

Towards User-and Customer-Centricity:
Service Design Maturity and User Experience Capability in Organizational
Transformation

Martta Lemola
Master's Thesis
Multidisciplinary Master's Program in Service Design
University of Lapland
Autumn 2024

University of Lapland, Faculty of Arts

Name of thesis: Towards User-and Customer-Centricity:

Service Design Maturity and UX Capability in Organizational Transformation

Researcher: Martta Lemola

Program: Palvelumuotoilun monialainen maisteriohjelman

Thesis type: Pro gradu

Pages: 58 + 3 (references)

Year: 2024

Abstract

This thesis investigates the service design maturity and User Experience (UX) capability within a large multinational manufacturing corporation, aiming to assess the current state and identify solutions to the challenges uncovered during the research. The case study highlights an organization implementing user- and customer-centric practices but lacking both strategic and practical solutions to achieve this transformation on an organizational level. The need for such examples in design research is emphasized, as organizations must continually adapt to the fast-paced changes in today's business environment (Burns et al., 2006). This study contributes to understanding how organizations can navigate these changes by improving their service design and UX capabilities.

A mixed-methods approach was employed, combining qualitative and quantitative research techniques. Data collection involved interviews, workshops, and a questionnaire, providing both in-depth insights and measurable results. The integration of these methods allowed qualitative data to give context to the quantitative findings, revealing a holistic picture of the organization's service design maturity and UX capability. This methodology enabled a deeper understanding of the organizational issues, resulting in actionable recommendations for improvement.

The findings show inconsistencies in how the organization understands and implements user experience strategies. A fragmented design culture, with limited management support and a lack of prioritization for service design, hinders progress. Although some positive outcomes from service design projects were noted, the overall maturity remains low due to sporadic collaboration and organizational silos. Drivers such as successful design experiences and multi-disciplinary projects present growth opportunities, but barriers like a lack of user-centric focus, resource limitations, and resistance to change impede advancement. A strategic roadmap is recommended to guide the organization towards improving its service design maturity and UX capability, with future research suggested to examine the broader application of these insights.

Keywords: service design maturity, UX capability, design thinking, organizational transformation, maturity models

Lapin yliopisto, Taiteiden tiedekunta

Tutkimuksen nimi: Towards User-and Customer-Centricity: Service Design Maturity and UX Capability in Organizational Transformation

Tutkija: Martta Lemola

Koulutusohjelma: Palvelumuotoilun monialainen maisteriohjelma

Työn laji: Pro gradu

Sivumäärä: 58 + 3 (lähteet)

Vuosi: 2024

Tiivistelmä

Tämä opinnäytetyö tutkii palvelumuotoilun kypsyystasoa ja UX-kyvykkyyttä suuressa kansainvälisessä valmistavan teollisuuden korporaatiossa, tavoitteenaan arvioida nykytilaa ja löytää ratkaisuja tutkimuksessa ilmenneisiin haasteisiin. Tutkimus tuo esiin tapauksen, jossa organisaatio on ottanut käyttöön käyttäjä- ja asiakaskeskeisiä toimintatapoja, mutta jolta puuttuu strategisia ja käytännöllisiä ratkaisuja tämän muutoksen toteuttamiseen koko organisaation tasolla. Tämänkaltaisten esimerkkien tarve muotoilututkimuksessa on tärkeä, sillä organisaatioiden on kyettävä sopeutumaan nopeasti muuttuvaan liiketoimintaympäristöön (Burns ym., 2006). Tämä tutkimus auttaa ymmärtämään, kuinka organisaatiot voivat parantaa palvelumuotoilun ja UX-kyvykkyytensä kautta muutoksen hallintaa.

Tutkimuksessa käytettiin mixed methods -lähestymistapaa, joka yhdistää laadulliset ja määrälliset tutkimusmenetelmät. Aineisto kerättiin haastattelujen, työpajojen ja kyselyn avulla, mikä mahdollisti sekä syvälliset oivallukset että mitattavat tulokset. Näiden menetelmien integrointi mahdollisti laadullisen datan tuoman kontekstin määrällisille havainnoille, jolloin organisaation palvelumuotoilun kypsyys ja UX-kyvykkyys saatiin kokonaisvaltaisesti esille. Tämä lähestymistapa syvensi ymmärrystä organisaation ongelmista ja johti konkreettisiin kehityssuosituksiin.

Tulokset paljastavat epäjohdonmukaisuuksia siinä, miten organisaatio ymmärtää ja toteuttaa käyttäjäkokemusstrategioita. Pirstoutunut muotoilukulttuuri, johon liittyy johdon vähäinen tuki ja palvelumuotoilun alhainen priorisointi, estää edistymistä. Vaikka joitakin myönteisiä vaikutuksia palvelumuotoiluprojekteista havaittiin, kokonaisvaltainen kypsyysaste on edelleen matala satunnaisen yhteistyön ja organisatoristen siilojen vuoksi. Aiemmat onnistuneet muotoilukokemukset ja monitieteiset projektit tarjoavat kasvupotentiaalia, mutta esteinä ovat käyttäjäkeskeisyyden puute, resurssirajoitteet ja muutosvastarinta. Strateginen tiekartta suositellaan organisaation palvelumuotoilun kypsyystason ja UX-kyvykkyyden parantamiseksi, ja jatkotutkimuksissa ehdotetaan näiden oivallusten laajempaa soveltamista vastaavissa ympäristöissä.

Avainsanat: palvelumuotoilumaturiteetti, UX-kyvykkyys, muotoiluajattelu, organisaatiomuutos, maturiteettimalli

Table of Content

1.	Introduction.....	7
	Research needs.....	7
	Research context.....	8
	Research objectives.....	9
2	Theoretical background.....	10
2.1	<i>Key theories defined.....</i>	<i>11</i>
	Service Design Maturity.....	11
	UX Capability.....	11
	Transformation design.....	12
	Design Thinking.....	12
	Human Centred Design.....	12
	Design Led Innovation.....	13
	From Service-Dominant Logic to Customer-Dominant Logic.....	13
2.2	<i>Assessing and Implementing Design into Organization.....</i>	<i>14</i>
	Design maturity/capability models.....	14
	Implementing Service Design and UX.....	17
2.3	<i>Benefits of high service design maturity and UX capability.....</i>	<i>18</i>
	Making the World More Friendly for Humans and Environment.....	18
	Bringing value to a business.....	19
	Challenging and transforming traditional ways of working.....	19
2.4	<i>Summary.....</i>	<i>20</i>
3	Methodology.....	22
3.1	<i>Research Strategy.....</i>	<i>23</i>
3.2	<i>Data Collection: Interviews.....</i>	<i>28</i>
3.3	<i>Data Collection: Workshops.....</i>	<i>30</i>
3.4	<i>Data Collection: Questionnaire.....</i>	<i>32</i>
3.5	<i>Summary.....</i>	<i>36</i>
4	Results.....	38
4.1	<i>The current state of the organization.....</i>	<i>38</i>
	Service Design Role in the Organization.....	38
	Level of Collaboration – Working in silos.....	40
	Understanding user experience.....	41
	Design culture.....	44
4.2	<i>Drivers.....</i>	<i>45</i>
4.3	<i>Barriers.....</i>	<i>46</i>
4.4	<i>Summary.....</i>	<i>49</i>
5	Discussion.....	50
5.1	<i>Assessment with Maturity/Capability Models.....</i>	<i>51</i>
5.2	<i>Strategic roadmap.....</i>	<i>54</i>
	Design as thinking.....	55
	Design as Value Creation.....	58
	Design as Intangible.....	59
5.3	<i>Summary.....</i>	<i>61</i>

6	Conclusions.....	63
	References.....	65

List of figures, charts and tables

Figure 1. *A summarized visualization of the theoretical framework. Created by Lemola, 2024.*

Figure 2. *Danish Design Ladder (Danish Design Centre, 2001).*

Figure 3. *UX maturity model (Pernice et al., 2024).*

Figure 4. *Maturity levels (Rukonić et al., 2019, p. 8).*

Figure 5. *Research onion (Saunders, Lewis, & Thornhill, 2023).*

Figure 6. *Mixed methods and concurrent approach - a visualization of the methods used in this study (By Lemola, 2024).*

Figure 7. *Raising service design maturity and UX capability in the organization.*

Figure 8. *Design Maturity and Capability Matrix.*

Figure 9. *Cultural stepping stones (Doherty et al., 2014).*

Table 1. *UXPAM questionnaire (1), (Rukonić et al., 2019).*

Table 2. *UXPAM questionnaire (2) (Rukonić et al., 2019).*

Table 3. *Process areas and attributes (Rukonić et al., 2019).*

Table 4. *Process assessment area scores.*

1. Introduction

The design industry has taken a new role in today's competitive business landscape. Designers have come a long way from the Arts & Crafts movement in Bauhaus during the world wars (Burns et al., 2006, p. 11). Before, design was a process that was used in creating tangible products that required a mechanical way of thinking (Meroni et al., 2011, p. 27). Today, designers are solving social, economic, and environmental problems with user-centered design (Burns et al., 2006, p. 11). Organizations have started to understand the benefits of implementing design to a strategic level instead of using it as a styling of products or workshop facilitation (Mager & Sung, 2011, pp. 1-3). Yet, the task of implementation and integration can be easier said than done. Delivering services is much trickier than it was before (Meroni et al., 2016, p. 11). The “complex” and “ambiguous” issues are increasing, but designers seem to be ready to roll their sleeves and dive in with their creative problem-solving skills (Burns et al., 2006).

Research needs

In 2024, the importance of studying service design maturity and UX capability in organizations is more pronounced than ever, driven by more than one key factor. According to Verhoef et al. (2021), the rapid pace of technological advancement, particularly with the integration of Artificial Intelligence (AI) and digital transformation, necessitates that organizations continuously evolve their service offerings. A mature service design process and robust User Experience (UX) capability enable organizations to seamlessly incorporate these technologies, ensuring that they remain competitive in a rapidly changing digital landscape. (Verhoef et al., 2021, p. 890)

Additionally, customer expectations have significantly increased, with demands for personalized, seamless experiences across all touchpoints. Organizations that have advanced service design and UX practices are better positioned to meet these expectations, fostering customer loyalty and differentiating themselves from competitors (Lemon et al., 2016, pp. 71-72). Moreover, in an era where systems are continually changing, high service design maturity helps organizations create services that align with social, economic, and political values, while strong UX capability will ensure success even in designing complex sociotechnical systems (Norman et al., 2015, p. 11). This focus on sustainability not only meets consumer demands but also contributes to the organization's long-term viability (Meroni et al., 2011). Furthermore, organizations with high levels of service design maturity and UX capability discover fast, if the problem

under development is the actual problem and whether the product under development is needed (Norman, 2016, p. 209). This adaptability is crucial for maintaining a competitive edge in an increasingly complex business environment. Overall, investing in and studying these areas is essential for organizations aiming to achieve sustainable success, as they navigate the challenges and opportunities of 2024 and beyond.

Research context

The context of this research is in a Finnish manufacturing corporation. The corporation is faced with the challenge of wanting to enhance its service design maturity and focus more on users and customers. There is a motivation to take the next steps towards raising the service design and UX maturity/capability, but the corporation lacks a clear organization-wide roadmap and alignment on putting focus on them. This research seeks to understand the current level and next steps of raising service design maturity and UX capability within the corporation. This research is important because it combines perspectives from both service design and UX and sees the phenomena of user- and customer-centricity overlapping in different industries.

In this thesis, service design and UX fields are combined to have as describing and detailed vision of the organization as possible. Studying service design maturity and UX capability in organizations is a common area in design research, but usually the papers include either service design or UX aspect. The combination of these phenomena in this research also makes sure that the topic is understood better since the organization under study has many professionals under different titles working on the common goal of having better services and user and customer experiences. Combining service design and UX maturity models will help in finding comprehensive practices and recommendations for each issue.

The purpose of this thesis is to show that the organization under study has the potential and tools to raise its service design and UX maturity/capability. The thesis aims to give new perspectives and assets to reach higher levels of maturity and capability.

Research objectives

Problem Statement: The organization under study is exploring ways to enhance service design maturity and UX capability.

Research Objective: How can service design maturity and UX capability of a company be enhanced to improve user and customer centricity within the organization?

Research question: How can the service design maturity and UX capability of the multinational manufacturing corporation under study be enhanced to foster greater user and customer centricity?

Subquestions:

1. What is the current level of service design maturity and UX capability in the multinational manufacturing corporation under study?
2. What are the key drivers and barriers that are impacting the enhancement of service design maturity and UX capability in the organization?
3. What best practices can be adopted to improve service design maturity and UX capability in the organization?

The goal of this research is to help the organization find ways to raise the service design maturity and UX capability. To succeed in this task, the current state must be researched.

The thesis starts with an introduction and theoretical background, moving on to the results, where the data results are described, and current maturity is assessed. In the discussion, the results will be looked at in the light of existing frameworks, which provide a roadmap for the organization to follow. Conclusions will be found at the end of the research, such as sources and appendices.

2.Theoretical background

This theoretical background is an analysis of the existing materials found in the field of service design and UX regarding service design and UX in organizations. The literature on service design, UX, and organizational change is extensive, with key theories including transformation design, design thinking, human-centered design (HCD), and design maturity/capability models. These frameworks guide the assessment of service design maturity and UX capability in the organization in the research, focusing on its ability to meet user needs, enhance customer experiences, and drive organizational transformation. The theoretical frame is described in the figure below.

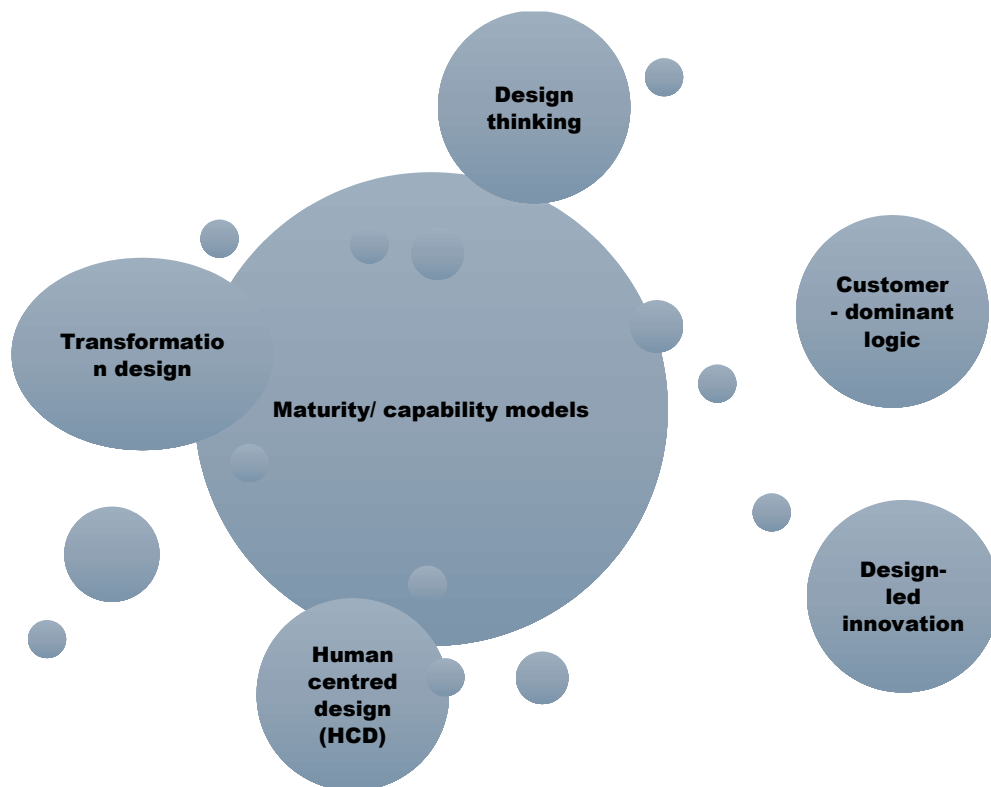


Figure 1. A summarized visualization of the theoretical framework. Created by Lemola, 2024.

