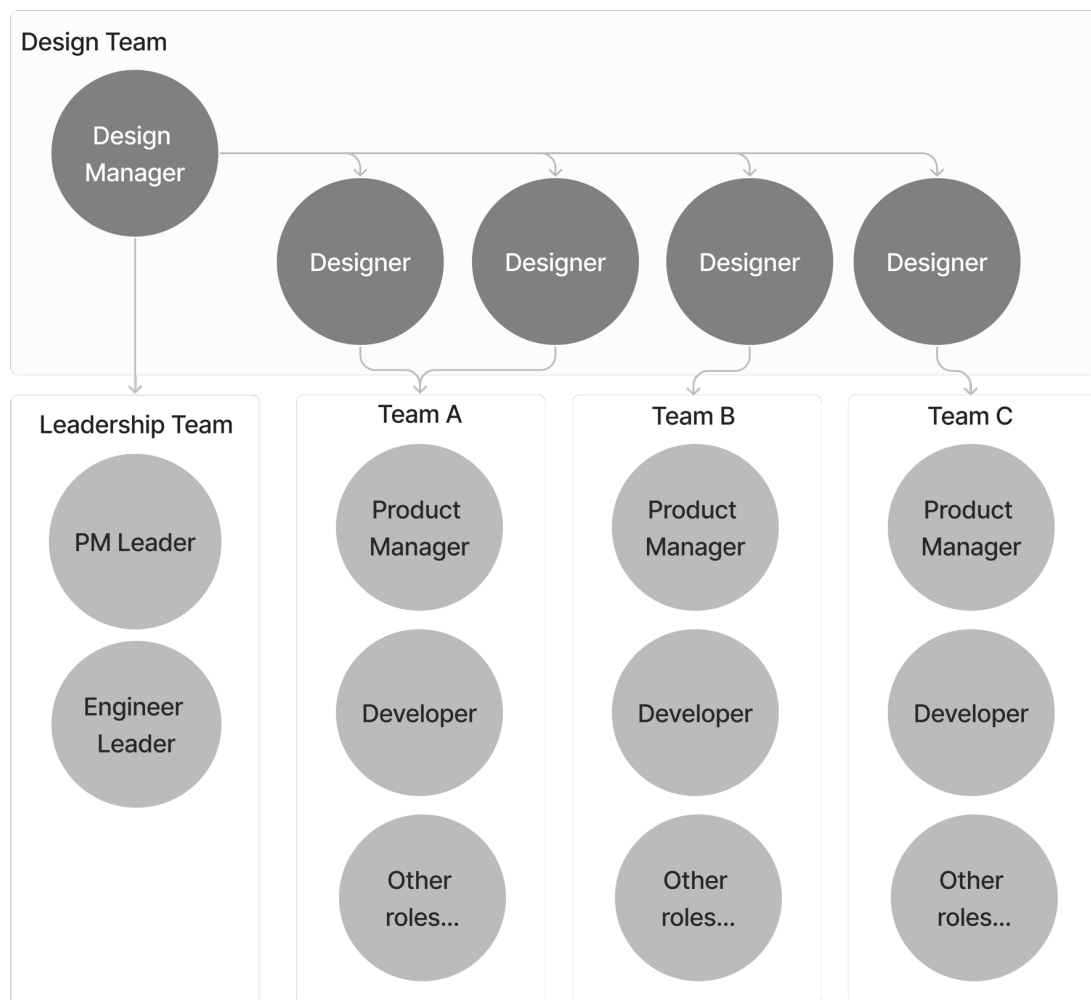


Figure 3. Matrix UX Team redrawn based on Kaplan and Pernice (2019).

This structure was described as best of both worlds by Merholz and Skinner (2016) because as with the Embedded model, assigning designers to teams increases the trust and collaboration with other team members (Kaplan & Pernice, 2019). On the other side, having designers working together under the same team allows them to build a more robust design culture and practices. When a team has balanced skills, designers can lean on their strengths and seek support from design peers on other skills needed to complete

projects (Merholz, 2022). The challenges with the structure depend on the collaboration between UX Managers and Product Managers and the clarity provided to UX Designers regarding reporting lines. In addition, teams using this structure must keep in mind the difficulty of the structure with scalability (Kaplan & Pernice, 2019). Managers need to work together to make sure designers are balanced and performing well across different teams. In addition, clarify to designers their roles and responsibilities to avoid unclarities in their work. Finally, difficulty with scalability of the structure may affect fast growing IT companies. In conclusion, there is no proper organizational structure but rather a set of factors that must be considered before selecting a structure that will work best for a team. A team structure is a tool that supports the team's needs and allows them to accomplish the organization's goals. In this thesis, we will learn how different companies structure their in-house design team, how they work in practice, and what advantages and disadvantages they perceive. These will give us a realistic view of how the organizational models work in practice and if there are any differences with the ones described in this chapter.

5 UX Maturity

According to Interaction Design Foundation (2024), UX Maturity is: “the level of sophistication and effectiveness with which an organization approaches user experience (UX) design in its products, services, and processes”. Meanwhile Pernice et al. (2021) describes it as a framework that helps organizations assess their user experience’s strengths and weaknesses. UX Maturity models works as a roadmap that allow organizations to take steps in the development of their user experience practices. While different models are available, the Nielsen Norman Group's UX Maturity Model is a recognized model that provides a clear framework and free tool for assessing an organization's level of UX maturity. According to Pernice et al. (2021) Nielsen Norman Group’s UX Maturity Model has six stages of maturity: absent, limited, emergent, structured, integrated, and user driven. The first stage, Absent, means that UX practices are non-existent within an organization and there needs to be knowledge of the value that design can bring. The second stage is Limited, which means that UX work is scarce, and there needs to be more effort placed into applying it in the organization. The third stage stands for Emergent, which describes that UX knowledge and practice are available but are inconsistently done. The fourth stage stands for Structured; it means there is some structure and methodology of the UX work; however, the quality of the outcome varies from project to project. The fifth stage, Integrated, establishes that the organization understands and practices design; however, ways to measure the design outcome still need to be fully established. Finally, stage six is the User-driven stage, which means the

design is an essential part of the organization, and the design outcomes are user-centered solutions.

According to Gibbons et al. (2021), there are four factors that organizations need to focus on to improve their UX maturity. The first factor is strategy, which involves managing resources, planning, and leadership. The second factor is culture, which includes elements such as career growth for designers and a strong knowledge of UX within the organization. The third factor is process, which involves establishing systematic processes within the organization to achieve the best outcomes for design. The final factor is outcomes, which involves establishing goals and measuring the results of design work. By focusing on these four factors, organizations can improve their UX maturity level and achieve better results in their design work. In this thesis, the author will use the Nielsen Norman Group's UX Maturity Model as a framework to understand the perceived UX Maturity level of the companies participating in the case studies. The four factors identified for improving UX maturity - Strategy, Culture, Process, and Outcomes - are closely linked to Design operations, which aims to improve design practices and knowledge within an organization. By understanding the perceived UX Maturity, we will have further information into the relationship between the team's processes and design practices.

6 Methodology

This section describes the methodologies selected for the research, the reason for selecting those research methods, and how these contribute to answering the research questions. A mixed methods approach was used, combining quantitative and qualitative, was selected for this research with the goal of providing answers to the research questions. Initially, I selected a case study method that would explore three companies and their team structures. A series of in-depth interviews with a team member of the company were conducted. Although the methodology did provide in-depth information on the organizations, it lacked a variety of points of view to answer the research questions, especially on the perceived advantages and disadvantages of the structures. Therefore, the author supported the case studies with a survey with the same target group which would provide a broader perspective to the research. The survey contained quantitative and qualitative questions which allowed the author to gather a variety of answers and support the data obtained from the case study interviews. With this approach, the author aimed to provide an extensive overview and in-depth understanding of the different team structures used by the organizations. The methods provided answers to the research questions by gathering broad data on different companies, their team structures, and perceived advantages and disadvantages while also obtaining in-depth insights into how certain structures work in practice. The following sections will introduce the research

methods, the recruitment of participants, the analysis of the data, and the limitations of the research.

6.1 Case Studies of Finnish IT Companies

The first approach for the thesis to answer the research questions is through three case studies. A case study is a detail description of a real case scenario with the goal of obtaining insights from that scenario (Raikar, 2024). According to Yin (2009), a case study is often used to understand a real-life situation in depth, but to understand that situation it is important to understand as well the decisions that led to that situation. The following sections dive deeper in the participant recruitment, study process, data analysis and limitations.

6.1.1 Participants

The participant selection was done based on three factors, interest on the research, role within the team, and type of design team. All participants were working for technology companies located in Finland which had in-house UX design teams. The participants had a senior type of roles (see Table 1), such as Design Manager or Senior Designer which gave them the understanding of how the structure of the design team worked and were able to articulate the advantages and disadvantages of the structures. Due to my resources and limitations the total number of case studies was limited to three companies. In total, three companies were recruited for the research which accounted for four participants, the reason being that the author would interview an extra participant from a company as a pilot interview. Participants with these characteristics make the research more trustworthy because they are closely involved in the strategic aspects of design practices. This means the information they provide is valuable and relevant to the research goals.

Participant	Company	Role	Year working at the company
P1	Company A	Senior UX Designer	5 years
P2	Company A	UX Design Manager	1 year 1 month
P3	Company B	Senior UX Designer	4 years
P4	Company C	Product Design Lead	1 year and 7 months

Table 1. Table of participants for the case study.

The participants were recruited through the author's close networks and social media channels such as LinkedIn. All participants were introduced to the thesis topic through text description and a short video call. Participants were informed that the outcome of the thesis were case studies, drafted anonymously and that data that would identify them would be eliminated once the research was over. Once there was an agreement, the participants filled a consent form to participate in the interview. The consent form (see

Appendix 1) asked the participants' confirmation to participate in the interview, permission to record the interview, and confirmation that they had received information of the research and participated voluntarily in the interview. All participants agreed to participate in the interview, and that their video and audio would be recorded during the interview. All participants marked that they had received enough information of the research and three participants marked that they were participating voluntarily. The following section describes the data collection and analysis methods used by the author.