This theoretical background aims to explore existing research and knowledge on how to assess service design maturity and UX capability. First, the most significant aspects of this research are narrowed down and defined to formulate the theoretical framework. The theoretical frame-

work will give boundaries to the thesis and offer solutions. In the chapter, there will be also insights into how the corporation can implement its service design maturity and enhance user-and customer-centricity – and why they should do it.

2.1 Key theories defined

Service Design Maturity

Service design maturity refers to the level of development and implementation of service design practices within an organization (Meroni et al., 2016). Before services were seen as a valuable part of the product, or even the most important part of the product, organizations only assumed who were their customers and what are their needs and behaviors (Merholz et al., 2016, p. 10). Service design encompasses the organization's ability to understand customer needs, design effective service experiences, and continuously improve service delivery (Mager et al., 2011, 1-3). To assess the current level of service design maturity, it is essential to examine existing frameworks and models that can provide a comprehensive understanding of the different stages of maturity.

UX Capability

The difference between maturity and capability is that maturity refers to the consistent process implementation, whereas capability refers to the ability to achieve the required goals of a process (Rukonić et al., 2019, p. 3). As capability refers to the ability to reach the required goals of a process, it's crucial to define, how that might look like when talking about user experience. According to Norman (2013), user experience capability specifically means an organization's proficiency in designing and developing products and services that deliver high-quality user experiences. This capability hinges on a deep understanding of user needs, preferences, and behaviors, ensuring that these insights guide the design and development processes (Norman, 2013, pp. 22-23). Key practices include involving users throughout the design process, conducting comprehensive user research, and continuously testing and refining solutions based on feedback (Nielsen, 1993, p. 27). To build strong UX capability, organizations often adopt established methodologies such as Design Thinking and Human-Centred Design (HCD). These frameworks help integrate user insights into every stage of product and service development, fostering a culture of innovation and continuous improvement.

Transformation design

The design industry is answering to the new competitive needs of modern industries with a fairly new design orientation, transformation design (Burns et al., 2006, p. 7). Transformation design is a practice, that is targeting “to fundamentally transform a national system or company’s culture” (Burns et al., 2006, p. 21). Service Design and UX offer tools for this issue that can be seen falling under a bigger concept: organizational change. According to Bartunek et al. (1988), organizational change can be divided into two approaches, organizational development, and organizational transformation. They highlight that the main emphasis of organizational development is on the methods used to implement predetermined changes, like enhancing conflict management skills. On the other hand, organizational transformation primarily concentrates on identifying patterns of change in the organization’s structure, including shifts in its mission, values, and overall framework (Bartunek et al., 1988, pp. 5-6). This thesis focuses on the latter, organizational transformation. Transformation design is where organizational change and service design merge to be considered an engine for wider social transformations (Sangiorgi, 2011).

Design Thinking

Design Thinking is widely recognized as an effective framework for fostering user-centricity. “Design Thinking is known as a set of cognitive processes for identifying and addressing stakeholder needs and for problem-solving” (Katzen, 2011, p. 49). It involves empathizing with users, defining their needs, ideating potential solutions, prototyping, and testing iteratively. Design thinking has turned from a process of making a product from an idea into making the service experience an important component of the design goal by researching user needs (Katzen, 2011, p. 49). By adopting Design Thinking principles, the corporation can create a culture of empathy and collaboration, enabling the organization to better understand user needs and design services that meet their expectations (Merholz et al., 2016). It’s also recognized, that to become a design-thinking organization, a committed leadership is required (Martin, 2009, 28).

Human Centred Design

According to Norman (2013), Human-centred design (HCD) is a creative approach to problem-solving that starts with understanding the needs, behaviors, and experiences of the people for whom the solution is being designed. It promotes empathy and involves the users throughout the design process to ensure that the final product is tailored to their needs and preferences

(Norman, 2013, p. 25). According to IDEO, a leading design and consulting firm, "Human-centred design is a process that starts with the people you're designing for and ends with new solutions that are tailor-made to suit their needs" (IDEO, 2024). This is the kind of design from the point of view of an individual instead of the architecture of a system.

This research focuses on both user and customer-centricity, which both have slightly different approaches. According to Burns et al. (2006), HCD can be seen as an overarching philosophy for user-centered design (UCD) and customer-centered design (CCD). The difference between these is that UCD operates with the end-user in mind and CCD has a stronger focus on the customer experience and satisfaction (Burns et al., 2006, p. 18). When user customer-centricity is stated in the research, it aims to discuss the fundamental difference between a business owner or a service provider to the customer or user.

Design-Led Innovation

According to Bucolo et al. (2011), Design-led innovation (DLI) is a strategic approach that leverages design methodologies to drive innovation within an organization. Their model is centered around the idea that design can play a pivotal role in reshaping an organization's strategy by fostering the development of innovative activities. Key aspects of the model include 1) strategic competitive advantage, 2) Co-development with stakeholders, 3) Iterative stakeholder engagement, 4) Design visualization, and 5) Temporal consideration (Bucolo et al. 2011). Unlike traditional human-centred design, which often focuses on evaluating current product features and user experiences, this model looks at the value proposition and strategic advantage over time. It invites stakeholders to consider not just the immediate user needs but also the temporal aspects of how a product or service evolves (Bucolo et al. 2011, p. 3.).

From Service-Dominant Logic to Customer-Dominant Logic

Service-Dominant Logic (SDL) is a framework in marketing and business that shifts the focus from traditional goods-dominant logic to a more holistic view where service is the fundamental basis of economic exchange. This logic, first introduced by scholars Stephen Vargo and Robert Lusch (2004), sees the service as the primary unit of exchange rather than goods. This means that all economic activities are essentially about providing a service, whether directly (like consulting or healthcare) or indirectly (like the service provided by a product that fulfills a need) (Vargo et al., 2006). SDL has been later on criticized for its remaining focus in the company instead of customer. Heinonen et al. (2010) are claiming the focus of SDL leading to an incom-

plete understanding of the service's true value, as it overlooks what the customer does with the service in their own consumption practices, rather than just what the service does for the customer. They introduced customer-dominant logic as a way of seeing customer in the centre of value creation. Rather than concentrating on how companies create services to attract customers, they propose shifting the focus to how customers use these services to achieve their own goals (Heinonen et al., 2010, p. 4). This logic can be linked to transformation design and design thinking.

2.2 Assessing and Implementing Design into Organization

To properly improve the service design maturity and UX capability, there must be an understanding of the current state. Design impact in the organization can be hard to evaluate, but some frameworks will get the researchers closer to the actual state. There is plenty of literature and several maturity models focusing on improving service design and UX maturity and capability in organizations. Maturity/capability models are frameworks designed to evaluate key performance indicators and offer structured pathways for assessing and enhancing various aspects of an organization (Giri et al., 2022, p. 2). In this research, these models are used to understand and give recommendations in how to raise service design maturity and UX capability in the organization.

Design maturity/capability models

In the design field there are three kinds of maturity models, which of two are represented in this research: design-oriented industry models and user experience models (Giri et al., 2022, p. 4). These models were chosen for their different aspects of design, combining old and new research. These frameworks have their strengths and weaknesses, but they all come down to asking the same question: how human-centred is the organization?

Design Oriented Industry Models: Danish Design Ladder

User Experience Models: Stages of UX maturity (NN group), UXPAM – User Experience Process Assessment Model

It's important to understand how to properly assess the organization using maturity models. For example, the ladder shape models might give an oversimplified expression of the transform that is needed to happen (Pöppelbub et al., 2011, p. 4). To reach the ultimate “end goal” organiza-

tions mustn't jump over any stages or rush the transformation, since change doesn't happen overnight (Pernice et al., 2024).

Danish Design Ladder (DDL)

The Danish Design Ladder, originally developed by Danish Design Centre (2001), helps organizations understand the value of design and encourages them to integrate it more deeply into their operations (Kretzschmar, 2003). Later on, DDL has been discussed or modified by many, such as Meroni & Sangiorgi (2011) and Kretzschmar (2003). DDL is developed to illustrate the various stages through which companies integrate design into their business processes (Kretzschmar, 2003). It identifies four distinct levels of design maturity, starting from 1) No Design to 4) Design as Strategy. DDL is the strongest framework in this research, and it was chosen for its generality. Because of its generality, it enables to examine the phenomenon from a high level and intertwine two different occupations, service design and UX. To this model, there were also recommendations available on how to transition from one ladder to another.

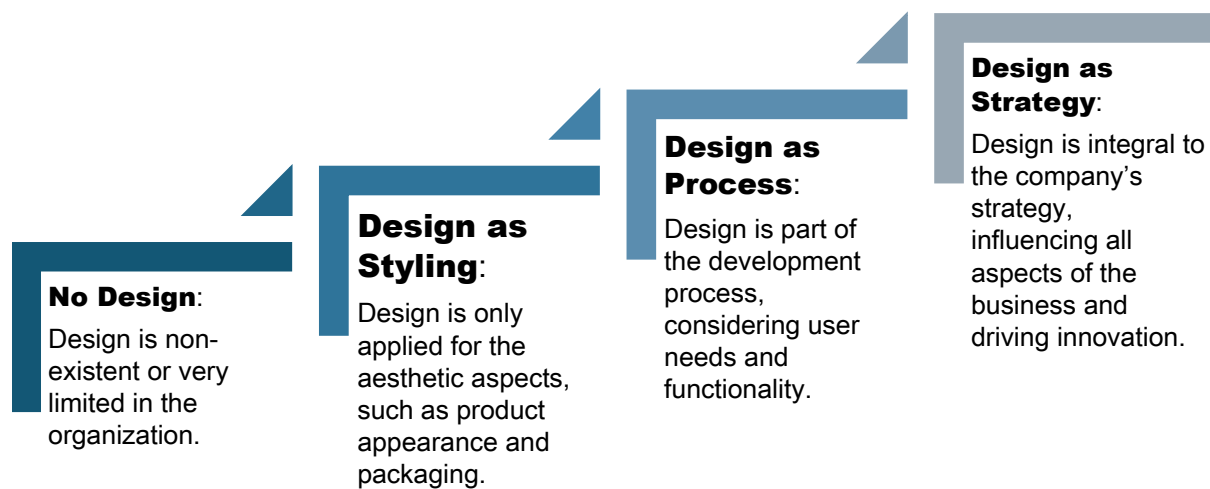


Figure 2. Danish Design Ladder (Danish Design Centre, 2001).

UX maturity model

The UX maturity model is designed over 20 years after DDL, bringing a fresh perspective to the thesis. According to Pernice et al. (2024), the UX Maturity Model outlines six stages that assess an organization's capability to deliver user-centred design effectively, ranging from 1) Absent, where UX is nonexistent, to 6) User-driven, where UX is deeply embedded and drives strategic

decisions. The model evaluates an organization across factors like strategy, culture, processes, and outcomes, highlighting the importance of leadership support, resource allocation, and systematic UX practices. Progressing through these stages requires a comprehensive, organization-wide commitment to integrating and prioritizing UX in all aspects of business operations, ultimately leading to superior user experiences and business success (Pernice et al., 2024).

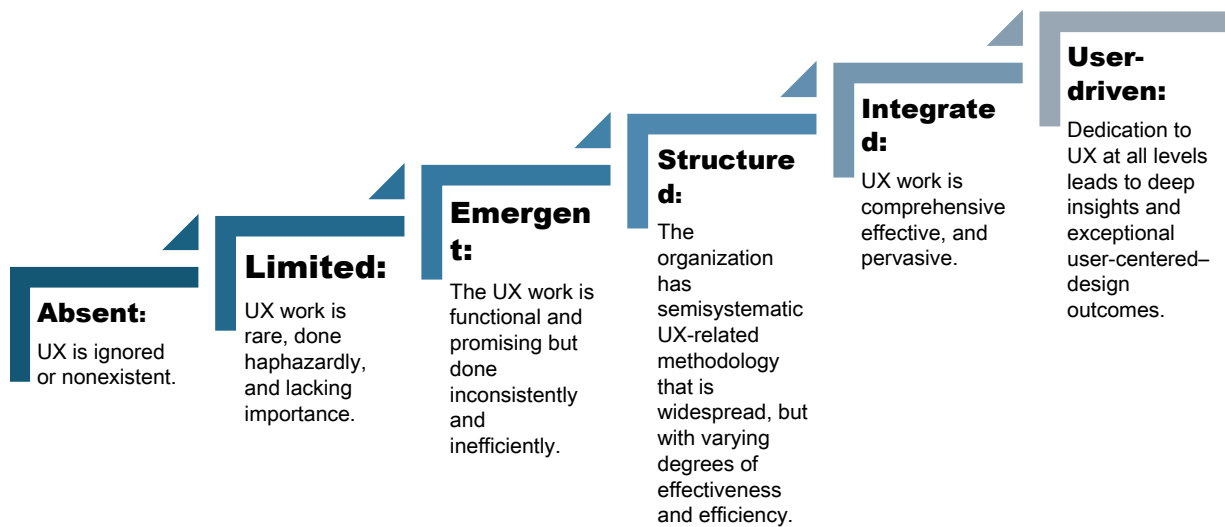


Figure 3. UX maturity model (Pernice et al., 2024).

UXPAM – User Experience Process Assessment Model

According to Ruconic et al. (2019), The UX Process Assessment Model (UXPAM) is designed to help organizations evaluate and improve their UX processes. UXPAM model is designed to assist organizations in assessing the effectiveness of their UX processes by analyzing specific process attributes. Additionally, it serves as a foundation for enhancing and refining UX practices. This model was included in the thesis to evaluate existing processes, bringing more practical and numeric level to the research. The model has 5 maturity levels, varying from Unrecognized (1) to Optimal (5). The maturity levels differ from UX not considered (1) to UX culture established (5) (Rukonić et al., 2019).

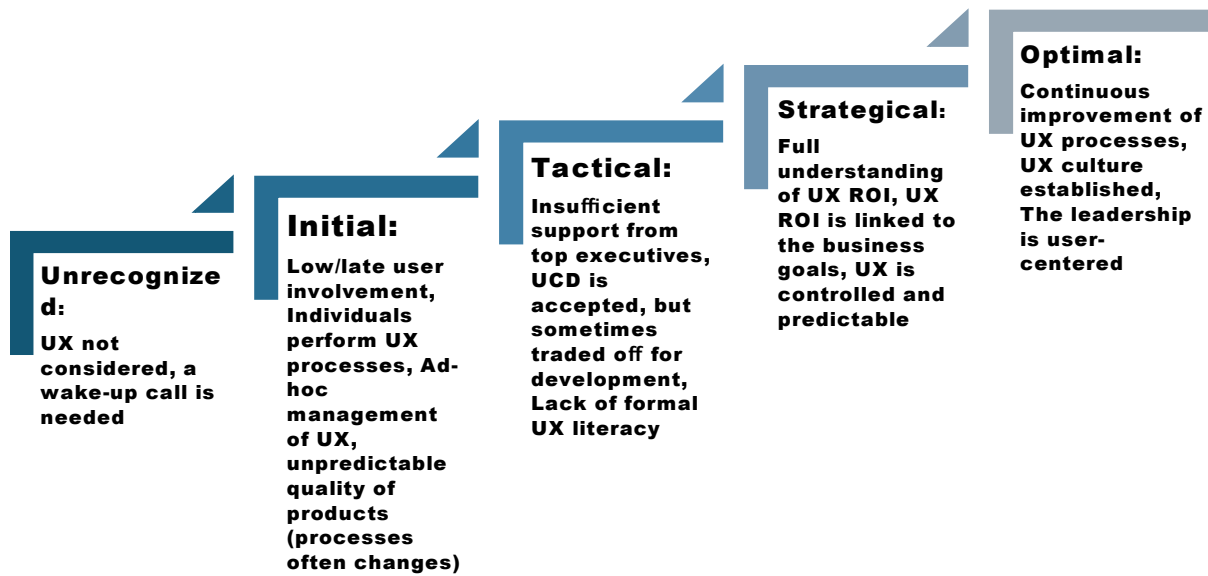


Figure 4. Maturity levels (Rukonić et al., 2019, p. 8).

Implementing Service Design and UX

Wrigley et al. (2020) suggest that in implementing design thinking into organizations, several dimensions need to be considered: support from management, strong leadership, staff with the appropriate skills, the mentality to embrace a culture of innovation and an organization capable of adapting and evolving. Certain organizational conditions have to exist, and even then, it can be a challenging path. These conditions are Strategic Vision, Facilities, Cultural Capital and Directives. The design is considered to be integrated into an organization when it has widely implemented design through its staff and recognized design as a strategic asset (Wrigley et al., 2020, pp. 135 & 137).

Strategic Vision refers to an organization's long-term goals and intent, focusing on future growth, change, and innovation, and is crucial for maintaining competitiveness and guiding the organization's direction beyond just current operations (Wrigley et al., 2020, pp. 135 & 137). Facilities indicate the success of design initiatives in an organization is heavily influenced by the availability of dedicated physical spaces and resources, which signal the organization's commitment to integrating and sustaining design practices (Wrigley et al., 2020, pp. 137-138). Third condition, Cultural Capital, refers to the employees' understanding of design's value and their ability to practice it, which is essential for sustaining innovation and preventing the loss of

critical knowledge when key staff members leave (Wrigley et al., 2020, p. 138). Directives ensure that all employees, not just a few, are mandated and held accountable to practice design, often through Key Performance Indicators (KPIs) or specific role descriptions, aligning their activities with the organization's strategic goals (Wrigley et al., 2020, p. 139).

There have been found qualities that will speed the transformation. The organizational conditions have to be present for the change to happen, but even then, it doesn't happen on its own. These needs are proposed to reinforce the organizational transformation: a) intensifying pressures to improve marketing productivity, b) increasing market diversity, c) intensifying competition, d) demanding and well-informed customers and consumers, and e) accelerating advances in technology (Shah et al., 2006, p. 114).

Tracking organizational transformation is tricky (Shah et al., 2006, p. 118). Key Performance Indicators are critical for evaluating the effectiveness of design initiatives within an organization. KPIs offer quantifiable measures that enable tracking progress towards specific business goals, ensuring that activities are aligned with broader strategic objectives (Velimirovića et al., 2010, p. 65). For instance, KPIs might include user satisfaction rates, usability scores, or the efficiency of design iteration cycles, all of which are vital for assessing design impact. Establishing clear KPIs allows organizations to adopt a data-driven approach to decision-making, promoting continuous improvement in design processes (Velimirovića et al., 2010, p. 65).

2.3 Benefits of high service design maturity and UX capability

The discussion around benefits of customer-centricity is not a new topic. The benefits have been around for more than 50 years, yet organizations still find themselves struggling with organizational culture, structure, processes and financial metrics (Shah et al., 2006, p. 113). In this section, the benefits of high service design maturity and UX capability is divided into three larger pools. Design can bring value in solving wicked problems and making the world more human and environment friendly, it creates concrete value for businesses, and it plays major role in creating the working conditions of our future.

Making the World More Friendly for Humans and Environment

The valuable resource on our populated planet is people's problem-solving abilities. Service design can work as a powerful agent of change that leverages social networks to feed the stra-

tegic discussions (Meroni et al., 2011, p. 5). Creative problem solving is needed for tackling wicked problems, such as human rights or pollution (Rittel et al., 1973, p. 160). The complexity of wicked problems can be an issue also in organizations, and often they are discovered in efforts of creating an effective strategy (Camillus, 2008). Design comes to the play when old ways of doing things don't work for society anymore and problems are to be addressed using a more creative mindset and tools (Buchanan, 1992). Designers can be seen blamed largely for the pollution, due to the number of products that have been planted to the environment (Panepanek, 1972, p. 241). The time has come to use design as a tool for sustainability, such as thinking about ways to tackle climate change (Thorpe, 2012, pp. 10-11). Design brings value to the business, but most importantly, it benefits society (Kretzschmar, 2003, p. 35).

Bringing value to a business

It's crucial to think how to keep the organization profitable, meaningful and useful in the world (Brown et al., 2011). Companies don't usually understand the potential of design investments and struggle with operational and managerial problems such as building and leading teams (Merholz et al., 2016). Focusing on the customer makes business more competitive: Service design puts the user at the center of the process, ensuring that services are designed with a deep understanding of user needs, behaviors, and expectations. This user-centred approach leads to more relevant and effective services, enhancing processes and decreasing clutter (Merholz et al., 2016). By mapping out and optimizing processes, service design and UX can help organizations become leaner by eliminating inefficiencies and redundancies (Gothelf, 2013, pp. 8-9). Designers have tools to estimate the needs for services or products before they are carried out, which drives business success (Norman, 2016, pp. 209-210). Optimizing processes and involving stakeholders in the co-creation process can lead to more effective use of resources, cost savings, and increased efficiency (Ramaswamy et al., 2018). Ultimately, well-designed services can lead to increased customer retention, higher sales, and a stronger competitive position in the market (Zeithaml et al., 2018). Businesses that excel in service design are often more successful and financially sustainable in the long term (Kretzschmar, 2003, p. 3).

Challenging and transforming traditional ways of working

Service design encourages organizations to think creatively about how they deliver value to their customers (Kimbell, 2011, p. 42). This can lead to the development of new services or improvements to existing ones that differentiate a company from its competitors (Amant et al., 2024, p. 4). Service design helps in aligning various departments and functions within an orga-

nization towards a common goal of delivering exceptional service. Co-creating ensures that everyone in the organization understands their role in contributing to the customer experience (Mager et al., 2011). In the era of digital transformation and AI, service design plays a critical role in integrating digital tools and technologies into the customer journey. This ensures that digital and physical components of a service are cohesive and enhance the overall experience (Patrício et al., 2019, p. 7). The iterative nature of service design means that services are continuously evaluated and improved based on feedback and performance metrics. This ongoing process of continuous improvement helps organizations stay relevant and responsive to changing customer needs (Shah et al., 2006, p. 121).

2.4 Summary

Transformative design, a response to competitive industry demands, emphasizes fundamental changes in organizational culture, while service design maturity and UX capability reflect the extent to which organizations integrate user-centric and customer-centric approaches into their processes. Design thinking and HCD are crucial for fostering user-centricity, promoting empathy, and involving users throughout the design process. These approaches help organizations innovate and continuously improve their offerings. Service design maturity models like the Danish Design Ladder and the Design Culture Ladder evaluate how deeply design practices are embedded in an organization, ranging from basic aesthetic considerations to strategic integration that drives innovation.

Implementing service design and UX requires specific conditions from the organization to succeed. Conditions such as support from management, a culture of innovation, and a commitment to continuous improvement should exist to enhance maturity and capability. This process involves assessing the current state using maturity/capability models.

The literature review shows the crowdedness in maturity/capability models research but lacks ways of climbing them up. Models often show the stage of where the organization should go next, but ‘how’ is underrepresented. There is no right way of transforming a product-centric company into a customer-centric company (Shah et al., 2006, p. 121). This is one of the reasons why there can be seen a gap in research. The design research needs more examples and guidelines to raise the maturity/capability after the assessment. This would also validate the

maturity/capability models since there would be proof of how organizations have increased their service design maturity and UX capability by following the steps.

Doing the hard work is worth it. Service design maturity and UX capability bring significant benefits, including improved customer retention, higher sales, and a stronger market position, while also contributing to sustainability and societal well-being. Service design challenges traditional working methods by aligning organizational functions towards exceptional service delivery and integrating digital tools to enhance customer experiences.

3. Methodology

Through this methodology section, the study is explained in detail. This study falls within the realms of design and organizational change, both essential fields for fostering innovation and enhancing organizational performance. Design research emphasizes the creation of processes, systems, and products that improve both user experience and organizational efficiency (Buchanan, 1999, pp. 17-19). Organizational change is a complex process that involves shifts in both the formal structures and the deeper, more implicit cultural and cognitive aspects of an organization. This can be divided into organizational transformation and organizational development. (Bartunek et al., 1988, pp. 100-118). The integration of design and organizational change provides a comprehensive framework for understanding how design thinking and development processes can support long-term organizational change.

The research is built on finding meanings and “how they are embodied in the language and actions of social actors” (Schwandt, 1998, p. 222). Below in Figure 5, the research onion (Saunders et al., 2023, p. 131) explains the methodological decisions made for this study. These decisions are further explained and defined in this chapter.

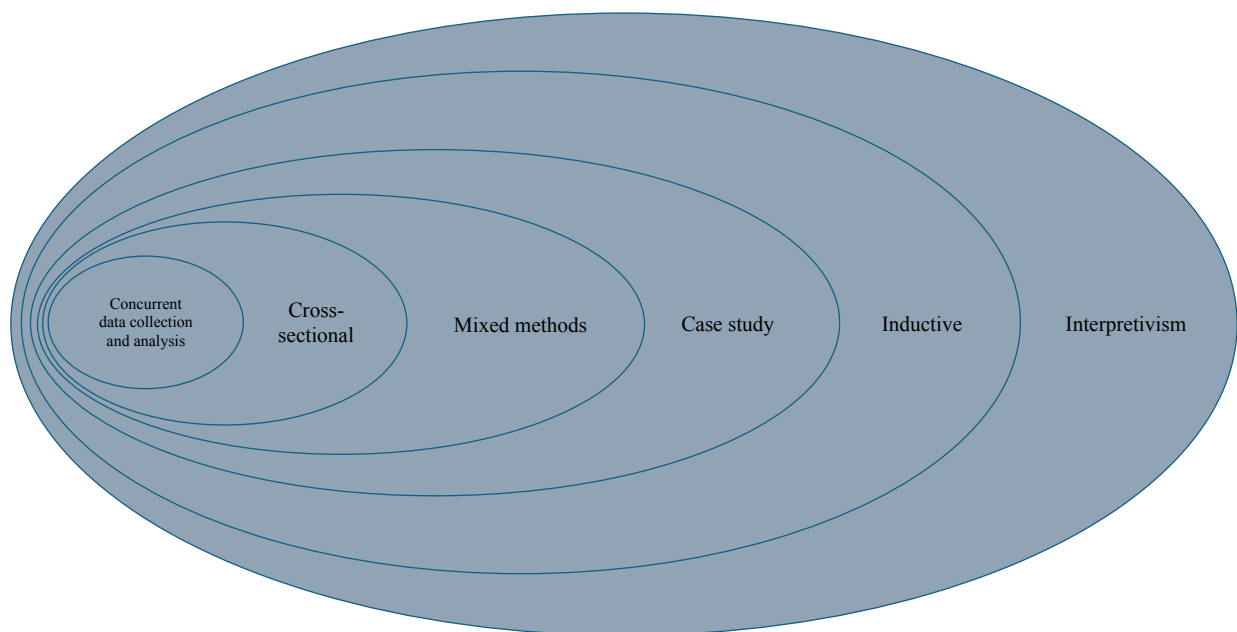


Figure 5. Research onion of this research (Adapted by Lemola, 2024, following the example of Saunders & Tosey, 2012).

3.1 Research Strategy

Interpretivism

Interpretivism emphasizes the subjective nature of reality, suggesting that knowledge is constructed through social interactions and experiences (Bryman, 2016, p. 26). This paradigm rejects the idea of an objective truth that is independent of human perception, instead proposing that researchers seek to understand the world through the meanings people assign to their experiences (Merriam, 2009, p. 8). Interpretive research often involves qualitative methods, such as case studies or ethnography, where the goal is to capture rich, detailed accounts of individuals' lived experiences (Silverman, 2017). The approach assumes that context deeply influences how phenomena are understood, making it essential for researchers to consider the environment in which these interpretations arise (Stake, 1995, pp. 71-72).

Inductive approach

The inductive approach to research focuses on generating theories from the collection and analysis of data rather than testing pre-existing hypotheses (Bryman, 2016, pp. 6-7). Researchers using this approach begin with observations or empirical data and seek to identify patterns or themes, which are then used to formulate broader theories (Thomas, 2006, p. 239). This method is particularly common in qualitative research, where the goal is to develop a deep understanding of complex social phenomena by allowing the data to guide the research process (Silverman, 2017, p. 374). This allows researchers to remain open to new insights, making the inductive approach well-suited for exploratory studies.

Case study

A case study is a qualitative research strategy that is designed to investigate complex issues within different contexts (Harrison et al., 2017, p. 2). It is a strategy where the researcher conducts an in-depth examination of a program, event, activity, process, or group of individuals. These cases are defined by specific time frames and activities, and researchers gather extensive, detailed information using various data collection methods (Stake, 1995). Qualitative research is fitting for this study when the interest is not only in the physical events and behavior but also in how their understandings influence their behavior (Maxwell, 2012, p. 221). Case study was chosen, because the focus of the study is to ask “how” and “why”. It is also a tool for investigating the context of where the phenomenon is happening. In a cross-sectional case study, the weight is on the current moment. It is suggested to use a case study when the phenomenon can

not be seen as separate from the context (Baxter et al., 2008, p. 545). This strategy overall will answer the research questions, in where it is to assess the state of the organization at this moment, and give recommendations for the future. Assessing the current state is answering to “why” and future recommendations are answering to “how”.

Mixed methods

Mixed methods were chosen for this thesis as a methodical choice since the assessment of maturity and capability has both qualitative and quantitative dimensions. The difference between these two in this research is simple: qualitative data refers to nonnumerical data and quantitative data refers to numerical data (Guest et al., 2015, p. 582). The phenomenon is best understood when there are quantitative data for measuring and assessing process areas and qualitative data to explore the depths of understanding. There are benefits as well as challenges in a mixed-method approach in a case study. This approach provides a more comprehensive view by capturing both measurable trends and detailed personal experiences within the case (Creswell, 2009, p. 22). Using different methods to gather data on the same topic creates triangulation, which validates findings and increases the study’s credibility (Greene, 2007, p. 42). Qualitative data helps in explaining why certain quantitative patterns exist and develop causal explanations (Maxwell, 2012, p. 221). However, designing and implementing a mixed-methods questionnaire can be more complex than using a single method, requiring careful planning on timing, weighting and mixing (Creswell, 2009, pp. 190-192). Analyzing both types of data requires more time, effort, and often, skill for designing the research process (Creswell, 2009, p. 17).