6.1.2 Study Process

The methods selected to build the case studies were semi-structured qualitative interview. The semi-structured interviews would provide reliability to the research by having a set of questions that are asked to all interviewees and, at the same time, provide the researcher with the freedom to get in-depth information about the UX teams. The semi-structured interviews took place during February 2023, and focused on obtaining information from the perspective of an interviewee on the current team structure and UX Maturity of their design team. To support the answers from the interview, a voluntary self-assessment survey was provided to the design team members. The self-assessment survey results would provide the team member's perception of the UX maturity of the team which would allow us to compare it to the interviewee's perception. The selected self-assessment survey is created by Nielsen Norman Group and uses their UX Maturity Model to measure the maturity stage of the organization (UX Maturity Quiz, n.d.). The self-assessment survey is free of charge and available on the internet. The results from the self-assessment survey were gathered using an online form to provide flexibility for the team members to input their result when it best suits them (see Appendix 4). The form to collect the results was created using Forms from Office365. The form introduced the self-assessment survey, provided the link to the website of the self-assessment survey and asked two questions: (1) What organization do you work for?, (2) What was your UX Maturity result?. The first question was used to identify from which company was the result from, and the second question gathered the result.

The data collection took place in three stages, (1) the pilot interview, (2) the interview with three participants, and (3) gathering the self-assessment results. Before all interviews the author requested the participants to fill the consent form (see Appendix 1) and self-assessment survey. The interviews took place remotely with a duration of one hour. To aid the interviewees, the author provided a whiteboard digital tool, Figjam, for them to illustrate their responses. The pilot interview took place with one of the participant companies, the interviewee had a Senior type of role within the organization. The pilot allowed the author to understand if the method of the interview was clear, and if the questions were understood. Based on the pilot, the author removed a question related to the reporting relationship of the UX team to other teams. Instead, the focus would be on

the collaboration of the UX team with other teams in the same organization. Therefore, the only change to the questionnaire was removing an unclear question.

The interview questionnaires (see Appendix 2) were divided into main and sub-topics, the first main topic was Participant. The second topic Design team, with sub-topics, composition, structure, collaboration, advantages, and disadvantages. The third main topic was UX Maturity. The first topic, Participant aimed at understanding the role of the interviewee and the years working for the company. These questions served a dual purpose, first as ice breaker for the initial interview and second to validate the background of the interviewee. The second topic Design team aimed at understanding the formation of the UX design team within the company. The questions in Composition asked the number of designers and the type of roles that could be found on the team. For Structure sub-topic the goal was to understand what type of structure the team was using, why was the structure selected, the period they had worked in this structure and if they had considered changing the structure. For Collaboration sub-topic the main goal was to understand the cross-functional relationships between the design team and other teams. The advantages and disadvantages sub-topic aimed at obtaining the perceived experiences either positive or negative of the structure from the interviewee. Finally, the UX Maturity topic aimed at asking their result from the self-assessment and their perception of the result. The goal was to obtain a holistic perspective of the teams and their way of working.

6.1.3 Data Analysis

This section explores in detail how the data analysis was conducted to describe the case studies. As mentioned before, four interviews were conducted with team members of the companies, and self-assessment survey results were gathered. After the interviews took place, transcription process began by obtaining the transcript from the recording tool Loom. To ensure that the transcript was accurate and correct, the author rewatched the interviews while following the transcript, this also allowed the familiarization of the interviews. The next step was to code the data using Figma, the author used a combination of deductive and inductive coding to reflect the key concepts and themes gathered from the interview. An example of the coding using Figma is shown in Image 1. As Bingham (2023) mentions, deductive coding starts with predefined set of codes derived from existing theory or interview questions. In contrast, inductive coding involves starting without any preconceived codes and forming them based on the data itself.

Image 1. Shows an example of the coding of the interview for Company B.

First, I used the themes of the interview questions as deductive coding, however because the interviews were semi-structured interviews it led to the possibility of obtaining inductive coding. Deductive coding included team composition, structure, collaboration, advantages, disadvantages and UX Maturity. Through, inductive coding collaboration became design culture in the team and design culture in the organization. Once coding was finished, a thematic analysis followed which would support identification of overarching themes in the data. This would allow to find patterns, connections, and relationships between different codes. For the self-assessment survey results the data was exported from Forms in an Excel file. Results from the same company were counted and reported directly to the section “UX Maturity” of each case study. The results aim at providing a glimpse of the teams’ perception in the current level of UX Maturity for the design team. Finally, the findings were synthesized into a narrative that would give a glimpse of each organization while also allowing for the comparison between them.

6.1.4 Limitations

The limitations of collecting data through semi-structured interviews are that the author depends on the participant’s recollection, knowledge, and perspective. In addition, the case studies depend on the interviewee’s perspective, which can differ from other team members. For the self-assessment, since the questionnaire is voluntary, not all team members would answer the questionnaire. Finally, to measure the UX Maturity in an organization, the optimal is that the whole organization does the self-assessment, not just the design team.

6.2 Survey Study

To understand what other UX team structures can be found in IT companies in Finland, I conducted an online survey during the month of November 2023. The goal was to gather more answers about different teams’ structures found in the organizations and their

perceptions of the advantages and disadvantages of the current structure. The survey also asked participants about the previous structure used in the organization and the perceived advantages and disadvantages of the previous structure. The survey was selected due to several reasons, first it would allow for a bigger reach and sample of participants. Second, based on feedback from the initial case studies, I realized that including insights from more organizations and their structures could answer better the research questions. Third, a survey could also expand on the case studies and provide more insights into the team structures. Fourth, a survey is more convenient, which allows the participants to answer when they have time. In conclusion, resource wise the survey is a great option to provide further answers to the research questions and gain more insights about different team structures.

6.2.1 Survey design

The survey was designed to have three sections (see Appendix 3), first a section about the respondent, the second section on the current team structure and the third section on the previous team structure. This section will describe the goal of the survey and the purpose of how it was designed.

Section 1 with title “About you” gathered the participant’s company, role, number of design related employees at the organization and number of teams where the designers worked. Since the survey would take only unique companies, the first two questions aimed at avoiding duplicate responses from the same organization. The questions related to the employees and teams were gathered to get a brief understanding of the size of the design organization within the company. Often teams with bigger number of teammates tend to have more complex structures.

Section 2 with title “About the current team structure” aimed at understanding the current team structure used in the participant’s team. To achieve this, the author introduced the three structures presented in the article by Nielsen Norman Group, UX Team Models. This includes Centralized team, Decentralized team, and Matrix UX team. Each of the team structures also included an illustration of the structure to make it easier for the participant to relate to the structures. This section then asked the participant what they would consider to be the closest structure currently being used in their team with a radio button question type. Aside from the options above, the author included the option other, in case the participant felt that none of the structures fitted their current way of working, the author also asked the participant to describe the structure in an open-ended question. The section would then gather the advantages and disadvantages of the selected structure in an open-ended question. The last question asked the participants if their team had used a different structure in the past. The goal was getting further data if there had been other structures used in the past and the reasons for changing that structure. Section 3 with title “About the previous team structure” asked the participant about the previous

structure used with a radio-button question. In addition, the advantages, disadvantages and why did they structure changed to a different one in an open-ended question.

6.2.2 Participants

The participant recruitment process began with the targeting of participants who could provide insights into the survey. There were three main factors that I considered would ensure the responses were reliable and relevant to the research. The first factor was having a role in the design domain such as, but not limited to, UX Design, Product Design, Design Leads, Design Managers, and Design OPS. The second factor did not establish specific roles, but rather mentioned that participant's work included tasks that involve or impact the design of a digital product. Both factors aimed to gather insights from professionals who are actively involved or oversee design-related tasks. Finally, the third factor was related to their place of work; the company they worked for should have operations in Finland. This would bring examples specific to the Finnish market which would provide relevant information to this study. The next step was to start sharing the survey on local social media channels such as:

- UXHel slack, a community of designers located in Helsinki and Finland.
- DesignOPS Assembly slack a worldwide community of designers interested in Design Operations with a channel specific to Finland.
- IxDA Tampere Facebook group, a community of Interaction designers located in Tampere, Finland.

The goal was to reach the local design community in Finland which would ensure the author would gather more responses from Finland. The period was of three weeks from the initial outreach in the social media channels to the closure of the survey. In addition, the author conducted a raffle for a gift card to drive more responses to the survey. During that period in total the survey received twelve responses. From the twelve responses, eight had valid information use in the research, Table 2 describes the participants of the survey.

Participant	Role
P5	Senior Product Designer
P6	Lead Product Designer
P7	Design Lead
P8	Senior Designer
P9	UX Lead
P10	UX Writer
P11	Product Lead
P12	Senior UX Researcher

Table 2. Table of participants for the survey.

The following section describes the process of analyzing the survey data, from preparing the data to finding insights from the participant's responses. The survey contained a combination of quantitative and qualitative questions. The author considered a combination of descriptive statistics and thematic analysis would bring the most insights from the data. To start the process of analyzing the data the author cleaned the responses from duplicate companies and irrelevant or partial responses. In total the survey received twelve responses out of which eight were suitable to be analyzed. Four respondents were excluded from the analysis due to irrelevant answers to the questions, working in companies outside of Finland and having participants from the same company. After cleaning the data, the author used Figma to continue with the thematic analysis and find patterns in the quantitative answers of the survey.

6.2.4 Limitations

The limitations of the survey included the small sample size of participants and potential misunderstanding of the different team structures. About the small sample size, in total eight participants had valid responses which could be use as the analyzed dataset. However, the survey was able to provide a broader perspective of the different team structures. The sample size of each team structure remains small to make any final conclusions. For future studies the research could focus on obtaining a wider sample of respondents or focusing on a specific team structure which would provide deeper insights. The second limitation would be the misunderstanding of the team structures and relation to the participants actual team structures. The survey presented and explained three different teams' structures to the participants, then asked the participants to select the structure that would be closest to their current team structure. The team structure descriptions could be misunderstood depending on the participant which would lead them to select a structure that did not correctly represented their current team structure. This would affect the validity of the results and provide different perceptions of each structure.

7 Case Studies

The following section documents the case studies of three Finnish IT companies. The case studies where documented based on four semi-structured interviews with employees of three companies. The aim of these case studies is to provide a practical perspective to the application of the team structures. This approach allows for an in-depth exploration of their current structure and the decisions that have led to that structure. It is important to note that the case studies presented are made based on interviews, providing a snapshot of the team's structure from the perspective of the interviewee and during a specific point

in time. Due to the dynamic nature the IT industry it is important to acknowledge that the structures may have evolved or changed since the time of the interviews. The following case studies will dive deep into each company's current design team structure, composition, previous structure, collaboration, culture, advantages, disadvantages and UX Maturity stage.

7.1 Company A

The first case study, based on the perspective of two interview participants, focuses on Company A, a technology company based in Finland with an employee count ranging between 201 to 500 employees. The company has an in-house design team with a composition of a Design Manager and seven UX Designers. At the top of this hierarchy is a Head of Design and Implementation. Each UX Designer is responsible for the whole design journey, from research to delivery. Company A houses not only UX Designers but also separate teams for Product Design and Service Design. Product Designers oversee validating projects while the Service Designer works on Customer Experience projects. It is perceived that the structure at Company A closely aligns with a Matrix UX team structure. Designers operate within a centralized hub, assigned into projects which allows them to work with different implementation teams.

7.1.1 Team Structure

Before having a Matrix UX structure, the team was organized using a Decentralized team structure. Designers were allocated to specific product areas without a centralized design team. As there were limited resources to improve design practices and culture, this structure was seen as disadvantageous to the team. To be able to improve the team practices, the team moved to a Matrix UX structure, which centralized designers into a hub while still assigning them to product areas. In this structure, other design roles such as Product Designers and Service Designer were part of the centralized team. To bring more efficiency into the product development process, as mentioned by an interviewee, the design team changed once again. In this version of UX Matrix (see Figure 4), designers are no longer assigned to specific product areas; instead, their tasks come as projects. This flexibility allows them to work in different areas of the product more efficiently. In addition, designers from other domains, including Product and Service Design, were separated from the centralized team into their own teams. At the time of the interview the team had been using the structure over a year and had not considered changing the structure.

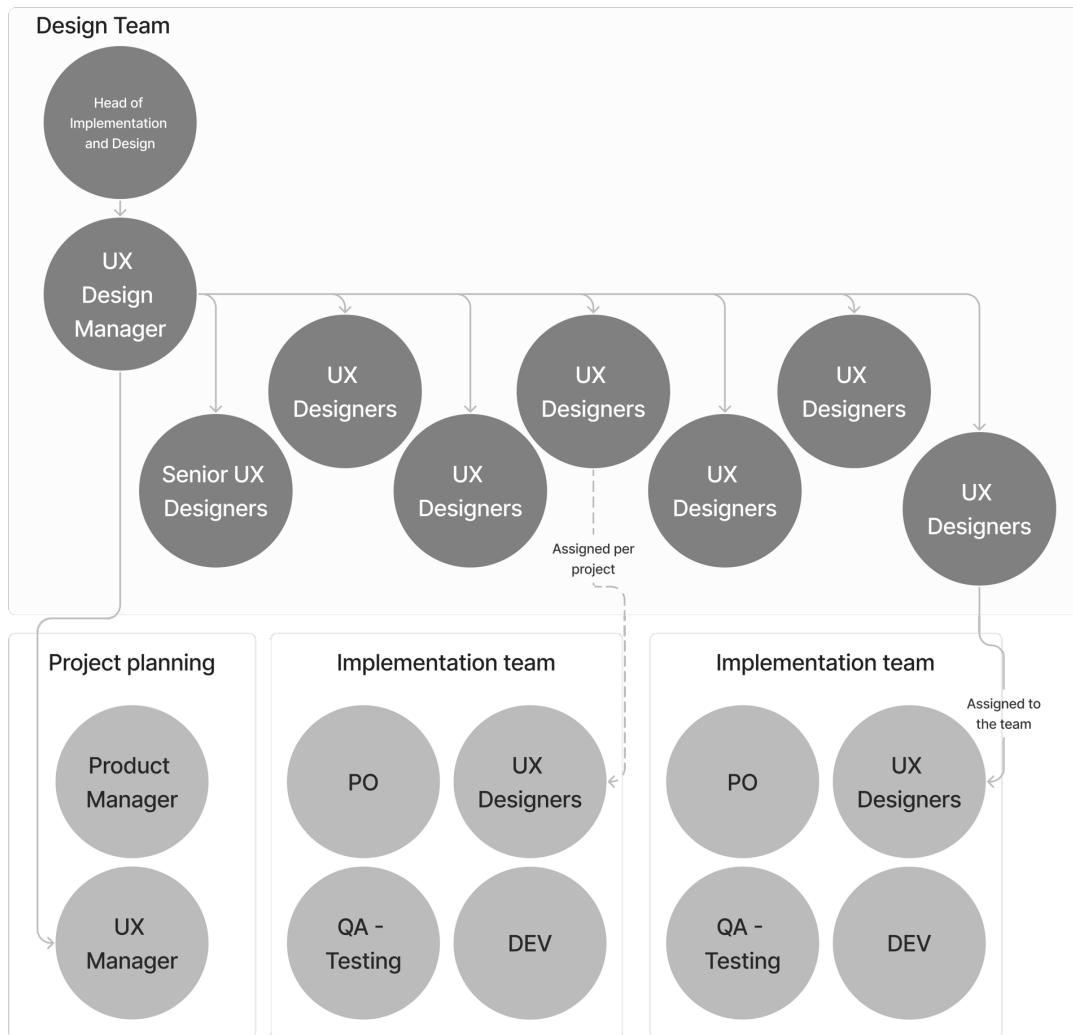


Figure 4. Illustration of Company A's team structure obtained from the interview.

Throughout the product development process designers work with different stakeholders for examples Product Owners (PO) and developers. An ideal process, from the perspective of the UX Design Manager (P2) involves communication of the project to the UX manager, defining the scope, defining the need for design resources, and assigning the project to a designer. During this planning stage, project validation would happen if it were needed. This is followed communicating with the delivery manager to define the need for development resources. The designer would then integrate into the development team establishing project constraints and design scope. As the design team works in a centralized hub, iterative loops of feedback can be arranged to define patterns and create components for the Design System. After completing the solution, the designer is responsible for answering any question that may come from the design.

The UX manager oversees establishing the initial scope of future projects, and resourcing needs. The projects are presented to designers, who can select them based on their skill, time, and interest. Ideally, designers remain in the project from start to finish, serving as the main point of contact during implementation. While usually designers work

on multiple projects, they can request to focus on one product area if that is their preference. This gives them control over their work and allows them to develop their knowledge in a single product area. As mentioned by the UX Design Manager (P2), resource management on the projects and designers is essential for the work to run smoothly.

7.1.2 Design Culture

Characteristics of the design culture in Company A include collaboration, support, development, and autonomy. Team practices like meetings have an important role in developing the culture. Meetings range from sessions for general feedback on design work to daily meetings discussing current tasks. Less frequent meetings include developmental meetings where designers can explore projects or learn new areas of design. In addition, sessions with the UX Manager provide career guidance and individual support. As the interviewee (P2, UX Design Manager) mentioned, "I think (designers) do appreciate that we have more collaboration. That somebody is always there to answer the questions or to help and they can rely on each other." It was mentioned that recruitment practices are also a good way to maintain this culture. Designers are hired based on their skills, qualities, and compatibility with the team. Although the meetings are in place for designers to obtain feedback, the work that happens in the project is still very independent. Therefore, designers need to introduce their project repeatedly when seeking feedback. This can take effort and resources which discourage designers from gathering feedback. Due to this challenge, the implementation of Pair Design, where two designers collaborate closely within the same project, has been suggested to reduce silos between designers. As mentioned by the Senior UX Designer (P1): "We have been doing it for a couple of projects with good results, but usually we're spread quite thin, and you might be alone in a project". By having two designers working on the same project, collaboration and feedback become easier and more insightful from a person involved in the project. In addition, if a designer is sick or leaves the organization, another designer will be familiar with the work done within that project.

Design culture in the organization is more challenging to develop than within the team. In addition, changes in the structure have affected the awareness and clarity of design's role in the organization. The interviews mentioned there was room for improvement in developing the design culture in the organization. Especially making others aware of the value of the design to the organization. As the UX Design Manager (P2) mentioned, "That's something that I hope we improve this year, to bring more visibility to the kind of work that we do and the outcomes that it provides not only for the users but also within the organization." Other areas of the organization need to be made aware of what UX Design does and what processes they have. In the interviewees, it was mentioned by the Senior UX Designer (P1) that evangelizing design within the

organization could have a potential impact on expanding the design culture. For example, previously, they used to present their design work and results to the whole organization so that practice could be brought back again. In addition, expanding the design culture to other areas of the organization involves the support of higher positions, which are part of different conversations from the single contributor designers.

7.1.3 Advantages and disadvantages

Advantages of working in a Matrix UX structure include: 1) enhanced visibility of the product and design patterns, 2) possibility to engage in various projects and 3) observe the work of fellow designers. This exposure creates a deeper understanding of the product, which brings cohesion across different solutions. Additionally, the Centralized structure simplifies the process of obtaining feedback from designers, streamlining communication and iteration cycles. Improved collaboration is another advantage, enabled by practices such as meetings that facilitate the sharing of work among team members. This regular interaction between designers ensures a collective understanding of ongoing projects, eliminating the need for extensive explanations during collaboration. As one interviewee (P1, Senior UX Designer) noted: “Before if I was in a certain project that lasted a year, every time I needed help from other designers, I would have to lecture for 45 minutes first. Explain what it is that I'm developing for them to understand the use case properly. But now, since we're talking about (our projects) every week, we have an idea of what the use case is, and we can relate to that issue better and come up with solution ideas if that is needed”. In the event of a designer's absence, others are familiar with the ongoing work, ensuring continuity and minimizing disruptions. Finally, the Matrix UX structure promotes growth and development within the team. The composition of the team allows for peer learning, allowing designers to benefit from each other's expertise, backgrounds, and experiences. Also, the distribution of projects within a centralized team offers exposure to different product areas, improving designers' skills and communication abilities with different stakeholders.

Disadvantages come from miscommunication about recent structural changes which decreased the knowledge of the role of design within the organization. The structure change has led to confusion on how design operates, which require more active communication to clarify design processes within the new model. Interviews highlighted a lack of communication during the transition, resulting in misunderstandings about how designers would collaborate with other stakeholders. To avoid such issues, ongoing efforts to communicate updates and changes in processes are important. There are also challenges related to project management. Some designers prefer longer-term assignments to specific areas, rather than switch between projects, as that allows them to become experts within a single domain. It was mentioned that the current team is quite flexible and can accommodate designers' preferences. In addition, switching projects may

cause confusion for product owners regarding which designer is responsible for a particular design, which can affect their ability to ask questions about designs. Finally, assigning designers to projects can still create silos if designers do not communicate on their projects. Even though the current structure has increased collaboration between designers, and reduce silos, it depends on strong communication skills from designers to share about their own projects.