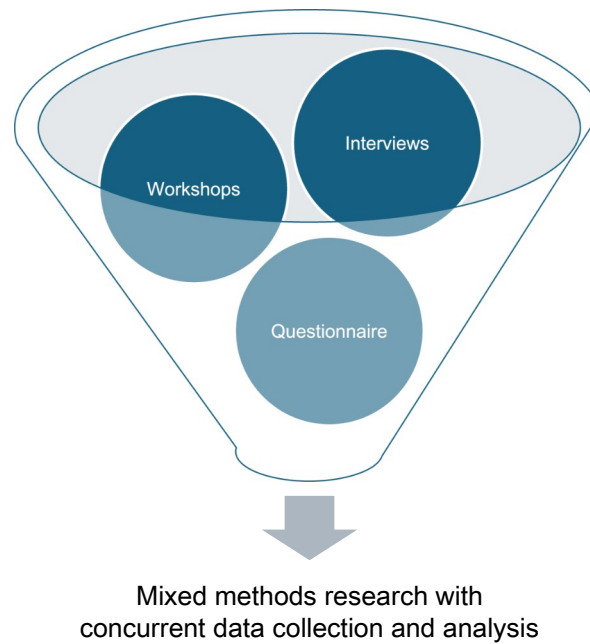


Figure 6. *Mixed methods and concurrent approach - a visualization of the methods used in this study (By Lemola, 2024)*

Concurrent approach

Based on Creswell (2009), the goal of concurrent mixed methods procedures is to seek convergence, corroboration and complementarity between the quantitative and qualitative data. By comparing and contrasting the findings from both data types, it's possible to get insights that might not be evident if only one method was used. According to Creswell (2009), this integration allows for a more valid analysis, as the strengths of one method can offset the weaknesses of the other. This approach is particularly useful in complex research scenarios, as in this thesis, where a single method might not capture all aspects of service design maturity and UX capability. However, it requires careful planning to ensure that the two types of data complement each other effectively, and it can be more challenging to manage due to the need for parallel data collection and integration (Creswell, 2009, p. 31).

In this research, the weight is on qualitative approach. The qualitative and quantitative data were collected around the same time. In this approach, a smaller set of data is integrated within a larger data collection effort to address different aspects of the research questions. The data is merged by embedding a secondary source of data, questionnaire data, into a larger primary source, interview and workshop data. Qualitative data is good to be used to explore the underlying processes, while the quantitative data focuses on measuring the outcomes (Creswell, 2009, p. 31).

Sampling

The context of the data is grounded in a manufacturing corporation in Finland, representing diverse demographic backgrounds. All participants were purposively sampled (Ritchie et al., 2014, p. 79). Nine interviews with 12 participants in five different units offered deep insights into personal experiences and perceptions. Two workshops, with also 12 participants, were focusing on the service design community's view on the positives and negatives around the culture that they work in. The third method, questionnaire, gathered 10 respondents from the broader design community. All participants were informed about the purpose of the research and provided with consent forms. Participants were assured of the confidentiality of their contributions and all data was anonymized to protect their identities.

Ethical considerations

Ethical considerations were present in this study to ensure the protection and rights of all participants (TENK, 2023). Consent was obtained from each participant, ensuring they were fully aware of the study's purpose, procedures, and their right to withdraw at any time without consequence (De Vaus, 1985, p. 59). Confidentiality was strictly maintained throughout the research process, with all data being anonymized to protect participant identities. Personal identifiers were removed or coded to ensure that individual responses could not be traced back to specific participants. Additionally, the data was securely stored, and access was restricted to authorized personnel only, further safeguarding participant confidentiality (De Vaus, 1985, p. 62). These measures ensured compliance with ethical standards and fostered trust and transparency between the researcher and participants (Orb, 2001).

Data collection and analysis

Data collection and analysis were conducted using a concurrent approach, as seen in the figure above. Based on Guest et al. (2015), concurrent design is known for its independent nature, in which the data is collected simultaneously without affecting or discussing each other. The purpose of this design is triangulation, where different data perspective supports each finding (Guest et al., 2015, p. 14). The interview, workshop, and questionnaire datasets were collected and analyzed separately and finally integrated in the Results and Discussion section. Interviews were started first, following a questionnaire and workshop. The qualitative analysis was conducted using thematic analysis for the interview and workshop data, ensuring a thorough examination of the relationships and patterns within the data. For the questionnaire, confirmatory factor analysis (CFA), was conducted.

Integration of results

The type of integration in concurrent design is merging; after analysis, the data is transformed and integrated in Results and Discussion sections (Guest et al., 2015, p. 10). Based on Creswell (2009), the quantitative and qualitative data collection can be reported separately; however, the analysis and interpretation integrate both types of data to identify points of convergence or similarities in the results. This approach in mixed methods research tends to blur the lines between the quantitative and qualitative phases, rather than keeping them distinctly separate (Creswell, 2009, p. 202). The qualitative components of the questionnaire are merged in the Results Chapter with other datasets. The process assessment table is presented separately and finally merged in the Discussion Chapter.

Validity and limitations

With an overall of 31 participants in the study and three research methods, the data collection generated a lot of material. This large data collection is unusual for a master's thesis, but it ensures the validity of the results. Using mixed methods and a concurrent approach is great for the validity, but it made the data analysis noteworthy and time-consuming. To maintain the thesis's readability, the method introductions are kept short and straightforward, not going deep into history and different methodology types.

As stated before, in this thesis qualitative data is understood as non-numeric and quantitative as numeric. When looking at the questionnaire data, it doesn't reach the exact standards of quantitative research with only 10 respondents. Yet, the questionnaire was designed and targeted to only design industries and its purpose was never to attract hundreds of respondents. The questionnaire results (process areas) are still valid to give a direction of the maturity and capability. The weight of the research being in qualitative methods, the validity of the research remains. The questionnaire instrument could've been designed better to be suitable for anyone in the organization to answer. Then again this wasn't needed, because interviews were already a strong method for investigating the perspectives from departments across the organizations. The use of advanced digital tools such as Nvivo and Avidnote were instrumental in organizing and analyzing qualitative data efficiently. NVivo facilitated the complex coding and thematic analysis required for this study. Avidnote as an artificial intelligence tool for qualitative research made the analyzing process faster by organizing the data and giving raw analysis. For the

questionnaire, excel was used to organize the answers correctly. These tools ensured to transformation of raw data to presentable results.

Reliability

Both, as an employee and academic student, my dual role has provided me with unique insights and opportunities throughout this thesis within the corporation under research. Working professionally in the field has granted me access to resources and data that might have been difficult to obtain as a student alone. This professional experience has not only enriched the research process but has also allowed me to bridge the gap between theoretical knowledge and practical application.

3.2 Data Collection: Interviews

Methodology

The most in-depth data giving method was interviews. Interviews are a qualitative research method that focuses on exploring patterns and themes within participants' responses. This method is particularly useful for gaining in-depth insights into complex issues and understanding the causal processes, combined with what goes beyond the spoken language (Hooley et al., 2012, p. 64). The thematic analysis allowed for the identification of themes from the data, providing a flexible approach to focusing on shared meanings and experiences across datasets (Braun et al., 2012, p. 2).

The choice of interviews was driven by the need to explore the nuanced experiences and perceptions of participants with the topic. This method allows for a flexible and responsive interaction, providing the opportunity to probe deeper into significant themes as they emerge during the conversation (Hooley et al., 2012, p. 12). Instead of deciding the themes beforehand, the themes were developed during the data analysis, allowing for greater adaptability and ensuring that the themes truly reflected the data. This dynamic approach distinguishes thematic analysis from content analysis, where themes are typically predefined and more rigid (Vaismoradi et al., 2013, p. 1).

Sampling

Participants were selected using purposive sampling to ensure a diverse range of perspectives. This kind of purposive sampling is typically used in qualitative research (Ritchie et al., 2014, p. 79). Altogether there were nine interviews and twelve interviewees since some of the inter-

views were done in groups. One of the principles was to keep the questions easy to grasp for everyone and avoid using terms such “service design maturity” or “HCD”. This was because the interviews focused on outside of service design team, reaching to HR, marketing, strategy, R&D and IT. In addition of having focus group from different units, it represented variety of different demographics. Recruitment was conducted through a Design Team Lead with great understanding of the requirements for the interviews.

Interview strategy

Interviews were conducted in a semi-structured format, allowing for guided conversation while providing the flexibility to explore emerging themes (Hooley et al., 2012, p. 12). Group interviews served the context nicely, since some of the questions were tricky and participants had the chance to complement answers by continuing discussion. The questions focused on user centricity and organizations culture. The main goals of the interviews were to get perspective of what is the level of understanding user/customer centricity of each participant and how they perceive it on an organizational level. This was asked straight, but it was embedded in many questions. Therefore, the level of understanding was analyzed firstly looking at the individual understanding: what is the interviewees attitude and knowledge around the topic. The understanding of the topic gave a frame to analyze interviewees stories of it. This analyzing process maintains the context well and produces more reliable results.

The interviews were done using video calls and data collected as transcripts, that were read through and fixed. To make the interviewees feel more comfortable during the call, they were able to see the questions and had possibility to make notes on a whiteboard. The idea with seeing the questions was to ensure the interviewees understood them correctly. If the interviewee then answered to the question exceptionally, it was telling of her/his level of understanding the topic.

Data Analysis

Transcribed interviews were analyzed using thematic analysis, following the steps outlined by Braun et al., (2012). The process involved familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and moving onto the reporting and dataset integration phase (Braun et al., 2012, pp. 5-11). A key technique was coding, which involved systematically categorizing data to uncover recurring factors and themes. This coding process was crucial for verifying results through data triangulation, as it allowed for the comparison and cross-validation of findings from multiple data sources (Braun

et al., 2012, p. 6-7). NVivo software was employed to assist with data management and coding, ensuring a systematic and rigorous analysis.

3.3 Data Collection: Workshops

Methodology

To gather qualitative data for this research, workshops were used as the second method of data collection. This methodology is particularly effective for gathering rich qualitative data, as it allows for the direct observation of group dynamics, the exploration of complex issues through discussion, and the elicitation of diverse perspectives in real time (Cornwall et al., 1995, p. 1673). The co-creative strategy emphasizes creating value by continually enhancing the experiences of all stakeholders (Ramaswamy et al., 2010, p. 5). Workshops were chosen because they facilitate interactive and participatory engagement, allowing for in-depth exploration of the research topic through cooperation with participants (Kensing et al., 1998, p. 180). Additionally, workshops are well-suited for complex, context-specific research questions, as they allow participants to solve problems creatively with one another and with the material, leading to deeper insights and more actionable outcomes (Puccio et al., 2007, pp. 2-4). Workshop was also a way of motivating the service design community for the journey of raising the maturity and capability in their organization since they play a pivotal role in changing the culture and practices.

Sampling

The workshop involved 12 participants selected through purposive sampling, chosen for their expertise in service design. Majority of the service design community happens to be female, having only one assumed male in the 12 participants. The inequality of genders did not bring any considerable difference to the study, since the gender of participants is irrelevant to the thesis topic. The participants included professionals with varying levels of experience, from junior staff to senior experts, ensuring a diverse range of perspectives. The participants were specifically chosen because their roles directly relate to service design, making them well-suited to provide the insights and experiences necessary for this study.

Workshop strategy

The primary objective of the workshops was to gain insights into participants experiences and perspectives on the state of service design maturity and UX capability in the organization including barriers and drivers of the topic. Additionally, the workshops aimed to foster collabora

tive discussions and generate a comprehensive understanding of strengths, weaknesses, opportunities and threats. As a side product of collecting data for the thesis, workshops are part of the early work of raising the maturity in the organization by spreading awareness and bringing participants on the same level to discuss about issues. The workshops were structured into a one session but after the two-hour workshop we hadn't yet achieved everything on the agenda. We decided to have another one-hour session, making then duration of workshops 3 hours altogether. Each session included brief description of activities, group discussions and brainstorming sessions. The workshops were designed to be interactive and encourage active participation from all attendees. Despite few changes between the participants the group stayed the same in those two workshops. The workshops were executed online using Teams and Miro board. During the workshops participants engaged in various activities designed to collect rich qualitative data. Here's the activities that were used in the collection:

1. **SWOT Analysis:** Participants used 5 minutes for each four sections, sharing their experiences and viewpoints of strengths, weaknesses, opportunities and threats.
2. **How might we:** Small groups defined three "How might we" sentences, which described the key issues and were then presented in the larger group.
3. **Action planning:** We went back to almost same groups, each group choosed a "How might we" sentence to create an action plan. The plans consisted timeline, responsible people and objectives.

Data analysis

The data collected from the workshops was analyzed using thematic analysis. The data was collected from the Miro whiteboard, transformed to a text format and coded to identify recurring themes and patterns. There was no need to code the transcripts since the whiteboard data was already very rich. The themes were named in the most describing way to message the key issues. These themes were further analyzed to draw meaningful conclusions related to the research questions.

3.4 Data Collection: Questionnaire

Methodology

According to Groves et al. (2009), questionnaire is a research method used to collect data from a predefined group of respondents to gain information and insights on various topics of interest. This method involves structured questionnaires or interviews, designed to gather quantitative

and sometimes qualitative data (Groves et al., 2009, p. 2). A questionnaire is a data collection method characterized by its ability to gather systematically structured data, which is then analyzed in a methodical manner (De Vaus, 1985, p. 3). In choosing a questionnaire as a data collection method for this thesis, the decision was guided by the need to assess the UX capabilities and bring numeric data to support using maturity/capability models. This combination of data types enhanced the comprehensiveness of the research, allowing for a more nuanced analysis.

Sampling

The questionnaire was targeted to respondents from different design occupations, ensuring that the data in this research represents all necessary groups, aligning with the research objectives. The company has designers spread out many units. Fortunately, they do have an established design community that became the target group. The questionnaire attracted 10 volunteering respondents, who were all from the design community of the company. Majority of the respondents were from product design, but there were also respondents from service design community and brand. There were only few same participants that had joined the workshops as well, so the participants display mostly new focus group. The questionnaire was open for 2 weeks.

Table 1. UXPAM questionnaire (1), (Rukonić et al., 2019).

Block 1. UX artifacts	
How often are these artifacts used in the projects you have been involved in? (never; rarely; sometimes; often; always; I don't know how often; I don't know this artifact)	
Describing user needs	About product design and evaluation
A1 Customer journey map ---	A6 Affinity diagram ---
A2 Service blueprint ---	A7 Concept map ---
A3 Persona ---	A8 Card sort ---
A4 Work models ---	A9 User scenario ---
A5 UX goals ---	A10 User story or epics ---
	A11 Task models ---
	A12 Low-fidelity prototype ---
	A13 High-fidelity prototype ---
	A14 Design principles ---
Block 2. UX methods	
How often do you use the following methods with real end-users in the projects you have been involved in? (never; rarely; sometimes; often; always; I don't know how often; I don't know this method)	
M1 Group interview (brainstorming, focus group, stakeholder interview) ---	
M2 Individual interview (in person, remote, elicitation) ---	
M3 Survey research (online questionnaire) ---	
M4 Experience sampling (repeated-entry diary) ---	
M5 Experiment (A/B testing, controlled/remote experiment, think-aloud)---	
M6 Instrument-based experiment (biometric, eye-tracker, face reader, sensors) ---	
M7 Observation (field observation) ---	
M8 Simulation (paper-and-pencil, Wizard of Oz)	
How often do you use the following methods without real end-users in the projects you have been involved in? (never; rarely; sometimes; often; always; I don't know how often; I don't know this method)	
M9 GOMS ---	
M10 Hierarchical task analysis ---	
M11 Inspection (cognitive walkthrough, heuristic evaluation, expert review) ---	
M12 Literature review (background study, SLR, systematic mapping) ---	
Block 3. UX resources	
How many full-time equivalent developers (analysts; developers; testers) work in your organization? ---	
How many full-time equivalent UX positions (i.e. people doing only UX activities) work in your organization? ---	
Who is performing UX activities in your organization?	
Nobody ☐ Developers ☐ Analysts ☐ UX consultants ☐ UX consultants ☐	
What is the range of duties of the UX designers employed in your organization?	
Information Architecture Design ☐ Interaction Design ☐ Prototyping ☐	
User Testing ☐ Visual Design ☐ I dont know ☐	

Table 2. UXPAM questionnaire (2) (Rukonić et al., 2019).