7.1.4 UX Maturity

Following the interviews, team members were requested to participate in a UX Maturity assessment for their team and provide their results. There were a variety of results, for example one team member obtained Stage 2 – Limited, three team members obtained Stage 3 – Emergent, three team members obtained Stage 4 – Structured, and one team member scored at Stage 5 – Integrated. When asked in the interview about their result, the interviewee mentioned that they agreed with their own result of Stage 3 – Emergent. Considering the factors of UX Maturity, the interviewee identified culture as a strength, along with awareness, appreciation, support, competency, and adaptability. However, a weakness was noted in outcomes, particularly in lacking metrics to measure the impact of design. The interviewee (P2, UX Design Manager) highlighted the absence of Key Performance Indicators (KPIs) for the design team: “We don't have KPIs for our design team yet. So that is something to be added. If we can show results, that would help the organization be more aware of what we do and how much effort we put in, and how it ends up affecting the revenue”. In addition, there was a mention of the importance of advocating for design within the organization to establish clear expectations regarding how design can be best used.

7.2 Company B

Company B is a technology company operating in Finland with a range of 501 to 1000 employees. This case study is based on the interview with one of the Senior UX Designers of the company. The company has a design community of practice composed of a design lead and designers at different levels, from interns to senior designers. Compared to other companies, this team is part of a larger entity of designers, as Company B has a centralized design function in the organization that oversees the design system and offers consultation to designers in the team. Therefore, the team interviews work as a unit part of the bigger centralized function. It is perceived that the structure at Company B closely aligns with a Matrix UX structure. The interviewee (P3, Senior UX Designer) noted: “So usually, a designer has an area they are responsible for and then they're collaborating with the development teams that are working on that same area for a longer period.” In addition, designers are part of a design team, referred to as community of practice, where they share

feedback, discuss about design patterns and components, and collaboratively make decisions to improve design quality and innovation across the organization.

7.2.1 Team Structure

From the interview I gathered that prior to the adoption of the Matrix UX structure, Company B worked under a Centralized Team structure. “Before we didn't have that defined, who is responsible of what area. We have defined that more, not strictly, but it's clearer the responsibility of who is deep in each of the product areas.” the interviewee (P3, Senior UX Designer) explained. After Centralized Team structure they moved to the Matrix UX structure by assigning responsible designers into each product area, Figure 5 shows a representation of the structure. The team has openly discussed about changing the structure but there has not been any need to do so. The designer (P3) noted: “We have been quite happy with this sort of structure. But we have discussed it just to keep the options open that if it would be needed so it's not set in stone and if the situation would need it, I think we would change.”

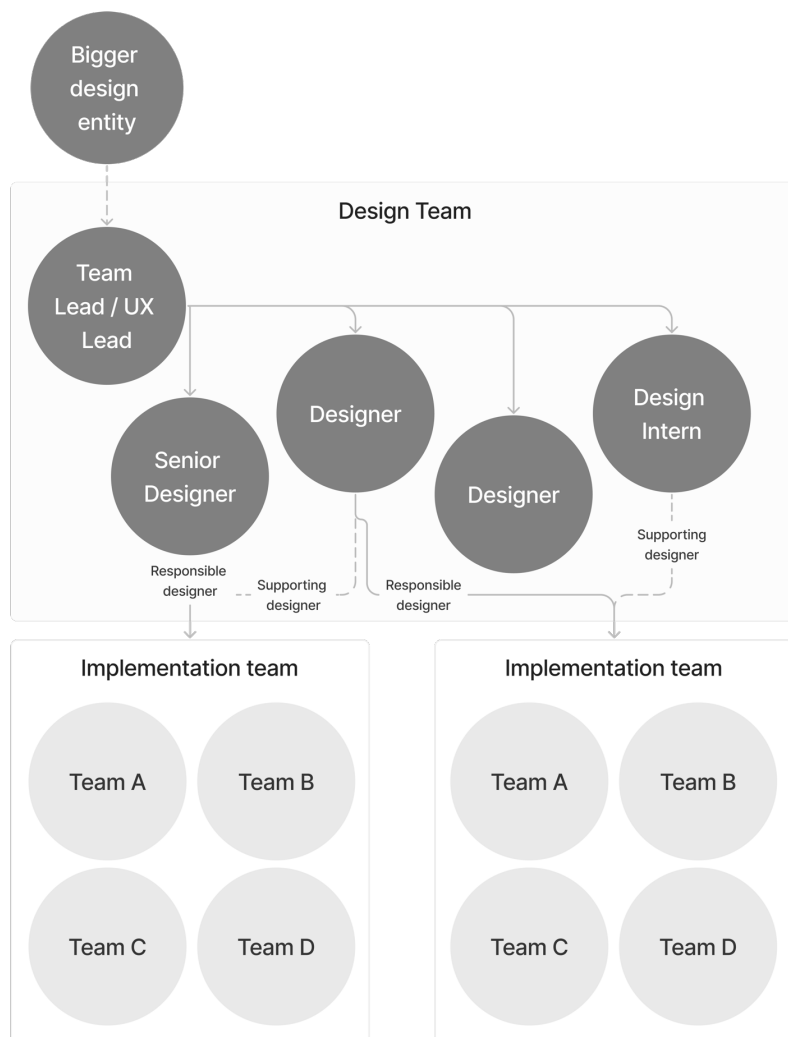


Figure 5. Illustration of Company B's team structure obtained from the interview.

An established practice is pair design, which happens inside the product areas; having a responsible and supporting designer ensures that both designers are familiar with the context of the area, making giving and obtaining feedback easier for designers. This practice also avoids silos within product areas. As mentioned by the Senior UX Designer (P3), "The main designer is responsible that the designs get done, but the supporting designer is the one who tries to be deeper into the context of the area and then offers help and is the kind of first go-to person to discuss for the main designer." In addition, designers can obtain further feedback and support from the design community of practice. The interviewee mentioned (P3, Senior UX Designer), "I think it's still good that we have UX team where you have the colleagues who know what kind of work you are doing and so forth and can answer from the design perspective". Some responsibilities for designers include being a responsible designer, supporting other product areas, and contributing to the improvement of design practices, such as developing design guidelines and conducting research. As a result, their work contributes to product development and improves team practices and processes.

7.2.2 Design Culture

The design culture within the team emphasizes collaboration, support, development and autonomy. Various practices, such as ongoing work meetings and feedback session, facilitate collaboration among designers. These practices allow for discussions on topics like reviewing UX work, making decisions on design patterns, and staying updated on design trends. In this organization, designers have a high level of autonomy to make decisions within their teams. Their design system serves as a guideline that allows them to be more efficient in their work. In addition, designers are empowered to make changes and improvements that suit the solutions they are building. "We don't have that sort of like official report to UX Manager or so forth, but we are all discussing what we are working with the Lead Designer, but nobody's forcing anyone to collaborate" mentioned the Senior UX Designer (P3). Collaboration and feedback among designers are strongly encouraged, with practices like pair design being established within product areas. This ensures that both responsible and supporting designers understand the context of the product area, which makes feedback exchange easier and avoids silos within product areas. On pair design the interviewee (P3, Senior UX Designer) noted: "The main designer is responsible that the designs get done, but the supporting designer is the one who tries to be deeper into the context of the area and then offers help and is the kind of first go to person to discuss for the main designer." Furthermore, designers can seek additional feedback and support from the design community of practice. This community provides a platform for colleagues to discuss their work and offer insights from a design perspective.

The current structure supports the improvement of the design culture within the organization, particularly with designers assigned to product areas. Over time, these designers can build reputation and demonstrate the value that design brings. Collaborating and gaining trust from other teams, showcasing the design process and results, and actively involving design in decision-making processes are ways for advocating for design within the organization. The interviewee believes that design must be integrated into the development process to make strategic decisions that impact the outcome of solutions.

7.2.3 Advantages and disadvantages

The primary advantage is that the structure allows the design team to maintain consistency across solutions, even when designers are assigned to different product areas. This is achieved, through common practices and collaborating in the work. In contrast when the team was organized in a decentralized team, obtaining feedback from other team members was slower. As the interviewee (P3, Senior UX Designer) noted: “I think there is a value of having design community that's meeting frequently and they know each other.” Therefore, having a central group of designers offer feedback and support from a design perspective is important because designers are more familiar with each other's work, and it prevents them from only offering superficial design suggestions. Moreover, in comparison to a Centralized structure, a Matrix UX structure enables designers to take a more active role in development teams as they get to work for longer periods of time gaining expertise and reputation. Which improves the design culture within the organization.

About disadvantages, with this structure there is potential loss of knowledge when a responsible designer departs from a product area. Even if the supporting designer is familiar with the projects, the departure of a responsible designer can still represent a big change. Additionally, the success of knowledge transfer depends on the ability to which designers share information about their own product areas. Designers can decide how much information they share, and they can also decide to be isolated. However, this struggle with communication happens regardless of the structure in place. It just means that there are communication improvements that need to take place within the organization.

7.2.4 UX Maturity

Following the interviews, team members were requested to participate in a UX Maturity assessment for their team and share the results. Four team members obtained Stage 4 – Structured and one team member obtained Stage 5 – Integrated. When asked in the interview about the result, the interviewee mentioned that they expected the result to be Stage 4 – Structure since they had previously done the test and obtained the same answer.

Considering the factors of UX Maturity, the interviewee identified strengths in strategy and culture, but that it was difficult to compare between the factors. “We have a good size UX team, and we can do things. We have vision and planning and so forth. On the culture what I'm happy is that our management really believes in what we are doing” mentioned the interviewee (P3, Senior UX Designer). It was also noted that three factors significantly influenced their current work approach: 1) autonomy within the design team to shape their work methods, 2) sufficient resources to support their operations, and 3) endorsement from high-level executives who recognize the importance of UX within the organization.

7.3 Company C

The third case study which focuses on Company C, is based on the perspectives of the Product Design Lead (P4) in the organization. This is a technology company with operations in Finland has a staff range between 501 and 1000 employees. Company C has a centralized design team divided into two teams. Each design team contains eight Product Designers alongside a Design Lead, with levels of expertise ranging from mid to senior designers. The Product Designer in Company C has ownership of the entire design process from research to delivery. In addition to these roles, a Design Operations Manager, Visual Designer, and UX Researcher have been recently recruited. At the time of the interview, the company was undergoing a transition, assigning responsibilities from the Product Designers to more specialized roles like UX Researcher and Visual Designer. Finally, above the Design Leads there is a Design Director.

It is perceived that the structure at Company C closely aligns with a Matrix UX structure. As mentioned by the interviewee (P4, Product Design Lead), “We have a decentralized team that is in the product teams. (Designers) can work for years on the same project or then we can do rotations, but by default they are dedicated to the product team that they work with. But then we also have a centralized design function where we work as a whole design team to create a holistic experience. Then we ensure that holistic experience is in the smaller teams (2 teams) for example, in one team, we have our own goals, and in another team, they have their own goals”. In practice, Company C has divided the design team into two teams because of how the product is divided. Designers are assigned to one product areas where they work for longer periods of time. However, they still have a centralized hub which allows them to create holistic design experiences across the whole product.

7.3.1 Team Structure

The case of Company C is mostly driven by their need to scale. Roughly 2-2.5 years ago, the design team consisted of only five members who had to cover a wide range of the product areas and collaborate with smaller teams. As the company expanded, more

designers were brought in, but the team structure remained the same under a Matrix UX structure. With this growth, came an increase in hierarchy, including the addition of the Design Director. Even if the team has kept the same structure, the structure is evolving, in Figure 6 a representation of the structure can be found. The team is transitioning from having T-shaped generalist designers to specialists. Instead of expecting Product Designers to handle the entire design process with equal skill, the team is now integrating specialized roles like Visual Designers and UX Researchers to provide focused support in specific areas. Additionally, there's a shift in focus from individual product features to broader "journeys" which would touch multiple product areas. The interviewee mentioned that as the team grows, ensuring consistency and coherence in the user experience becomes more challenging when having designers assigned into product areas. The challenge arises when the team tries to create solutions that go across various product areas because it's unclear which designer should take ownership of the solution. This is because designers are currently assigned to specific product areas instead of being organized based on the journey approach. Another aspect is on regards to the expertise of designers and the expectations for the work they can accomplish. It is noted that expecting designers to have all skills at the same level throughout the design process is unrealistic. By including specialized designers, the goal is to improve ownership and quality of design in their specific areas. This enhances the overall user experience of the product.

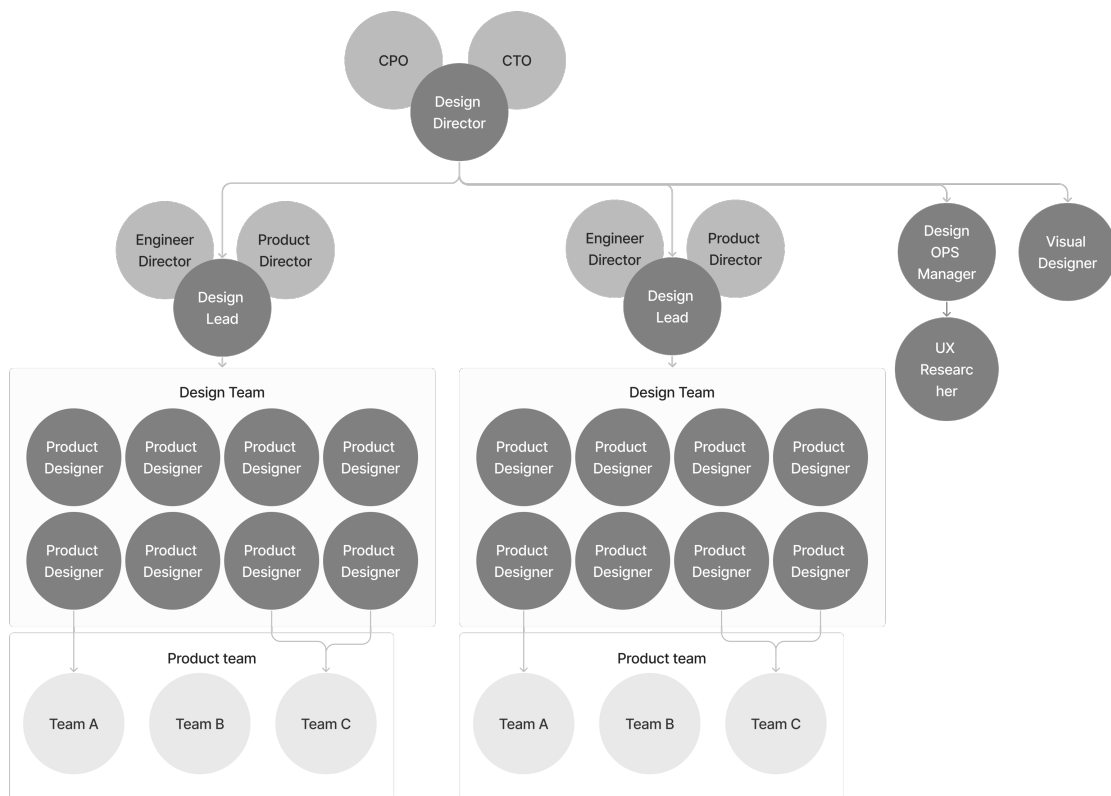


Figure 6. Illustration of Company C's team structure obtained from the interview.

As previously mentioned, designers are assigned to one or multiple product areas based on their skills or the scale of the product area. Within these teams, they collaborate closely with product managers, engineering managers, and teams of developers. In addition, designers come together to form a centralized design team. In the centralized team they obtain feedback from other designers on their work and seek advice on decision making. A practice highlighted is the use of the product trio, a cross-functional collaboration with the goal of making product decisions. It involves designers, product managers, and engineering employees at various levels of the hierarchy. At the highest leadership level, it involves the Design Director, Chief Technology Officer, and Chief Product Officer. Following to the next level, it includes a Product Director, Vice President of Engineering, and Design Lead. The most basic level includes, designers, product managers and engineers.

7.3.2 Design Culture

The design culture inside the team involves collaboration and support. Practices that support the collaboration between designers include meetings such as weeklies where designers go through what they are currently working on, then sessions on Thursday to collaborate on current work, seek feedback, and make shared decisions. Finally, a design meeting every month to go over topics that could come from design leadership. In the team, designers are encouraged to work together and collaborate; however, due to their current responsibilities within each product area, finding the space and time for that collaboration can be challenging. With the new approach that the team will bring, which is assigning designers to "journeys" that go across different areas, the goal is that they will have much more space to collaborate if two journeys come together. This type of responsibility assignment has the goal of reducing silos between designers and allowing for further collaboration between them. As mentioned by the Product Design Lead (P4) "It has been more siloed, but with these ritual changes, we've improved. What we lack in the structure we cover with other practices now." The current organizational structure promotes a siloed approach between designers which is not good, but the goal is that as they change to journeys, they can reduce those siloes. "So yes and no, it supports collaboration, but also there are some blockers because of the structure." Introducing a design lead position at Company C has positively influenced team culture by providing leadership and structure and fostering inclusivity across roles and team activities. However, there's recognition of a cultural shift from the original small team dynamics to the current larger team setup.

As well, the current organizational structure and recent changes are positively impacting the design culture within the organization. The introduction of design leads is seen as helpful for the advocacy of design throughout the organization. Designers are

encouraged to participate in the product trio: designers, developers, and product managers, where they share equal responsibility for outcomes and advocate for design within their teams. Designers are empowered to make an impact within their respective teams. At the leadership level, the Product Director, Vice President of Engineering, and Design Lead ensure that design considerations are integrated at a strategic level. Each team, including leadership, has someone ensuring that design is considered in all decisions. Additionally, a Design Operations Manager oversees communication about ongoing design work and that it is documented properly, making sure that everyone in the company understands how design contributes to the company's goals.

7.3.3 Advantages and disadvantages

What works in the structure is the collaboration of the product trio, which is between the designer, product manager, and developers at different levels of the hierarchy. The current organizational structure offers also several advantages: 1) The presence of designated design lead within each team, ensures that design considerations are part of the whole product development, 2) The addition of a design director within the senior leadership team recognized design at the strategic level, facilitating alignment between design initiatives and organizational goals, 3) This structure fosters cohesive user experiences across different product areas, promoting consistency and usability for end users.

About the disadvantages, one of the downsides of the Matrix UX structure is that as the team scales, the trust and culture may decrease. This is because it is easier for smaller teams to get to know and trust each other than with bigger teams. In addition, the current shift in organizational strategy towards a “journey” approach, has its own challenges. One concern comes from the rearrangement of roles, specifically with the introduction of UX Research and Visual Designer positions, which reduces the responsibilities of product designers. This adjustment creates worries regarding resource management and capacity within the organization. In addition, handling a team of eight members within the current structure, considering the various responsibilities of the Design Lead, was viewed by the interviewee as unsustainable. The Product Design Lead (P4) mentioned: “This setup will not be very sustainable if we are expecting the design leads to have responsibility over product decisions as well as the people.” Therefore, there's a necessity to introduce a lead designer position alongside the existing design lead role. This change has the goal of clarify roles and improving the management of both personnel and design aspects within the organization.

7.3.4 UX Maturity

When asked in the interview about the result, the interviewee mentioned it was Stage 4 – Structured. The Product Design Lead (P4) acknowledged potential bias when answering the survey. The previous results for the interviewee had been Stage 3 - Emergent, however, the Product Design Lead mentioned there had been recent changes in their

practices which might have influenced their Stage 4 result. The interviewee had evaluated their current UX Maturity based on recent changes and collaborations across different areas of the organization. Regardless, the interviewee estimates their maturity level to be somewhere between Stage 3 and Stage 4. Considering the factors of UX Maturity it was mentioned that strengths were planning, prioritization, vision, awareness, competency, methods, and collaboration. However, there are areas that need improvement, especially in consistency, impact of design and measurement, budget allocation for design-related activities, and garnering appreciation and support for design, particularly from areas outside the product development organization. The introduction of a design operations manager is expected to tackle these challenges and promote improvement in the future.

7.4 Overview of Case Studies

This section presents an overview of the design team structures found in the three case studies. While all companies use the Matrix UX structure model there are similarities and differences on team composition, collaboration methods, practices, advantages, disadvantages and UX Maturity level. The goal of Table 3 is to provide a concise visual overview of all three companies for quick reference and analysis. The table is an overview of the data presented in the sections above.