Block 4. UX literacy

Please indicate your level of agreement with the following statements about UX ROI.

(1: strongly disagree; 2: disagree; 3: neutral; 4: agree; 5: strongly agree)

In my opinion, UX helps to:

Improve products look and feel ---

increase user efficiencies ---

increase user satisfaction ---

reduce user needs for training and technical support ----

increase organizational efficiencies ---

reduce development time and costs ---

Please indicate your level of agreement with the following statements about the attitude towards users.

(1: strongly disagree; 2: disagree; 3: neutral; 4: agree; 5: strongly agree)

In my opinion, users:

do not need enhanced usability, they just need training ---

are unable to express what they want ---

expectations are difficult to manage ---

Block 5. UX culture

Please indicate the way employees are being educated about UX, through training.

None ☐ Gained at work ☐ One-shot UX training ☐

Internal awareness programme ☐ Regular corporate UX training ☐

How is UX perceived in your organization?

We don't need it --- We are already experts in the domain ---

UX could improve the success of our products --- UX could facilitate development ---

How do managers see UX?

How do employees see UX?

Who should be doing UX?

Nobody ☐ Developers ☐ Project Managers ☐ Visual Designers ☐ UX staff ☐

When do you think UX designers should be involved in the project?

Never ☐ When needed ☐ During evaluation ☐ From the beginning ☐ Always ☐

Please indicate the level of agreement with the following statements.

(1: strongly disagree; 2: disagree; 3: neutral; 4: agree; 5: strongly agree)

Your organization links UX to its business goals. ---

UX is often discussed during meetings. ---

UX is supported by C-level executives. ---

Questionnaire strategy

The questionnaire was conducted online and included both quantitative and qualitative components. Quantitative data was collected through structured questions that participants rated on the provided scales. Qualitative data were gathered through open-ended questions to gain deeper insights into the organizational context and the practical implementation of UX processes. To assess the UX capability and maturity within the company, a comprehensive UX-PAM questionnaire was utilized, based on the framework presented in the article "Measuring UX Capability and Maturity in Organizations" by Rukonic et al. (2023). This framework addresses the challenges of measuring organizational UX capability and maturity by providing a structured approach that includes a maturity scale and 13 process areas.

These UXPAM components were used in the study:

1. **Maturity Scale:** This scale measures the maturity of the organization in integrating UX processes into its workflows. The levels range from Unrecognized to Optimal, reflecting stages from lack of UX consideration to continuous improvement and a well-established UX culture.
2. **UXPAM Questionnaire:** The questionnaire offers already tested set of questions, which makes it reliable.
3. **Process Attributes:** Specific characteristics of UX processes that serve as indicators of capability and maturity.

Table 3. *Process areas and attributes (Rukonić et al., 2019).*

PA1 Product Development - high-fidelity prototypes
PA2 Visual Design - design principles (icons, font, colors, look & feel)
PA3 Stakeholders Involvement - stakeholders analysis; context meeting; focus group
PA4 Discount UX Evaluation - inspection; think-aloud; low-fidelity prototypes
PA5 Experts involvement – inspection (heuristic evaluation; cognitive walkthrough); GOMS; hierarchical task analysis
PA6 User Involvement - regularly throughout development lifecycle
PA7 Iterative Design - creation of redesign solutions; formative UX testing

PA8 UX Resources - UX skills; infrastructure (prototyping tools; labs)
PA9 User Research - experience sampling; surveys; interviews; personas
PA10 Contextual Design - context of use analysis and specification (A1-A5); UX goals setting; work modelling
PA11 UX Culture - perception of UX ; management support of UX; lifecycle integration; link to business goals
PA12 Continuous Improvement Link to business goals; UX training;
PA13 Monitoring of UX

Data analysis

Questionnaire was analyzed using confirmatory factor analysis (CFA). Based on Kline (2016), CFA is a statistical technique used to test whether the data fits a hypothesized measurement model based on prior theory or research. In this method, a substantive latent variable is conceptualized as a single dimension or continuum along which cases (or other units of analysis) can vary. This latent variable serves as an explanatory factor that accounts for the relationships between observed variables. It is a statistical technique used to test whether the data fit a hypothesized measurement model, typically based on prior theory or research (Kline, 2016, p. 188). The questionnaire results were analyzed using the process explained in the original article. In this study, the factors (process areas) were already decided and retrieved from the UXPAM questionnaire. This makes the questionnaire instrument deductive, unlike interviews and workshop data collection. Every question had measuring scale of 1-5 points, 1 being the lowest and 5 being highest. The questions were divided into process areas. In UXPAM, there are originally 13 process areas, but only 12 of them were analyzed quantitatively. As a result, there was a number on a scale 1-5 representing the maturity/capability of each process areas. To formulate the comprehensive maturity level, the average number of all process areas was counted.

3.5 Summary

In this study, a mixed-methods approach was used to assess the service design maturity and UX capability within a Finnish manufacturing corporation. The research combined both qualitative and quantitative methods, utilizing interviews, workshops, and a questionnaire to gather data. A case study strategy was employed to explore complex organizational issues in depth, focusing on understanding the current state and providing future recommendations. The qualitative as-

pects, primarily interviews and workshops, were used to inductively develop themes and gain deep insights into participants' experiences, while the questionnaire provided quantitative data to measure specific aspects of UX maturity. A concurrent approach was taken, integrating the qualitative and quantitative data to create a comprehensive analysis, with the qualitative data providing context and explanation for the quantitative findings. Ethical considerations were carefully managed, ensuring participant confidentiality and informed consent. The data was analyzed using thematic analysis for qualitative data and confirmatory factor analysis for the questionnaire results, with the integration of findings presented in the results and discussion sections. Despite the challenges of managing a mixed-methods approach, this methodology provided a robust framework for understanding the organization's UX maturity and capability, offering actionable insights for future improvements.

4. Results

This section presents the findings of the study on the service design maturity and UX capability in a corporation. The results are organized in two sections, The current state of the organization and Drivers & Barriers. They address the main research questions and hypotheses outlined in the introduction, providing a comprehensive overview of the data collected and analyzed. The findings offer valuable insights into the what's the level of understanding of user experience and design thinking in the organization, contributing to the broader effort in raising service design maturity and bringing the users and customers to the center of the strategy and development. Specifically, the results shed light on how people think about UX, how they perceive design culture, how the organization is supporting the change, and other interesting outcomes.

4.1 The current state of the organization

Service Design Role in the Organization

To understand better the design culture, mentality, and practices, it's crucial to look at where the design is located in the organization. This research focuses on a large manufacturing corporation that has over 20 stakeholder organizations, which are called business units, and other additional support functions. The organization model can be described as an umbrella, where the corporation spreads into companies, departments, offices, and teams. There's a wide range of designers, including service-, industrial-, graphic-, brand, UX designers, and additional people who can work with design duties, such as business analysts, data experts, agile coaches, and project managers. Designers are spread in different units.

There is a misalignment in priorities when it comes to users and customers. Based on interviews and the questionnaire, the focus of user experience development was often described to be internal users. There were differences between customers and internal users in the way that they were addressed. Many interviewees realized this in the middle of the interview, confirming by asking, which one we were talking about.

One interviewee detailed:

"If you are not directly dealing with (customers) individually for some reason, they feel quite distant, and therefore, I don't have much visibility or exposure to what is ultimately done for our end customers. That's why it's much easier to talk about our internal customers" (Interviewee 9).

This statement creates a conflict with the rest of the interview, in which the interviewee admitted that external customers might still be prioritized higher than internal users leading to less service design efforts. This leaves a few big questions: what and who is prioritized and where do the service design efforts allocate?

There's a lot of uncertainty about what is service design, what the process is like, and what kind of design initiatives there have been. Several interviews followed a similar script; interviewees were either struggling to answer the questions or saying that there isn't much visibility on service design since the organization's focus is elsewhere. *"I maybe don't know how to answer at all, as I don't feel like I've ever been exposed to such a question, like how we actually do it" (Interviewee 5.2).*

A few remembered the design thinking and UX team from approximately 6-8 years ago, which was focusing on digital transformation. Design thinking was described as having momentum but somehow lost it. The central team was described as disappearing and the design thinking lost its stage shortly after the disassembling. This is said even though there is a service design community and digital customer experience team in the organization. It seems that when it comes to visibility and awareness, something was done better in the past.

One of the interviewees explained:

"At the times when we had the digital organization roughly 8-6 years back from now, if I remember correctly that at that time there was a quite a lot of focus on user experience and on service design work. We had a central team in the digital organization taking care of that one. Then I think it sort of disappeared from the organization. Maybe (it) went somewhere where I didn't have anymore that visibility and the colleague that I knew that was running the team left (the organization). So I've at least lost track of how like design thinking has been a part of our developments after that team disassembled" (Interviewee 5.1).

The exposure of service and UX design seems to be nanoscopic for those who aren't working straight with it. The lack of visibility of service design work is also true for the management. This was seen when asking a management position interviewee if there are specific areas of creating a great user experience that they feel need improvement or further development. The interviewee stated, *"I can't say because I'm not in a way end user as such for the business tools" (Interviewee 4).* People in management are said to be far from design work, but also all

business unit projects. Perhaps this is one of the reasons why the design maturity is said to be immature, varying, and low. The user is somewhere else than in the center and design is not a regular part of initiatives. *“I have to admit that I haven't been exposed to it (design culture) and it probably manifests more in individual projects rather than as a general culture that I have been exposed to” (Interviewee 9).* Based on the data, design culture seems to be unestablished, and is present only in projects where the service designer takes part.

Luckily, there are lots of positive findings too. Once service designers have shown the impacts of their work on projects, it has had a lasting effect. Service designers have left a massive impression on the people they have worked with. *“I think it's going to a good direction because people start to realize the benefit. There is a, hunger, but we don't have enough resources... We still need to convince the people who put the money to invest more in that” (Interviewee 8.3)* People are happy and open to having service designers in projects, they see the value of design and there is a hunger for more. There is said to be potential in the organization, but that potential is yet to be discovered.

Level of Collaboration – Working in silos

“An ideal customer-centric organization implies having all functional activities integrated and aligned to deliver superior customer value.” (Shah et al. 2006, 116)

Just as design maturity, the level of collaboration has been described as dependent on location. The culture of collaboration is fragmented, and it varies in different departments. The most concerning comment was that this fragmented culture might be seen from the customers' point of view. *“This kind of fragmentation and disintegration may define what the end customer sees of (the company)” (Interviewee 9).* Even if in some departments the collaboration is at a high level, this is not the reality in every department. The collaboration between business units happens whenever there is a need, for example when a project requires it. These projects, which gather people across siloes, might be the biggest driver for collaboration. There is still room for improvement in dialogue and benchmarking between departments and units.

One of the interviewees stated:

“We have so many teams and I know that a majority of teams doing development, for example, don't have their own capabilities of service design or they don't naturally think about it when developing something new. But some other teams are also more mature and even focused on that” (Interviewee 5.1.)

To be able to cross bridges with different departments, units, and teams, it can be reasonable to look at the information flow. It is said that information is available but difficult to reach. There are grey areas in the organization that might be hard to approach creating challenges in sharing the roadmaps, and aligning schedules, targets, and goals. Findings showed that there are some underlying beliefs about collaboration that might lead it to decrease. Even if there would be a grain of truth to each of these beliefs, it might bring value to identify these beliefs for further communication:

- a. Wider communication is not needed, or it doesn't bring value.
- b. Collaboration is dependent on personalities.
- c. Collaboration is dependent on individuals' curiosity.

Understanding user experience

In the first part of the interview, there was a question "How do you understand user experience?" to which interviewees answered to their best abilities. Their explanations to this question gave a frame for the whole interview to analyze the answers in the right context. Some of the interviewees' understanding of UX could be noticed growing during the interview as one was thinking out loud, and some had already very well thought answers.

Here's an example of a well-thought answer:

"It's how people experience, what feelings, what emotions or what senses you get when you use something. If it's easy to use, then it's usually a positive experience. If you can't find what you're looking for, even if it's somewhere there, then it's not a very good experience. So it's a lot to do with feelings." (Interviewee 2)

Truthfully, answering this open question might have been overwhelming and hard to approach even for a professional. For many, it was easier to explain what it's not than what it is. There isn't one right answer, and therefore the approach to analyze the answers had to be made broad. During the research, different levels of understanding were noticed: lower and higher understanding of user experience. In the next paragraphs, examples of each are shared.

Lower level

There were three clear ways of describing what can be categorized as a lower understanding of user experience. One way to look at UX is that it tells how the user gets from A to B, from the start until the end of the process. As one interviewee stated, *"How user is able to run*

through business processes and how easy it is for user. So that's my understanding of user experience" (Interviewee 4). This way of looking at user experience highlights the efficiency and end target. It perceives the meter of a good user experience being users simply reaching what they were trying to accomplish. This might sound correct way of thinking at first, but it sees the user from the outside, completely cutting out the users' feelings, views and perceptions along the way. For example, trains don't necessarily *need* windows. The passengers get to their destination perfectly by hearing the announcement and seeing their stop from the screen whenever they need to jump off to the station. Manufacturing windowless trains can be cost-effective if you ask the manufacturer, but it would in all likelihood be a monotonous journey for the passengers.

One of the interviewees understanding of user experience:

I can easily understand user experience in tools, but can it be something else as well...for me, the first thing are the tools and how users experience the using of the tool and we are developing in our work our project management tool and we think a lot about user experience there so that it would be as user friendly as possible. The tool." (Interviewee 1).

Situating the focus on tools and methodologies was a common finding. The second way of low understanding see the user again on the outside. In the organization service designers often join projects when a specific tool is being developed. Therefore, it can be easy to misunderstand the real job of service designers, which is not being hyper-focused on a platform, a website, an app, an interface, or other products. The goal of service design is to place the user at the center of attention, rather than focusing on the tool itself (Meroni et al., 2011, pp. 2-3). The same can be said about methodology. Facilitation, management, and visual skills can make a service designer a very capable professional. However, designers don't perform the skills for the sake of it, although it might be safe to explain designers' input in projects through their toolkits and tricks. Showing these skills can bring a wow effect, but the skills are there only to bring humans to the center of service development.

Here, an interviewee states:

"Then, for end customers, I think we serve so many customers in so many different situations, companies, and industries, that there is a certain level of fragment-

ation that may cause the individual customer pockets to be quite small. And then it becomes a question of whether it is worth refining everything if the user base is small.” (Interviewee 9)

The third finding of the lower understanding was touching the larger mentality of the organization. It was said in the interviews, that the customer base of the company is variable. There was seen a belief, that it's not worth making an effort on customer experience if the customer segments are very small. It remains unclear if it's perceived this way because there aren't resources to investigate those segments or because the data would be worthless. If the latter, it might be a sign of immaturity in utilizing and applying user data. The topic of maturity will continue in the next chapter “Design Culture”.

Higher level

Examples of a higher level of understanding of user experience were captured from comprehensive explanations of what's included in the experience. The best explanations were able to unite all great qualities into one holistic experience. They often started from physical aspects and functionality into the feel and emotional experiences.