Aspect	Company A	Company B	Company C
Structure	Matrix UX	Matrix UX	Matrix UX
Composition	Head of Implementation and Design, Design Manager, 7 UX Designers, Product Designers and Service Designer	1 Design Lead, 5 Designers with support from a larger centralized design function that provides the Design System and consultation to designers	Design Director, 2 Leads, 16 Product Designers, Design Operations, Visual Designer, UX Researcher
Project Resourcing	Designers assigned to multiple projects	Designers assigned to product areas and work with multiple teams	Designers assigned to product areas, transitioning to “journeys”
Designer Role	Ownership of the full design process, except validation and discovery done by Product Designers	Ownership of the full design process	Ownership of the full design process, however moving toward specialized roles
Practices	<ul style="list-style-type: none"> Meetings for ongoing tasks, obtain feedback, develop design skills and 1:1 with manager. Recruitment practices maintain the design culture. Testing pair design to decrease silos. Design system which provides autonomy for decision making. 	<ul style="list-style-type: none"> Meetings for ongoing tasks, obtaining feedback and develop the design skills. Pair design, responsible and supporting designer. Design system provides more autonomy for decision making. 	<ul style="list-style-type: none"> Meetings for ongoing tasks, obtain feedback and monthly meetings led by design leadership. Switch to assigning designers to journeys so they get to collaborate more. Moving away from generalist role of Product Designers to more specialized roles. Product trio: designer, PM, and developer in every step of the hierarchy, building solutions, Design System however, it is outdated
Advantages of structure	<ul style="list-style-type: none"> Enhance visibility of product which creates 	<ul style="list-style-type: none"> By remaining in product areas for long periods of time 	<ul style="list-style-type: none"> Collaboration between designers, PMs and developers. Having three

	<p>cohesion in designing solutions.</p> <ul style="list-style-type: none"> • Opportunity to work in different projects to expand skills. • Learn and collaborate with other designers. • Improved collaboration with other designers. • Designers have autonomy in their work and improving design practices 	<p>designers can build reputation and expertise. Which increases advocacy for design.</p> <ul style="list-style-type: none"> • Structure allows them to maintain consistency across solutions through practices like pair design, meetings, and collaboration between designers. • Designers have autonomy in their work and improving design practices 	<p>functions making decisions makes for a holistic approach.</p> <ul style="list-style-type: none"> • Inclusion of a design director and leads brings design decisions to a strategic level. • Cohesive user experience across different product offerings by having a centralized team.
Disadvantages of structure	<ul style="list-style-type: none"> • Project-base work may lead to confusion on designer ownership if not well communicated to stakeholders. • Project base work might not suit every designer. • Project base work can still create silos, as it depends on designer's communication skills and sharing their work. 	<ul style="list-style-type: none"> • Potential loss of knowledge when responsible designer leaves a product area if they have not been open about their area. • Collaboration depends on the designer and their communication skills. 	<ul style="list-style-type: none"> • Designers assigned to specific area can generate confusion if the solution spans across different areas. • Scaling of the team reduced closeness and trust. • Initial relocation of roles to specialized roles can have challenges. • Collaboration can be difficult with designers assigned to product areas.
UX Maturity Level	Stage 3 – Emergent and Stage 4 - Structured	Stage 4 – Structured	Stage 4 – Structured
UX Maturity strengths	Culture, awareness, appreciation, support, competency and adaptability	Strategy, culture, autonomy, resources and endorsement from high-level executives	Plannings, prioritization, vision, awareness, competency, methods and collaboration
UX Maturity weaknesses	Outcomes, lacking metrics and KPIs for design work,	Not mentioned	Impact of design and measurement, budget allocation, garnering appreciation and support

Table 3. Overview table of all three companies with their current structure.

8 Survey

The survey was answered by a variety of roles which included Product Designers, UX Designers, UX Writers, UX Researchers, Senior Designers, Team Leads and Product Owners. To understand the scale of the design organization within the company, the survey asked about the overall count of designers or roles related to design present in the company. Table 4 shows that four participants responded their company had 2-5 design positions, one participant had 21-30 positions and three participants were in a company with 50+ design positions.

Total number of design related roles	Responses
2-5	4
21-30	1
50+	3

Table 4. Shows the number of responses per each range of design related roles in the organization.

When asked which structure the participants considered was the closest to how their team was currently working. As seen in Table 5, out of the eight responses five selected being in a Centralized team, one selected being in a Decentralized Team, and two selected being in a Matrix UX team. Because of the respondent size, I cannot make any connections between the size of the design team and the structure they used. However, further research with a larger number of respondents could provide more insights into this potential relationship. The participants were also asked if while they worked in that company the design team structure had changed. Two participants mentioned that the structure had changed, one from Decentralized to Matrix UX, mentioning that designers introduced the idea with the goal of having a single design team and the managers supported the change. The second participant mentioned the structure had changed from Centralized to Matrix UX team, this change happened due to the team lead not liking the previous structure which they considered increased silos between designers and developers.

Centralized Team Structure	5 responses
Decentralized Team Structure	1 response
Matrix UX Team Structure	2 responses

Table 5. Shows the number of participants that selected a structure as the closest to how their team is currently working.

When asked about the advantages of a centralized structure participants responded that having an integrated design culture and leadership was a benefit for the development of designers. Participants mentioned: “Leadership and coaching can be directly built into the daily work”, “We can ensure that designers have a manager who understands UX work and career development”, “We have the support from each other on the design tasks” and “Having a long-term working relationship with a manager, which allows for an increase in trust, follow up and guidance on professional growth” (P7, Design Lead; P9, UX Lead; P5, Senior Product Designer; P8, Senior Designer) . Having designers in a single team ensured the design culture could be developed in that space. In addition, having leadership familiar with design practices could benefit designers through coaching and career development. Having a UX leader role helped with expectation management, where designers do not have to report to multiple different leads. Mentioned by Senior Designer (P8): “Expectations are also more or less constant and stable, instead of adjusting to the expectations of multiple teams leads.” Two participants perceived that the structure was advantageous for organizations with small teams that had low UX maturity. UX Lead (P9) said: “We are still a low UX maturity org and the UX team is

very new. This way we can together build user understanding and develop our ways of working.” Additionally, one participant mentioned that if their team were to grow larger and the disadvantages of their current structure became apparent, they would consider switching to the Matrix UX team structure.

For disadvantages participants mentioned that there is a risk of isolation from the development teams where design becomes a service rather than a strategic aspect of the product. Product Lead (P11) mentioned: “Designers are a bit distant from development teams. It makes design a service that you call when you think it is needed, not something that is integrated into your way of working.” In addition, it was perceived, that the structure decreases the exposure to different ways of working, and relationship building with other areas of the product. Senior Designer (P8) mentioned: “Lack of exposure to different ways of working, decrease in relationship building with other job families”. One participant mentioned that due to resources or interest designers might not be interested in developing design practices within the team. One participant mentioned it was a challenge to balance the development team’s needs and processes with the UX team’s process development. This means that it is a challenge to find a balance between the work requested from development teams and developing the culture of design.

When asked about the advantages of a Decentralized Team Structure the participant mentioned that as designers worked closer together with the development teams this could reduce silos. In addition, due to the close collaboration with development teams, designers had current information on the development status of their design work. When describing the disadvantages, the participants mentioned the wish to have a designated manager familiar with UX practices. In addition, there is little room for collaboration and ideation between designers as the collaboration is often focused on development. As mentioned by Senior Product Designer (P5): “Not much room for design collaboration and ideation. Meetings were focused on development”. Although silos between teams are not so apparent, the collaboration between designers of different levels appears to decrease with the decentralized structure.

When asked about the advantages of Matrix UX team structure the participants mentioned that designers can have a hub for the discipline but at the same time, they are tightly integrated to product development. Mentioned by Senior Designer (P8) “We get the "home" for the discipline, but UX is also tightly integrated to product development as a member of the development team working alongside of the Product Owner.” Another participant responded that it is easier to make results scale up the hierarchy. Two participants perceived the Matrix UX structure provided better management of resources. As mentioned by Senior Product Designer (P5) “Having a separate backlog, it is not necessary to participate on software development focused daily/weekly meetings” and “We've got support from each other on the design”. For disadvantages it was mentioned

that this structure can bring unclarity on the ownership and reporting of tasks, making designers feel unsure as to who to report to. In addition, that there was a feeling of silos being created, mentioned by the participant (Senior Product Designer, P5): “At times it feels that we are in a separate silo, and not working a lot with the development teams.” Finally, it was also mentioned that without flexibility and autonomy there could be problems balancing working in development teams and working in long-term product concepts. The advantages and disadvantages mentioned above have been summarized in Table 6.

	Advantage	Disadvantage
Centralized team structure	<ul style="list-style-type: none"> • Integrated design culture and leadership brings benefits to designers. • Space to develop design practices. • UX Leader can provide coaching and career development. • Advantageous for small teams with low UX maturity • Better use of resources such as time • Single leader helps with expectation manager rather than having to report to multiple leaders. 	<ul style="list-style-type: none"> • Isolation from other teams, where design becomes a service rather than strategic partner. • Challenging to balance development’s teams needs with UX team needs. • Structure decreases exposure to different product areas. • Due to resources or interest, designers might not be interested in developing UX practices
Decentralize team structure	<ul style="list-style-type: none"> • Reduced silos • Up-to-date information on the development of design work. 	<ul style="list-style-type: none"> • Lack of UX manager seen as a disadvantage. • Decreased collaboration between designers of different levels.
Matrix UX team structure	<ul style="list-style-type: none"> • Have a base for UX discipline and designers tightly integrated in the development teams. • Better management of resources, separate backlog and meetings reduces unnecessary meetings with other teams. And designers get to support each other better. 	<ul style="list-style-type: none"> • Difficult for designers to know who owns what and to whom to report to. • Perceptions that silos can separate designers from the development teams. • Without flexibility and autonomy, the team could face problems balancing working in development teams and designing long term product concepts.

Table 6. Summary of the advantages and disadvantages of each structure

9 Discussion

This thesis aims to create a bridge between the theory of UX design team structures and the practical application of those structures in IT companies. This thesis aims at helping Design Directors, Design Managers, and Design Operations specialists to learn about the different structures and find one that will fit their team best. The thesis aims to answer three research questions: What type of team structures can be found in in-house UX design teams of Finnish IT companies? What are the perceptions of the advantages and disadvantages of different team structures in Finnish IT companies? What impact does the structure of the UX design team have on the perceived UX maturity? To accomplish that I researched the theory behind team structures, gathered three case studies of IT companies in Finland, and conducted a survey to obtain further examples of the team structures. The following section will discuss the results of the research and create a comparison from the theory gathered.

Based on the research we gather that all three types of structures can be found in Finland: Centralized Team Structure, Decentralized Team Structure, and Matrix UX Structure. Table 7 shows the total number of companies from each study in relation to the structure they used. From the case studies three companies used a Matrix UX structure. Meanwhile, from the survey five companies had a Centralized structure, one had a Decentralized structure and two had a Matrix UX structure. Although all types of structures were found, the most predominant were the Centralized structure and Matrix UX structure.

Structure	Case Studies	Survey	Total
Centralized	0	5	5
Decentralized	0	1	1
Matrix UX	3	2	5

Table 7. Number of companies using centralized, decentralized or matrix structure.

From the research, we can gather a set of advantages and disadvantages from the team structures. The following Tables 7 to 9 gather the advantages and disadvantages of the structures in practice obtained from the research and compare them to those obtained from theory. From the centralized team structure in Table 8, we gather from the research that this type of structure is advantageous for small teams with low UX maturity, allows for more effective management of design resources, and exposes designers to multiple projects which expands their skills, and having a UX manager improves the professional growth of designers, facilitates, and clarifies decision making. Meanwhile, the disadvantages gathered from the research include potential silos between design and other teams, designers lacking deeper knowledge of the product area, lack of long-term exposure to different ways of working, challenging to balance development and design needs, and lack of clear design responsibility of product areas.

In contrast to the advantages documented in the theory, we find that there are similarities from those gathered from the research. These include supporting the design community and culture, establishing clear authority and responsibility, a variety of projects improving design skills, UX manager having a more strategic role, better management of resources within the team, and improvement of practices. Advantages not mentioned by the theory include the structure being advantageous for small teams with low UX maturity, and the benefits brought by the UX Manager to the designers such as increased trust and guidance on professional growth.

Centralized Team Structure		
	Research	Theory
Advantages	<ul style="list-style-type: none"> • Advantageous for small teams with low UX maturity. • The team can use time together to develop common team practices. • Better use of resources such as workforce and time. • Opportunity to work in different projects to expand skills. • Having a long-term working relationship with a manager, allows for an increase in trust, follow up and guidance on professional growth. • Having a manager familiar with UX Design domain helps with decision making. • Expectations from a single manager can be constant and stable, instead of adjusting to the expectations of multiple leads. 	<ul style="list-style-type: none"> • Supports design community and culture. • Establishes a clear authority and responsibility by having a UX Manager. • UX Manager places design at a more strategic role. • Encourages consistent user experience. • Variety of projects improves professional growth of designers. • Having a wide range of skills in the team. • Sharing research and design resources improves skills. • Having efficient ways of working by improving common practices.
Disadvantages	<ul style="list-style-type: none"> • Isolation between designers and product teams, where design becomes a service rather than strategic partner. • Lack of long-term exposure to different ways of working, decrease in relationship building with other product areas. • Designers can easily lack deeper domain knowledge when they are at some distance from the PO and the developers. • Challenges to balance developments team and UX team needs. • No clear responsibility of which designer oversees which product area. 	<ul style="list-style-type: none"> • Limited collaboration between designers and other teams. • Possibility that Design work is not included in projects. • Lack of interaction between teams can increase misunderstandings. • UX Managers run the risk that if there is not good communication about upcoming projects, there might not be enough design resources. • Lack of clarity about prioritization of tasks by design.

Table 8. Summary of the advantages and disadvantages of Centralized Structure. Theory advantages and disadvantages gathered from Merholz and Skinner (2016) and Kaplan & Pernice (2019).

In addition, we find similarities between the documented disadvantages in theory and those observed in the research. These include potential silos from the limited interaction between designers and developers and making design a service rather than a strategic partner to development. Disadvantages identified in the research, but not mentioned in the theory, align closely with the topics discussed by the theory. For instance, designers may lack domain knowledge when they are distant from Product Owners (POs) and developers. This situation closely mirrors the lack of shared understanding mentioned in the theory, indicating that miscommunication may arise due to limited interaction between the teams. Another point is the prioritization of resources, balancing between development tasks and developing design practices. Which mirrors the lack of clarity about the prioritization of design tasks for other teams. One disadvantage not discussed in the theory was the ambiguity surrounding the responsibilities of designers regarding specific product areas. Since designers often work on various tasks, this lack of clarity can result in misunderstandings during the development phase. The research closely aligned with the theory for the Centralized Structure, with only a few variations observed. Those are the advantages of using the structure for small teams with low UX, and UX Manager bringing benefits to designers such as trust and guidance on professional growth. For disadvantages, a notable downside is the ambiguity surrounding the responsibility of designers for specific product areas, potentially leading to confusion during development.

From the decentralized team structure in Table 9, we gather from the research that the advantages of this type of structure include reduced silos with development teams, flat organization, and up-to-date information on the development of design work. Meanwhile, the disadvantages include: the lack of a UX Leader could decrease the design’s position as a strategic partner in the organization, less collaboration and ideation for designers, limited resources to improve design practices and decreased collaboration between designers could affect their professional development.

Decentralized Team Structure		
	Research	Theory
Advantages	<ul style="list-style-type: none"> • Reduces silos with development teams, as designers work close together with them. • Flat organization, which reduces difficulties with communication and decision making. • Up-to-date information on the development of design work. 	<ul style="list-style-type: none"> • Faster development. • Designers engage as full team members. • Designers have more influence in the outcome of the development. • Higher quality of output. • Design craft gains trust and knowledge from team members. • Design is included from beginning of projects.
Disadvantages	<ul style="list-style-type: none"> • Lack of UX Leader decreases the position of design as a strategic partner. 	<ul style="list-style-type: none"> • Lack of variety of projects. • Designers disconnected from other designers. • Less cohesion between solutions.

	<ul style="list-style-type: none"> • Meetings were focused on development which left little room for design collaboration and ideation. • Limited resources to improve design practices. • Decreased collaboration between different designers affects professional development. 	<ul style="list-style-type: none"> • Less resources placed on user research. • Double work of designers due to lack of communication. • Lack of process improvement and developing practices. • Different levels of design skills will give different output qualities in the product. • Decreased collaboration between different designers affects professional development.
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Table 9. Summary of the advantages and disadvantages of Decentralized Structure. Theory advantages and disadvantages gathered from Merholz (2022), Merholz and Skinner (2016) and Kaplan & Pernice (2019).

In contrast to the advantages documented in the theory, we find that there are similarities from those gathered from the research. This includes reduced silos with development teams and up-to-date information on the development of design work. Advantages not mentioned by the theory include the benefit of having a flat organization in the development team, fewer managers decreased steps for decision-making, and bottlenecks. Leaving more possibilities for true partnership between designers and developers. In addition, we find similarities between the documented disadvantages in theory and those observed in the research. These include decreased collaboration between designers which affects the professional development of the team and limited resources to improve design practices. Disadvantages identified in the research, but not mentioned in theory, include the lack of a UX Leader decreasing the possibilities of design to be at a strategic level. This downside can be subdued by having a Design Lead or Director in charge of strategic decisions for design in the organization. However, the benefits of having a UX Manager familiar with the design domain, developing practices, and supporting designers’ professional development will not be there.

From the Matrix UX team structure in Table 10, we gather from the research that the advantages of this type of structure include: design teams having a hub for their domain but also being integrated with development teams, for designers attending development-focused meetings is not a requirement which saves time, the structure encourages designers to support each other in tasks, simplifies obtaining feedback which in turn generates more cohesive solutions. Other benefits include having a designer collaborating closely with Product Managers and developers to improve decision-making, designers having autonomy to work on their development team tasks or improve design practices, and designers working for longer periods in an area allowing them to build reputation, trust, and expertise. Finally, having design leaders brings design decisions and advocacy to a strategic level.

	Matrix UX Team Structure
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	Research	Theory
Advantages	<ul style="list-style-type: none"> • Teams have a hub for UX, and designers also work integrated in the development teams. • Not necessary to participate on development focused meetings. • Designer collaboration improves support from each other on the design tasks, simplifies the process of obtaining feedback and creates more cohesive solutions. • Collaboration between designers, PMs, and developers. Having three functions making decisions makes for a holistic approach. • Designers can learn from each other's expertise, backgrounds, and experiences. • Designers have autonomy in their work and improving design practices. • By remaining in product areas for long periods of time designers can build reputation and expertise. Which increases advocacy for design. • Having a Design Leaders brings design decisions to a strategic level. 	<ul style="list-style-type: none"> • Having a UX manager and product team lead increases number of people responsible to advocate for UX in the product. • Improved partnership between designers and development teams. • More flexibility of design resources. • Assigning designers to teams increases trust and collaboration with other teams. • Designers can build design culture and practice in their team.
Disadvantages	<ul style="list-style-type: none"> • Designers find it challenging to determine ownership and reporting responsibilities between Product Owner and UX Manager. • If the team is not flexible, there can be difficulty with balancing working in development teams and working on long term product concepts. • Silos can still be present, as it depends on designer's communication skills and sharing their work. • Designing across different product areas can create confusion on the designer owning the solution. • Potential loss of knowledge when responsible designer leaves a product area if they have not been open about their area. • Matrix UX structure has a limit on the number of designers that can be in the same team before losing trust and closeness. • Collaboration between designers can be difficult when they are assigned to product areas, and they do not have the time to collaborate between each other. 	<ul style="list-style-type: none"> • UX Manager and product managers will need to collaborate more to ensure there are enough design resources allocated in the teams. • Managers need to make it clear to designers who to report to and who is responsible for what. • This structure poses difficulties with scalability becoming complex when more teams are present.

Table 10. Summary of the advantages and disadvantages of Matrix UX Structure. Theory advantages and disadvantages gathered from Merholz (2022), Merholz and Skinner (2016) and Kaplan & Pernice (2019).

On the disadvantages, from the research we gather that, designers can find it challenging to determine if they should report to the UX Manager or PM, if the team is

not flexible there can be difficulties between balancing developing new features and working on long-term concepts, silos can still be present as it depends on the designers' communication skills, designing across different product areas can lead to confusion on the designer in charge of the solution, potential loss of knowledge when a responsible designer leaves a project, the structure has a limit of designers before losing trust and closeness in the team and collaboration between designers can be difficult if there is a lot of work in their product areas.

In contrast to the advantages documented in the theory, we find similarities from those gathered from the research. These include improved partnerships between designers and developers, more flexibility in the design resources, increased trust and collaboration with other teams, and designers being able to build their culture and practices. Advantages not mentioned by theory include more support between designers to collaborate in tasks which allows them to learn from each other. A simplified feedback process and continuous sharing of work ensure more cohesive solutions. Additionally, better collaboration between the designer, PM, and developer ensures a more holistic approach to decision-making. Some disadvantages identified in the research, but not mentioned in theory include silos still being present between designers as it depends on the designer's communication abilities. Difficulties defining responsible designer if the project goes through different product areas. It may be unclear which designer will be responsible for the ownership of the solution. There is a higher risk of loss of knowledge if one of the designers responsible for an area departs the company. Finally, if the work in product areas is not well managed, it can limit the time available for designers to collaborate.