Here's an example of a higher level understanding of user experience:

“I understand user experiences being the kind of overall experience that an individual who in this case is maybe the customer...his or hers individual experience of the encounterment and when he or she encounters our solutions or services or platforms... usability functionality look and feel...emotional responses in those situations. Emotional experiences coming from different situations.” (Interviewee 5.2)

Interviewees with high understanding were able to point out that it's not just the user interface or about getting it done, but the feeling the user gets from the experience. It was said that experiences depend on users' backgrounds and perceptions and that's why users should be at the center of development. Customer feedback was seen to be part of the process, which has an iterative nature.

One of the interviewees stated:

...Having the users in center because many times you might only look from your own lens, from your own viewpoint and when I talk about external users, you might mainly look from an internal point of view that what do we want people to do and how do we want them to do it instead of actually a listening...” (Interviewee 2).

The higher level includes understanding the experience as an event that is not necessarily moving at the same time or having the same touchpoints from the service’s side. Below, the interviewee is discovering a new way of thinking of user experience as a phenomenon that is intangible and not always specific in time. This answer would be perfect if the interviewee still recognized that user experience can also last after the use of the service.

“I think that's actually a good addition that it's something that leaves over time and it's not something that happens at a single point in time but rather something that is sort of with you the whole time when you are using this service or interacting with a company” (Interviewee 5.1).

Design culture

Results so far are already giving a glimpse of the state of the design maturity and UX capability in the organization. The overview of interviewees' responses to design culture is very clear; the level is low in most parts of the organization. The organization is not focused on design and there’s room for improvement. The organization is said to be old-fashioned with strict targets to reach. Waterfall type of project management is a common practice, which doesn’t always support “trial and error” or design initiatives.

“I (work) in R&D, the innovation and developing something new, it's part of our job. That is why we are here. So we are supposed to develop new things and investigate them, find out about them. But also on the other hand, we like to work traditionally, or we like that our processes and tools remain the same. It's like safe for us” (Interviewee 1).

There was a glimmer of light in the data showing that design culture is at a good level. After connecting the dots, there can be found a simple explanation for these answers. The study shows that the lowest maturity in user/customer centricity is in the Research & Development

department. This was told repeatedly in the interviews. By an interviewee, it was said that if you went to ask the people who work with engines, they would understand their work to be about designing engines, not UX. Despite the user-centricity being on a grassroots level in the R&D department, senior leadership is described to be pro-innovation and promoting experimentation very highly, especially in R&D. There wasn't clear data on in which department the maturity is highest.

The conflict between support and maturity can be explained in a few ways. At the general level, the senior leadership is welcoming a culture of innovation, but that seems to be narrowed to products. Another possible explanation for this phenomenon is that the company's strategy and practices aren't completely aligned. Innovation management as a process isn't deployed to the organization, so the innovation culture changes how much money you have. The resources and their impact on the design culture will be discussed in section 4.3 Barriers.

One interviewee about innovation:

"I agree that on a larger level, there is no systematic support for it, and it's not just that you order people to start to innovate, like have some workshop to innovate. It doesn't work like that. It should be part of your process and the process should also accept this kind of fail fast that you are allowed to fail. Try and fail and sometimes go a little bit beyond the familiar boundaries, and I think that is not in a way supported because I think the business side especially, it's very tolerant for expense that it's not like you cannot match it to some return. Very old-fashioned company." (Interviewee 8.3).

There wasn't a singular time that participants would have addressed specific customer needs or behaviors. This wasn't asked directly, but still, the lack of users' and customers' voices in the data was concerning. On the other hand, there were times when owners' expectations were mentioned. This can lead to the question, of whether the corporation is serving the owners' needs rather than the customers.

4.2 Drivers

Based on the interviews and workshops there has been found several drivers of service design maturity and UX capability in the organization in question. For the corporation to make a change in mindset, it has to have "creative innovators, who could bridge the chasm between thinking and doing because they were passionately committed to the goal of a better life and

better world around them”. (Brown & Katz, 2011, p. 383) The first driver is the positive experiences with service design and service designers. To make a successful impact on stakeholders, it’s crucial to have knowledgeable individuals who spread the message of user-centricity. These individuals, equipped with the right knowledge and skills, can significantly enhance design thinking in the organization. Once stakeholders witness the effectiveness of service design, their demand for it increases. This growing appreciation fosters a culture that values continuous improvement, which is essential for organizational growth. Within this context, recognition from leaders and the provision of room for experimentation further encourage a growth mindset.

One interviewee commented:

“I think that many people and many teams, they are saying that they would be happy to have Service designers in their projects and to support them. So I think... people see the value of it and that's kind of the foundation...” (Interviewee 8.3).

The company has established a few different teams/offices that are focused on user and customer experience. It was found in the study, that identifying areas for improvement, especially by dedicated teams such as the Digital Customer Experience Team and Service Design Team, drives progress. These teams focus on pinpointing aspects that need enhancement, ensuring that efforts are directed where they are most needed.

Additionally, investments in artificial intelligence can be seen as a driver for design thinking and innovation. Organizations that recognize the potential of AI in optimizing user experience should be willing to allocate funds for such initiatives. However, the financial support is often contingent on the organization presenting well-reasoned arguments that demonstrate the benefits of these investments.

4.3 Barriers

Despite the drivers, several barriers can impede the successful implementation of service design and user/customer centricity. The list of barriers remains significantly higher than the list of drivers. The reason for this can be that there are more barriers than drivers to service design maturity and UX capability in the organization. Some of the findings have canceled each other out, leaving only the strongest messages from the data to analyze.

One of the interviewees shared:

“...Step zero would be that we need some sort of commitment from the high management that it is a direction that we want to take...but if there's no top management support on that and a little bit of a push, maybe even then I think we're quite limited in how far we can go and improving.” (Interviewee 3).

The high-level barrier is the lack of a customer and user-centric organizational focus and structure. This is seen in the expectations, support, resources, awareness, mentality, beliefs, prioritizing, measuring, skills, resistance, and understanding of the value of service design. The data showed that the organization does not prioritize user/customer centricity. This lack of focus leads to a general misunderstanding of the value of service design among management. Overall, there is a critical absence of support from top management or a lack of other external push to adopt service design practices. Owners have expectations that do not align with implementing innovations, as discussed in the Design Culture Chapter. The organization's bureaucracy does not support a “try and fail” approach for all, which is crucial for fostering innovation. This lack of support gradually kills new ideas.

One of the interviewees reflected:

“I reflect on the barriers there which are same as today still unfortunately, we are engineering company and we tend to know the correct answer. And if we perceive that we have the correct answer we don't want that to change. So then our correct answer is then translate it into something the users get and we think that it's sufficient and it's quite hard to then let loose if you don't have the organizational readiness to support that to let loose and have a situation where customers interact with you” (Interviewee 3).

There is a widespread lack of awareness about the importance and benefits of service design. The organization's culture is heavily driven by engineering and technology, which attitudes and ways of working don't support a user-centric approach. Several beliefs were found in the research, that can limit the adoption of a customer/user-centric approach:

- The perception that customer experience is too variable, depending heavily on individual interactions.
- The challenge of catering to diverse or scattered customer segments.

- Restrictions imposed by global platform licenses, such as SAP and self-service centres, limit the ability to design better user experiences. This represents the idea that the UX is not in our hands.
- The belief that design thinking is hard to implement in existing services.

Various challenges exist in the implementation. The organization exhibits a general resistance to change, which poses a significant barrier to adopting new practices and methodologies. Change resistance might not be seen as loud and visible, but rather the laziness in implementing new processes. *“...implementation is indeed the barrier and the reality. So you need to create the reality in which to operate before you go towards operations.”* (Interviewee 3) The struggle to implement can further impede the progress of service design initiatives. This can be for example a well-done project that doesn't have responsible people for the delivery plan and execution.

An interviewee noted:

“Many times when we try to develop new business models, we are struggling to implement them or somehow it's not as straightforward as it is to do R&D stuff for an engine. And I would say that that's maybe a sign that we are not so mature in business model innovation compared to our traditional R&D for our product.” (Interviewee 5.1).

The data shows, that UX is seen as relevant, but depending on business areas and not relevant enough to invest in resources. There were at least two kinds of resource constraints in the organization: finances and time. Top management's finance-oriented approach means that funding for service design is rarely approved without substantial justification. Due to time constraints, essential phases like user research and testing are often skipped, resulting in a lack of user-focused development. The data shows that there is also a lack of understanding of how to allocate the available resources in innovation management. For example, innovations are said to happen during the work, not necessarily in an hour monthly slot for innovations.

One interviewee commented:

“You have a one-hour slot in your calendar for innovating. That doesn't really work, so it's a bit difficult to balance....the costs with the innovation. I think that we could have a lot of potential for being more innovative if we would have the, let's say, permission to be so.” (Interviewee 8.2).

The reason why understanding the benefits of service design is low in some cases might be found in the next barrier, measuring. There are substantial challenges in measuring the impact of service design initiatives, making it difficult to demonstrate their value. The people of the organization who have been exposed to service design saw the value of it, but the challenge is to have references in negotiating for possible resources and spread user-centricity.

4.4 Summary

The results section of the study on service design maturity and UX capability in a Finnish manufacturing corporation is divided into two main areas: the current state of the organization and the drivers and barriers affecting its service design and UX efforts. The findings reveal that the organization's understanding and implementation of user experience and design thinking are inconsistent and often misaligned with customer-centric goals. The corporation operates under a fragmented design culture, with service design efforts often lacking visibility and support from management. There is a significant disparity in how internal and external customers are prioritized, leading to uncertainty about the role and value of service design. Although some positive impacts have been noted when service designers are involved in projects, the overall design maturity remains low, with collaboration occurring sporadically and often hindered by organizational silos. Despite these challenges, certain drivers, such as positive experiences with service design and investments in AI, show growth potential. However, numerous barriers, including a lack of user-centric focus, resource constraints, resistance to change, and difficulties in measuring service design impact, continue to impede progress in advancing service design maturity and UX capability within the organization.

5. Discussion

In this chapter, the results are discussed with existing knowledge on how to raise service design maturity and UX capability in organizations and therefore, how to transform the organization. The discussion chapter will include answers to 1) how the theory discussed in this thesis falls in this organizational context 2) where the organization is located on the maturity models and 3) what exactly are the stepping stones and practical actions. The first section will show the current organizational conditions, and the second section will present a strategic roadmap. This chapter provides answers to the three sub-questions: 1) *what is the current level of service design maturity and UX capability in the multinational manufacturing corporation under study*, 2) *what are the key drivers and barriers that are impacting the enhancement of service design maturity and UX capability in the organization* and 3) *what best practices can be adopted to improve service design maturity and UX capability in the organization?*

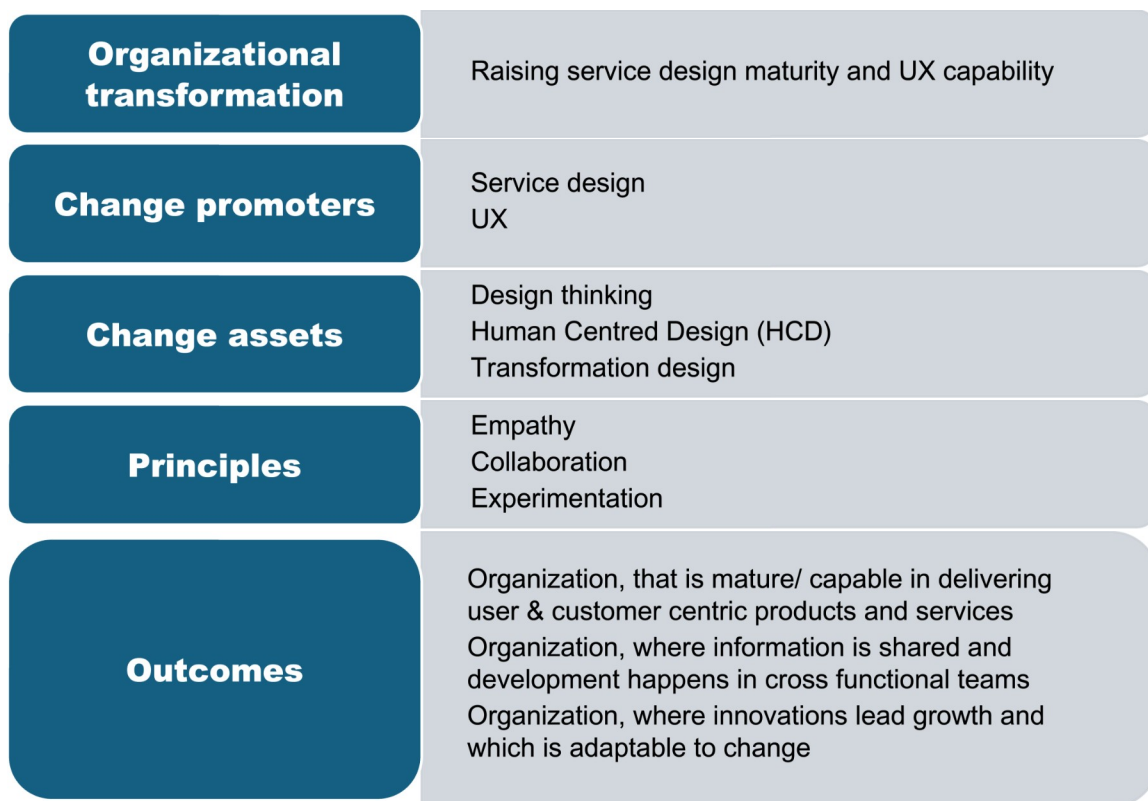


Figure 7. Raising service design maturity and UX capability in the organization. Created by Lemola, 2024.

Figure 7 explains how the organizational transformation is seen flowing from high to low levels. The figure describes, how the phenomenon of raising service design maturity and UX capability can be seen in the organization. The topic is embedded in a larger theme, organiza-

tional transformation. Change promoters in the organization are service design and UX occupations because they are bringing the tools and culture of design thinking, human-centered design, and transformative design into the organization. These change assets use design principles such as empathy, collaboration, and experimentation. Using these principles in daily work will result in positive outcomes, making the organization more mature and capable of delivering user & customer-centric products and services, where information is shared, development happens in cross-functional teams and innovations lead growth.

5.1 Assessment with Maturity/Capability Models

After finding out the themes, it's within reach to assess the maturity and capability levels of the organization. It's important to understand how to properly assess the organization using maturity models. For example, the ladder shape models might give an oversimplified expression of the transformation that is needed to happen (Pöppelbub & Röglinger, 2011, p. 4). This study validates that organizations mustn't jump over any stages or rush the transformation when reaching the ultimate "end goal" since change doesn't happen overnight (Pernice et al., 2024). Next, results are assessed using maturity/capability models that were described in the Theoretical background.