The research findings echoed many of the advantages and disadvantages outlined in the theory and uncovered some new advantages and disadvantages. Overall, the information gathered from the practical application of the structure did reflect on those described by the theory. While it's challenging to argue for a "better" structure, as it depends on factors like team goals, composition, and processes, the research findings mention that most of the team structures in Finnish IT companies have Centralized or Matrix UX team structures. From this research, a centralized design function is more commonly observed compared to a decentralized structure. Having a centralized design function brings benefits to designers, such as increased collaboration and professional development through exposure to different designers. This collaboration also results in cohesive solutions for the product. Having a UX Manager or Design Lead was seen as an advantage not only for the professional development of the designers but also for the increased strategic place of design in the organization. A centralized design function also improves the level of design in the organization, allowing designers to develop their practices and community. Comparing a centralized structure versus a decentralized one

without a central hub, although the decentralized approach may be more efficient, it could also mean less growth for designers and less cohesive solutions.

Even if Centralized and Matrix UX structures have disadvantages, companies still use these structures. From the case studies, we found that additional practices were implemented to address the disadvantages of the Matrix UX structure. For instance, in Company A, it was noted that effective communication between the UX Manager and Product Manager was crucial for balancing design resources and assignments. Additionally, flexibility was essential in accommodating the needs of designers and assigning them to projects. In Company B we encounter the practice of pair design, assigning responsible and supporting designers to Product areas to optimize feedback gathered and encourage collaboration between designers. In Company C, scalability issues with the structure were encountered, which led to changes such as dividing the design team into two hubs and shifting work assignments from product areas to "journeys". Changes are made to improve the collaboration of designers. Something clear is that in practice the Matrix UX application was different from all three case studies. While in theory, the companies perceived themselves as using the Matrix UX structure, a closer at the case studies shows different implementations of this structure. This diversity is beneficial as it allows structures to be tailored rather than having a one-size-fits-all approach.

By introducing methods to address the structure's disadvantages, we see how the structure shapes team operations and impacts UX Maturity. Gibbons et al. (2021) mention that UX maturity is influenced by multiple factors including strategy, culture, processes, and outcomes. While the structure of the team is important, it's only one component in measuring the overall UX maturity. From the research we gather that one single structure will not define the level of UX Maturity in the team, however, it can impact the different factors that affect the maturity. Design teams can be compared to machines with multiple gears, the team's success depends on how well these gears work together and are aligned. Introducing a particular team structure is like adding a gear to a machine; adjustments are necessary for good operations. However, some gears cover a wider range of functions, which means that they have greater potential to improve the machine's performance. In the same way, some structures provide more advantages that can further develop the UX Maturity of the team. For example, from the advantages of the structures, it is noted that having a centralized design hub increases the culture and community within the design team in contrast to the decentralized structure. Structures like Centralized and Matrix UX which had a UX Manager, can significantly impact the strategy factor as that role is usually responsible for developing the vision, planning, and prioritization. If the team wanted to influence the Processes factor of UX Maturity, the Matrix UX would involve a tighter collaboration between designers and development teams, compared to

Centralized and Decentralized team structures. Therefore, the person in charge of selecting a team structure could consider the advantages and disadvantages of the structures, compare them to their current team situation, and select a structure that would fit their team best. They should prepare practices that will address the downsides of the structure while considering its potential influence on the development of UX Maturity in the organization. Considering the case studies, all three companies, that had a Matrix UX team structure, had results above Stage 3 – Emergent, with two companies having Stage 4 – Structured. Due to the size of the sample, it cannot be concluded that a higher level of UX Maturity implements the Matrix UX. However, it is an opportunity for future research to explore if there is a correlation between both.

Further limitations include the sample size of the survey and case study which accounted for 11 companies. Future research could focus on gathering a bigger sample of companies and obtaining a better perspective of the type of structures found in Finnish IT companies. Especially in the aspect of Decentralized team structure, potentially the bigger sample brings more cases of this structure. Additionally, future research could explore case studies of Centralized and Decentralized structures and compare them to the case studies of Matrix UX presented in this research. Furthermore, the research could explore the additional practices implemented by design teams in different structures to address the disadvantages of their selected structure.

In summary, the research provides insight into the current team structures found in Finnish IT companies. The main team structures identified in the research were Centralized and Matrix UX. Although, the advantages and disadvantages of the structures did resemble those mentioned in the theory. New advantages and disadvantages were found and documented in this paper. Furthermore, practices to address the disadvantages of the Matrix UX structure were also documented. Ultimately, the research indicates that the structure influences various factors contributing to the UX Maturity of the organization. Since these factors don't solely rely on the team structure, it's important to choose a structure that fosters the development of UX Maturity in the organization.

10 Conclusion

In conclusion, this thesis described the current structures found in Finnish IT companies, advantages and disadvantage of the structures and the structure's impact to the UX Maturity of teams. The goal of the thesis was to create a bridge between the theory and practical application of design team structures. This was achieved by gathering theory on UX Design, team structures for design teams, design operations, and UX Maturity. Conducting a series of in-depth interviews to document three case studies of Finnish IT company's structures and conducting a survey to support the data of the case studies. Several findings emerged on the advantages, disadvantages, and implication of the

structures to UX Maturity. The research findings suggest that Centralized and Matrix UX team structures were more common among the companies participating in the research, with only one describing using Decentralized team structure. Each of these structures have advantages and disadvantages from their practical application which were presented in the thesis. When comparing these findings to the theory, I found that many of the advantages and disadvantages from the practical application aligned with the theory. However, the research also shed light on new advantages and disadvantages not mentioned in the theory. Even with the known disadvantages of the structure, an approach taken by the companies in the case studies was to implement practices that would address the disadvantages of the Matrix UX team structures. Finally, the research provided insight in the impact of the team structure to the UX Maturity. Although, the team structure is a small factor within the UX Maturity of a team. The selection of team structure will impact the development of maturity through its advantages and disadvantages. Therefore, the selection of the structure should be considered, combined with practices that will decrease those disadvantages and set ground to develop the Maturity of the team.

About the limitations of the study, it is important to note that the research was conducted in the context of Finland and within the industry of Information Technology. Therefore, the results may not be applicable to other industries or regions. The research only gathered case studies from three companies and the survey response rate was of eight participants. This implies that I cannot generalize on how Finnish IT companies structure their design teams. Future research could increase the response rate of participants and explore different regions or industries. The research findings provide insights for leaders and managers involved in making decisions within product development teams and UX design teams. By understanding the advantages and disadvantages of different team structures, leaders can make informed decisions about their UX design practices and strive to create environments that will develop UX maturity.

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Appendices

Appendix 1

Interview Consent Form

This is a consent form to participate in a remote interview for a Master's Thesis on the topic Design team's structure and UX maturity. The thesis is written by Mariana Perez Zamora during her studies at Tampere University. During the interview, you will be asked different questions about your team's structure and cross-functional relationships. If you consent, the interview will be recorded for note-taking purposes. The recording allows the interviewer to focus on the interview, and lead the conversation. After the session, the interviewer re-watches the interview to take notes. The recordings will be deleted after the thesis has been written. The results of the interview will be reported anonymously in the form of a case study. Numeric data that could identify your organization will be reported using ranges, for example, "Size of the company is between 0-50 employees". There are no right or wrong answers, during the interview you are sharing your experience. In addition, please know that you can stop participating in the interview at any point. I am happy to answer any questions you would have.

1. I will participate in the interview
 - a. Yes
 - b. No
2. I give my permission to record
 - a. Yes, audio and video
 - b. Yes, only audio
 - c. No
3. I confirm that
 - a. I have received information about the interview and I had an opportunity to ask questions
 - b. I participate in this interview voluntarily
4. To consent to the above terms, please enter your name (first name and surname)

Case Study Interview Questions

About the participant

- What is your role at Company X?
- How would you describe your role at the company?
- How long have you been working at the company?

About the design team

Composition

- How many designers are in your design team?
- What design roles can be found in the team?

Structure

- How are the designers structured?
- Do you relate to any of these structures?
- Why are designers structured this way?
- How long has the team worked this way?
- Has the team always worked this way since you have been there?
- Has the design team considered working in a different structure? Why?

Collaboration

- What relationships does the design team have with other teams?
- How many product teams do designers work with?
- Does the current structure support collaboration with other teams? How? Why?
- Does the current structure support collaboration with the same team? How? Why?
- Has the current structure impacted the design culture within the team?
- Has the current structure impacted the design culture outside of the team?

Advantages and Disadvantages

- What are the advantages to the structure currently used?
- What are the disadvantages of this structure?

UX Maturity

- What was your result to the UX Maturity self-assessment survey?
- What do you think of the result?
- Below you see the different stages of UX Maturity, which one do you think your organization is doing best?
- Do you think way the team is structured can impact the UX maturity of the team?

Survey Questions

About you

- What company do you work for?
- What is your current role?
- What is the number of design related employees working in your company?
Example UX designers, Product Designers, Design Managers, Design OPS
- If the designers are divided into teams, how many design teams are in your company?

About the current team structure

Description of design team structures.

- Which structure do you consider is the closest to how your team is currently working? (centralized, decentralized, matrix or other)
 - If participant answered other
 - Could you describe the structure?
 - What are the advantages of working in this structure?
 - What are the disadvantages of working in this structure?
 - In the past, did the team use to work with a different structure? (yes, no, I do not know)
- What are the advantages of working in this structure?
- What are the disadvantages of working in that structure?
- If there are other design team structures within the company you work for, what are they? This applies to companies with multiple designers or multiple teams. Some examples of structures are centralized, decentralized, matrix, other.

About the previous team structure

- In the past, did the team used to work with a different structure? (yes, no, other)
 - If participant answered yes
 - Which one do you consider is the closest to how your team used to work? (centralized, decentralized, matrix or other)
 - What were the advantages of working in that structure?
 - What are the disadvantages of working in that structure?
 - Why did the structure change?
 - If participant answered Other
 - Can you describe the structure?
 - What are the advantages of working in this structure?
 - What are the disadvantages of working in that structure?
 - Why did the structure change?

Participate in the lottery

If you would like to participate in the lottery of a 20€ S-Group gift card, leave your email below so I can contact the winner. Lottery takes place by the end of November.

Self-assessment result form

Hello, thank you for volunteering in this research. My name is Mariana Perez, currently writing my thesis in Design team's structures and UX maturity. Your team is participating in the thesis and the goal is to understand your team's UX maturity. You can read more about UX Maturity, www.nngroup.com/articles/ux-maturity-model/

Instructions

First you will be taking a UX Maturity Quiz by NNGroup which takes about 10 minutes. Then submit the name of the organization you work for, and the result from the quiz. Link to the quiz -> [link] If you have any questions feel free to send me an email [email] or contact the team member that shared this form with you :)

Thank you for the help!

1. What organization do you work for?
2. What was your UX Maturity quiz result?