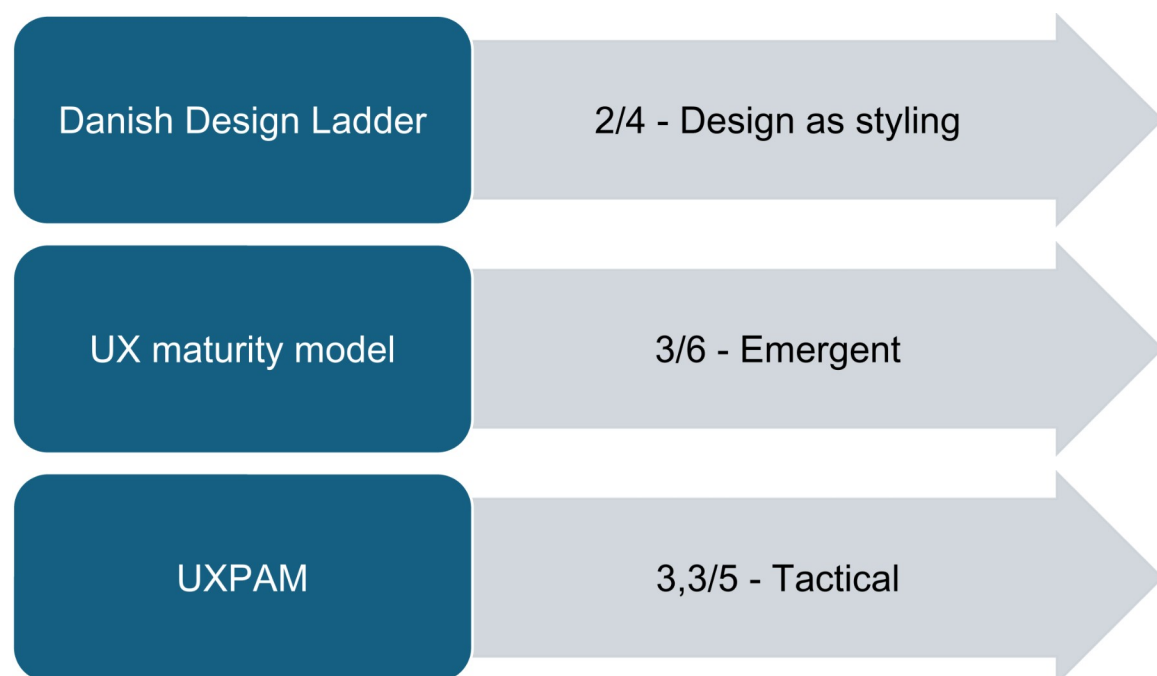


Figure 8. Design Maturity and Capability Matrix. Created by Lemola, 2024.

Danish Design Ladder – Design as styling

The organization is located on the second ladder of the classical Danish Design Ladder, ‘Design as Styling’ or ‘Design as Form-Giving’. Generally, the organization has passed stage 1 of DDL, where stakeholder perspectives don’t influence the product development but not yet reached stage 3 where there’s a strong consideration of stakeholder requirements (Doherty et al., 2014, p. 5). As Björklund & Hannukainen describe (2018), design is primarily utilized for aesthetics on this level, such as styling or finishing touches on products or services (Björklund & Hannukainen, 2018, pp. 503-504). In the corporation, design is not yet integrated into the core business strategy but is rather applied to enhance the visual appeal and marketability of products. The organization has noticed that well-designed products attract more investment, and positive evaluations of product design can lead investors to be more optimistic about a company’s financial returns. This optimism may even result in a greater willingness to invest beyond what is justified by expected financial performance alone. Internally, the corporation has started to compare specific design efforts against KPIs.

Stages of UX – Emergent

Based on Pernice et al. (2024), UX maturity can be divided into four areas: strategy, culture, process, and outcomes (Pernice et al., 2024). This organization under study is in the third stage, ‘Emergent’, which represents a phase where the organizations begin to acknowledge the importance of UX but struggle with consistency and strategic integration. UX practices are often siloed, with a few dedicated individuals or teams but no unified approach. The understanding of UX benefits starts to spread, but leadership may not be fully on board, leading to fluctuating support. The design process is fragmented, with some teams following UX principles while others do not. Metrics and user feedback are inconsistently applied, and UX's role in decision-making is limited. To move to a more mature stage, organizations should focus on creating standardized UX processes, increasing cross-functional collaboration, and gaining stronger executive support for UX initiatives. In Stage 3, the journey from ad-hoc to standardized UX practices begins, but it requires a concerted effort to build a cohesive UX strategy across the entire organization (Pernice et al., 2024).

Table 4. Process assessment area scores (adapted from Rukonic et al., 2019 by Lemola, 2024).

PA1 Product Development	-High-fidelity prototypes	3,3
PA2 Visual Design	-Design principles (icons, font, colors, look & feel)	3,9
PA3 Stakeholders Involvement	-Stakeholders analysis; context meeting; focus group	4,1
PA4 Discount UX Evaluation	-Inspection; think-aloud; low-fidelity prototypes	2,4
PA5 Experts involvement	-Inspection (heuristic evaluation; cognitive walkthrough); GOMS; hierarchical task analysis	1,5
PA6 User Involvement	-Regularly throughout development lifecycle	5
PA8 UX Resources	-UX skills; infrastructure (prototyping tools; labs)	3,4
PA9 User Research	-Experience sampling; surveys; interviews; personas	2,4
PA10 Contextual Design	-Context of use analysis and specification (A1-A5); UX goals setting; work modelling	3
PA11 UX Culture	Perception of UX ; management support of UX; lifecycle integration; link to business goals	3,1
PA12 Continuous Improvement	-Link to business goals; UX training;	3,4
PA13 Monitoring of UX	-UX KPIs; UX effectiveness data collection	4,5

UXPAM – Tactical

The average score of 3,3 from the UXPAM questionnaire tells the organization's maturity is Tactical. This is the third of five maturity levels. Based on Rukonic et al. (2019), tactical level means insufficient support from top executives, UCD is accepted, but sometimes traded off for development, and lack of formal UX literacy (Rukonić et al., 2019, p. 8). For this stage, the organization needs to start seeing the user and customer as a resource (Meroni et al., 2011, p. 28-

29). The worst process area was UX Experts' involvement (1,5), as seen in the chart above. This underlines the trend seen in results, where there is a wish to have more designers in developing projects. It was aimed to capture the design–developers ratio in the organization, but it failed due to the unawareness of respondents and the lack of information available. In one answer it was said that there are over 150 developers and about 6 full-time UX professionals in the organization. If this is true, the ratio of designers compared to developers is huge. Overall, when there are about 3700 employees in the corporation, the number of designers is critically lacking. Comparing the scores of different process areas, there can be also found, which areas are working better, and which are doing worse. For example, the UX culture score is 3,1. This shows that the perception of management support for UX represents the average questionnaire score of 3,3. The best succeeding process area was user involvement with full points.

5.2 Strategic roadmap

Pernice et al. (2024) state, that it's common for organizations to become complacent at this stage, believing that "we're doing UX now" and assuming that it's sufficient, when in reality, it falls short. To advance beyond this point, companies need to cultivate a culture that supports UX at every level, driving momentum across the organization and between projects. It's essential to ensure that UX priorities are appropriately considered when making trade-offs and decisions (Pernice, Gibbons, Moran & Whitenton, 2024). The leaders' capability of integrating change will determine the success of a customer-centric organization more than any other factor (Sheth, Sisodia, & Sharma, 2000, p. 64).

To help the organization tackle the barriers on its way, a strategic roadmap was designed. The roadmap promotes setting smaller goals on their way to the next level of maturity and capability. Under each smaller goal, a stepping stone, there are recommended practices on the management and grassroots level. The roadmap aims to give practical solutions to a holistic problem, such as raising service design maturity and UX capability. In the "Practices" sections, there are several recommendations. Many of these practices have been drawn from existing literature to support the validity of the recommendations. This is done to demonstrate that the study's findings align with existing research and claims.

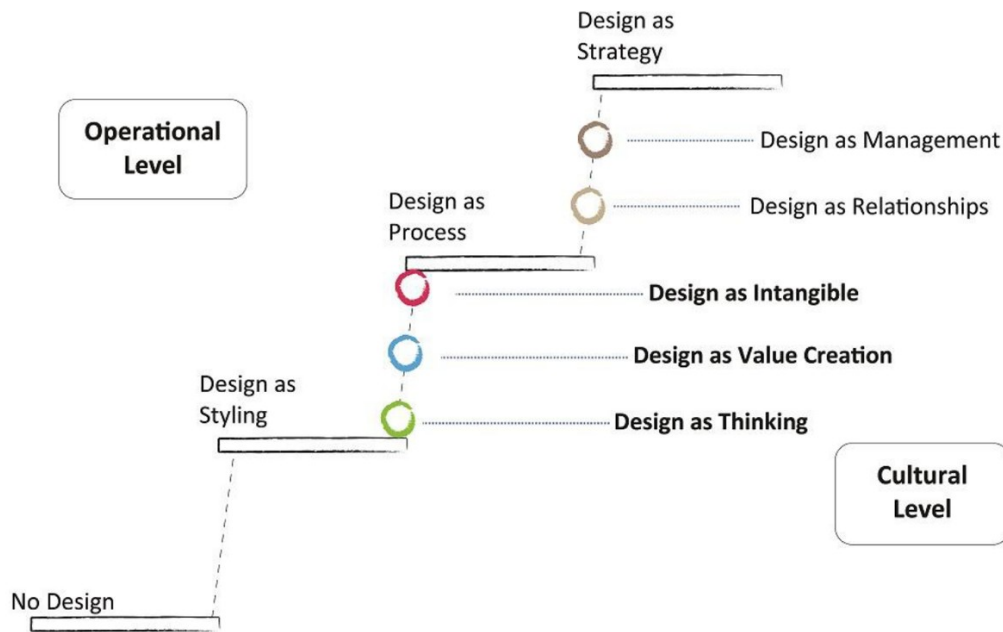


Figure 9. Cultural stepping stones (Doherty et al., 2014).

Doherty et al. (2014) propose that there are several stepping stones between ‘Design as styling’ and ‘Design as strategy’. These are called cultural stepping stones, and they are ‘Design as thinking’, ‘Design as Value Creation’, and ‘Design as Intangible’. The cultural stepping stones can be seen as a roadmap for getting onto the next ladder. The roadmap follows three stages. First, ‘Design as Thinking’ sees design as a unique problem-solving approach, where employees integrate design principles like collaboration and experimentation. Next, “Design as Value Creation” shifts the focus from immediate, measurable outcomes to recognizing design as a method for creating long-term value for stakeholders. Finally, “Design as Intangible” acknowledges that design outcomes can be non-observable, leading to a holistic application of design principles at an operational level, aligning with the ‘Process’ stage of the Danish Design Ladder (Doherty et al., 2014, p. 18). It is recommended that in between each stage, the organization has to be assessed with a questionnaire. The recommended questionnaire can be found from the frameworks of Design Culture Ladder (Palmares et al., 2023), 6 stages of UX maturity (Pernice et al., 2024), or UXPAM (Rukonić et al., 2019).

Design as thinking

The goal of the first stepping stone (2.1) is the consideration that the design process can be applied for long-term development and focus beyond products. A design thinker knows how to use design principles, such as empathy for users and customers, integrative thinking, optimism,

collaboration and experimentation (Brown, 2008, p. 4). Design thinking is not just for designers, it's for managers, engineers, scientists, operators, etc. (Norman & Stappers, 2015, p. 16). The most important task on this stepping stone is to get leadership committed. This can be considered done when a) leaders are seen as enthusiastic about user and customer problems, b) actively visiting and aggressively listening to users and customers, and c) willing to invest resources in understanding them deeper (Shah et al., 2006, p. 119).

This study shows, in line with Shah et al (2006), that management and leadership are the key factors in change. There is only so much that can happen on the grassroots level. Succeeding in the initiatives, change requires leadership commitment (Shah et al., 2006, p. 119) and management focus needs to shift from immediate results to long-term value creation (Doherty et al., 2014, p. 18). The cultural change cannot happen without allocating resources towards its development (Doherty et al., 2014, p. 20).

Practices

Management level

- **Strategy:** Corporation-wide strategy alignment is needed. The top management must be aware and set goals to raise user and customer proximity. It must be defined in the strategy, what the corporation means with user and customer centricity, and how they are committed to delivering such mentalities to the organizations and teams. An effective way of creating a user- and customer-centric strategy is to hire or promote people with strong backgrounds in strategic design to the strategy team.
- **Mindset:** Design principles and a shift in mindset should be promoted to all levels to transform the organization. Management should actively take responsibility for the promotion, instead of being guided by the limiting beliefs described in this study. Encouraging active participation in design activities and embedding design thinking into the standard operating procedures is a difficult but fruitful place to start for climbing the design ladder.
- **Experimentation:** Innovation management must be established properly to reach higher maturity in service design and capability in UX. "Frequent failures leading to increased mastery of skills". Permission to fail leads to experiments, which leads to creativity, which leads to innovative solutions (Gothelf, 2012, p. 11). Now, there are blocks on this path in many parts of the organization of the research, especially in business innovations.

- Effectiveness: Establish a user and customer experience management office. In the study, it was noticed, that service design is a hard concept for many to comprehend. “Service design” can be a misleading name for what service designers do. Moving from limited roles to collaborative capabilities (Gothelf, 2013, p. 111) is a lean UX method that will clarify the service design role in the organization. This is just one of the reasons why the office should be established. Other reasons can be predicted as centralized knowledge, enhanced collaboration, and increased UX capabilities.
- Resources: This study showed that the biggest driver for change is to have a service designer take part in a project. The interviewees described that there is a need for more service designers. The simple way of adding the wished impact is to hire more in-house service designers, which will create a user and customer experience management office.
- Collaboration: Aim for a horizontal organizational structure instead of a vertical one. This means building the work processes in their natural flows and sharing information effortlessly between teams and units. Implementing a customer user-centric mindset comes more effortless through the shared concept of their needs than competition between employees (Shah et al., 2006, p. 120).

Grassroot level

- Iterative process: In agile processes, it's common for teams to overlook revisiting and enhancing the user interface of the software. However, teams should commit to continuous improvement which involves not just refactoring code and addressing technical debt, but also refining and enhancing the user interface. To do this, teams need to recognize and address UX debt, committing to continuously improving the overall user experience (Gothelf, 2013, p. 117).
- Fail fast: Service design is often defined to be a verb, doing and making (Kimbell, 2011, p. 45). The most difficult questions will be discovered quickly while doing contrary to analyzing. Debating ideas and analyzing potential scenarios is a waste of time if you don't know what customers want. Making ideas concrete with prototypes gives users and customers something to debate. The team will also discover the risks before scaling a whole business to the entire user base, wasting time and resources (Gothelf, 2013, p. 11).
- Empathy: GOOB (“Getting out of the building”) is a lean UX method, which proposes, that decision-making cannot happen holistically from the meeting room of the office.

Feedback and testing with users and customers will show if the product or service will succeed or fail, so it's better to give them a voice as early as possible (Gothelf, 2013, p. 9).

- Collaboration: "Continuous discovery" is the process of having regular customer conversations and scheduled activities. It's about bringing the whole team to research users to develop empathy via studying users. As the team learns to understand the problems that users face, there will be fewer future debriefing conversations and documentation (Gothelf, 2013, p. 9).

Design as Value Creation

The organization has reached the 'Design as Value Creation' (2.2) stepping stone when the design value is acknowledged by customers, suppliers, and the corporation itself (Doherty et al., 2014, p. 18). The baseline of investing in design is that it's expected to create value (Braga, 2016, p. 1). Therefore, when there is design in the organization, it is automatically recognized as a method for creating value. This study has shown that the difference lies in how and what kind of value design is expected to generate. Value can be economic, environmental, and social value (Kufeoglu, 2020, p. 34). Although 'Design as Thinking' might be the most uphill part of the three stepping stones, there is still a considerable amount of work that can help make the organization understand how design creates value.

Practices

Management level

- This study shows that the major driver for change is great experiences with competent service designers and UX professionals. This can play a significant role in value creation. Therefore, it is suggested to spread the design efforts widely, to several units and teams.
- It would be beneficial for manufacturing organizations to shift from a Goods-Dominant Logic (GDL) and Service-Dominant Logic (SDL) to a Customer-Dominant Logic (CDL). This study has shown that Service-Dominant Logic (Vargo et al., 2004) is less effective mentality than Customer-Dominant Logic in terms of reaching better user and customer centricity within the organization under study. Rather than concentrating on how companies create services to attract customers, they should propose shifting the focus to how customers use these services to achieve their own goals. This mentality should be seen across the organization.

Grassroot level

- The skill of measuring the impact of user experience is often limited (Amant et al., 2024, p. 2). This is the case of the organization under study as well. Since using metrics and analytics to assess the effectiveness of service design and demonstrating its value to the organization can be a difficult task, there are several KPI's invented to help the measuring work. **Net Promoter Score (NPS)** gauges customer loyalty, **Customer Satisfaction Score (CSAT)** measures satisfaction at key touchpoints and **Customer Effort Score (CES)** captures the amount of effort the customer needs to pour into the process (Prick, 2017). These three metrics reflect how well the service or product meets user or customer expectations. **Cost to Serve (CtS)** is to understand how service design impacts operational costs. Reducing these costs while maintaining quality indicates successful design interventions (Prick, 2017). Measuring **Customer Lifetime Value (CLV)** assesses the long-term financial impact of service design improvements on customer relationships (Prick, 2017).

Design as Intangible

At the third cultural stepping stone (2.3), a company acknowledges that design outcomes can be intangible. Unlike traditional manufacturing industry design outcomes, holistic design can produce outcomes that aren't immediately observable. This awareness, combined with the previous cultural stepping stones, leads to a shift in design perception at the operational level. This phase might seem quite similar to 'Design as Value Creation'. In the second stepping stone organization understands the larger picture of design outcomes, but those outcomes might be still something tangible. Therefore, the third stepping stone is necessary to be separated. After this stepping stone, the company reaches the 'Process' level of the Danish Design Ladder (Doherty et al., 2014, p. 18).

Practices

Management level

- While traditional economic theory views consumers as rational decision-makers, recent developments in economics and marketing highlight the value of leveraging the intangible emotional elements perceived by customers (Gentile et al., 2007, p. 396). This is why it is important to shift the perspective from a transaction-based view of customer relationships to a broader understanding of customer experience. This approach emphasizes the importance of considering the emotional and irrational aspects of customer

behavior, which contribute significantly to the overall experience between a company and its customers. These emotional experiences are crucial in shaping customer preferences and influencing their purchasing decisions.

- A feedback loop towards users and customers has to be developed to show the intangible outcomes that service design and UX generate. It's crucial to understand, that outcomes can be measured quantitatively and qualitatively (Gothelf, 2013, p. 23). Developing the feedback loops will take resources, but AI can create new opportunities in automating the process.
- As the organization approaches the transition from level two to level three of the DDL, it may begin tracking the ratio of designers to developers as an indicator of design's growing influence. This stage reflects a growing awareness of the financial and operational benefits of incorporating design, setting the foundation for more strategic integration at higher maturity levels (Rukonić et al., 2019, p. 14). This study validates the importance of measuring the ratio of designers and developers.

Grassroot level

- Empathy: The results of this study reveal that empathy plays a major role in getting closer to users and customers. Engage teams through interviews, surveys, and usability testing to ensure the user and customer needs and preferences are adequately addressed. Enhance the organization's proximity to users by developing robust data flows and automated feedback mechanisms.
- Subhypotheses-method is a tool that can be used to make intangible outcomes visible (Gothelf, 2013, p. 23). The method clarifies and validates assumptions of the outcomes and brings alignment with the team. It can be also a tool for realizing design as a value creator. Subhypothesis can be stated:

We believe that

[doing this/building this feature/creating this experience]

for **[these people/personas]**

will achieve **[this outcome]**.

We will know this is true when we see

[this market feedback, quantitative measure, or qualitative insight].

(Gothelf, 2013, p. 23).

Latest changes in the organization

During the making of this thesis, there have been steps taken in the right direction in the corporation under study. There has been a launching of an organization-wide process model that is heavily linked to user- and customer-centricity. If this had been out while planning the study, the research could've focused more on the campaign plan. What's remarkable, is that the organization has seen the need for change even in the top management and is investing in building new processes and identifying new value streams. This validates the findings of the thesis, that there is a significant growth mindset and capabilities for continuous improvement. It is also notable that the model is not referring to design vocabulary, although the content could be seen falling under design thinking. This can be a positive approach since the results showed, that the word "service design" doesn't always land in the best possible way. Anyhow, the campaign is a possibility for service design and UX in the corporation, and they should be considered moving hand-in-hand.

Further research

There is a clear path to further research the implementation of the new process model and its effect on the organization. Additionally, the possible limitations of service design or design thinking in manufacturing organizations can be an interesting perspective. Design literature offers several ways to calculate maturity and capability, but the field falls short of showing how design thinking has been successfully implemented in organizations. The design field requires more examples of successful implementation cases. However, this issue leads to the question, of whether design thinking is the right word to use in organizational change, or should the vocabulary be changed from "buzzwords" to something more approachable. The corporation's ongoing model framework could be taken to investigation in researching the actual implementation techniques that there is for organizational change.

5.3 Summary

The discussion chapter examines the findings of the study about existing knowledge on enhancing service design maturity and UX capability within organizations, and how these insights can drive organizational transformation. The chapter addresses how theoretical frameworks apply to the specific organizational context, identifies the organization's position on maturity models, and outlines the necessary steps and actions for improvement. The discussion is divided into two main sections: the first assesses the current organizational conditions, while the

second presents a strategic roadmap. This roadmap provides practical recommendations to enhance service design maturity and UX capability, addressing key challenges such as insufficient leadership support and fragmented processes. The chapter also highlights the role of change promoters, such as service design and UX professionals, who are pivotal in embedding design thinking and human-centered design within the organization. The roadmap suggests gradual cultural shifts, emphasizing principles like empathy, collaboration, and experimentation, to achieve a more mature, customer-centric organization. Additionally, the chapter notes recent positive developments within the organization, such as a new process model linked to user and customer-centricity, which indicates a growing commitment to these practices at the top management level. Future research is suggested to explore the impact of this campaign and the broader applicability of design thinking in manufacturing contexts.

6. Conclusions

In conclusion, this study gives theoretical and practical contributions to the importance of service design maturity and UX capability as crucial drivers of organizational transformation, particularly in fostering a user- and customer-centric approach. This research answers the question: How can the service design maturity and UX capability of the multinational manufacturing corporation under study be enhanced to foster greater user and customer centricity?

With the maturity models, the current state of maturity/capability was found to be located halfway on the ladders. The findings demonstrate that while the organization faces significant barriers—such as fragmented design culture, limited management support, and resource constraints—there are clear opportunities for growth, service design and UX being the change-makers of the transformation. A strategic roadmap has been proposed to guide the organization toward higher maturity levels, emphasizing leadership support, cross-functional collaboration, and a user-centric focus. By embracing gradual cultural shifts, integrating design thinking, and addressing existing challenges, the organization can enhance its service design maturity and UX capability, leading to improved customer satisfaction, innovation, and long-term success. Future research should focus on tracking the effectiveness of these initiatives and exploring the broader application of these practices in other manufacturing contexts.

It is clear, that implementing user-and customer-centric practices is going to take resources. Fortunately, the study showed that there are individuals with a very good understanding of the user- and customer-centricity already in the organization. These individuals were found also from outside the design occupations, which is showing a good way. This is a great asset for the organization in terms of raising maturity/capability. In addition, the topic seems to be something that gets people excited and motivated easily, which can be a pivotal force in terms of organizational change.

It was also found in this research that maturity/capability models don't always show the best way of getting ahead or planning the next steps. When dismantling the DDL stepping stones to practices, it was found, that the 'Design as Process' level cannot be reached in this organization without touching the corporation's strategy. 'Design as Process' requires top management commitment and strategy alignment, because service design and UX grassroots level impact is too slow. Therefore, DDL works well in showing the goals of where to get, but not the exact actions.

The roadmap is a new way to set goals for the organization because it is coming from a design perspective. 'Design as Thinking' is assumably the hardest stepping stone, and it will require the most work. It is also slightly impossible to achieve only from the grassroots level. This phase requires commitment from the management. The phases for working towards the cultural stepping stones will not be chronological. In order to get on to the 'Design as Value Creation', the organization has to see the value of design. This happens through measuring and showing the impact, which must be started from the beginning. Showing the impact can also mean having positive experiences with service design, which is one of the biggest drivers of change for the organization. 'Design as Intangible' will come more or less as a result of showing the impact of design. When the seen impact affects implementing new design principles on an operational level, the organization will move to the third ladder of DDL, 'Design as Process'.

References

- Amant, L., Rukonić, L., & Kieffer, S. (2024). *Perceived Value of UX in Organizations: A Systematic Literature Review*. https://doi.org/10.1007/978-3-031-61356-2_12
- Bartunek, J. M., & Louis, M. R. (1988). *Research in organizational change and development : an annual series featuring advances in theory, methodology and research, volume 2, 1988*. JAI Press.
- Baxter, P., & Jack, S. (2008). Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. In *The Qualitative Report* (Vol. 13). Retrieved from <http://www.nova.edu/ssss/QR/QR13-4/baxter.pdf>
- Björklund, T. A., & Hannukainen, P. (2018). *Measuring the impact of design, service design and design thinking in organizations on different maturity levels*. Retrieved from <https://www.researchgate.net/publication/326507756>
- Braga, M. (2016). *The value of design: an issue of vision, creativity and interpretation*. <https://doi.org/10.21606/drs.2016.129>
- Braun, V., & Clarke, V. (2012). *Thematic Analysis*.
- Brown, T., & Katz, B. (2011). *Change by design: How design thinking creates new alternatives for business and society*. Harper Business.
- Bryman, Alan. (2016). *Social research methods*. Oxford University Press.
- Buchanan, R. (1992). Wicked Problems in Design Thinking. In *Source: Design Issues* (Vol. 8). Retrieved from <http://www.jstor.orgURL:http://www.jstor.org/stable/1511637> Accessed: 11/04/2008 09:41
- Buchanan, R. (1999). *Design Research and the New Learning*.
- Burns, C., Cottam, H., Vanstone, C., & Winhall, J. (2006). *Transformation Design*. Retrieved from www.designcouncil.org.uk/red.
- Cornwall, A., & Jewkes, R. (1995). WHAT IS PARTICIPATORY RESEARCH? In *Soc. Scz Med.*
- Creswell, J. W. (n.d.). *Research Design. 2009*.
- De Vaus, D. A. (n.d.). *Surveys in Social Research. 1985*.
- Doherty, R., Wrigley, C., Matthews, J., & Bucolo, S. (2014). *Climbing the Design Ladder: Step by Step*.
- Gentile, C., Spiller, N., & Noci, G. (2007). How to Sustain the Customer Experience: An Overview of Experience Components that Co-create Value With the Customer. *European Management Journal*, 25(5), 395–410. <https://doi.org/10.1016/j.emj.2007.08.005>
- Giri, L., & Stolterman, E. (2022). *The evolution of design practices in the digital age: A focus on experience design*. Routledge.
- Gothelf, J. (2013). *Lean UX 2013*.
- Groves, R., Fowler, F., Couper, M., Lepkowski, J., Singer, E., & Tourangeau, R. (2009). *Survey methodology*.
- Guest, G., & Fleming, P. (2015). Mixed Methods Research. In *Public Health Research Methods* (pp. 581–614). 1 Oliver's Yard, 55 City Road London EC1Y 1SP : SAGE Publications, Inc. <https://doi.org/10.4135/9781483398839.n19>
- Harrison, H., Birks, M., Franklin, R., & Mills, J. (n.d.). *Case Study Research: Foundations and Methodological Orientations*. Retrieved from <http://www.qualitative-research.net/>
- Heinonen, K., Strandvik, T., Mickelsson, K. J., Edvardsson, B., Sundström, E., & Andersson, P. (2010). A customer-dominant logic of service. *Journal of Service Management*, 21(4), 531–548. <https://doi.org/10.1108/09564231011066088>
- Hooley, Tristram., Wellens, Jane., & Marriott, J. (Bibliographic researcher). (2012). *What is Qualitative Research? : Using the Internet for Social Science Research*. Bloomsbury Publishing.

- Kensing, F., & Blomberg, J. (1998). Participatory Design: Issues and Concerns. *Computer Supported Cooperative Work*, 7(3–4), 167–185. <https://doi.org/10.1023/A:1008689307411>
- Kimbell, L. (2011). Designing for Service as One Way of Designing Services. In *International Journal of Design* (Vol. 5). Retrieved from www.ijdesign.org
- Kline, R. B. (2016). *Principles and Practice of Structural Equation Modeling*.
- Kretschmar, A. (2003). *The Economic Effects of Design*.
- Kufeoglu, S. (n.d.). *Emerging Technologies Value Creation for Sustainable Development*.
- Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing*, 80(6), 69–96. <https://doi.org/10.1509/jm.15.0420>
- Mager, B., & Sung, T. (n.d.). *Service design as an emerging field*.
- Matthews, J. H. (2011). *Design Led Innovation : exploring the synthesis of needs, technologies and business models*. Retrieved from <https://www.researchgate.net/publication/278008842>
- Maxwell, J. A. (2012). *Designing a Qualitative Study*.
- Meroni, A., & Sangiorgi, D. (2011). *Design for Services*.
- Meroni, A., & Sangiorgi, D. (2016). Design for Services. In *Design for Services*. <https://doi.org/10.4324/9781315576657>
- Merriam, S. B. (2009). *Qualitative Research A Guide to Design and Implementation Revised and Expanded from Qualitative Research and Case Study Applications in Education*.
- Norman, D. (2016). *THE DESIGN OF EVERYDAY THINGS*.
- Norman, D. A., & Stappers, P. J. (2015). DesignX: Complex Sociotechnical Systems. *She Ji*, 1(2), 83–106. <https://doi.org/10.1016/j.sheji.2016.01.002>
- Orb, A., Eisenhauer, L., & Wynaden, D. (2001). Ethics in qualitative research. *Journal of Nursing Scholarship*, 33(1), 93–96. <https://doi.org/10.1111/j.1547-5069.2001.00093.x>
- Papanek, V. (n.d.). *Design for the Real World*. 1972.
- Patrício, L., Grenha Teixeira, J., & Vink, J. (2019, June 15). A service design approach to health-care innovation: from decision-making to sense-making and institutional change. *AMS Review*, Vol. 9, pp. 115–120. Springer. <https://doi.org/10.1007/s13162-019-00138-8>
- Prick, J. (2017, December 21). *Six ways to measure the impact of your service design efforts*. Koos Service Design. <https://koos.agency/blog/getting-grip-cx-measure-impact/>
- Pernice, K., Gibbons, S., Moran, K. & Whintont, K., (2016, December 4). *The 6 levels of UX maturity*. <https://www.nngroup.com/articles/ux-maturity-model/>
- Puccio, G. J., & Keller-Mathers, S. (2007). Enhancing thinking and leadership skills through creative problem solving. In *Creativity: A Handbook for Teachers* (pp. 281–302). World Scientific Publishing Co. https://doi.org/10.1142/9789812770868_0016
- Pöppelbub, J., & Röglinger, M. (2011). *What makes a useful maturity model? A framework of general design principles for maturity models and its demonstration in business process management*. Paper presented at the European Conference on Information Systems. https://doi.org/10.1007/978-3-642-22511-6_9
- Ramaswamy, V., & Gouillart, F. (2010). *Building the Co-Creative Enterprise*. Retrieved from www.hbr.org
- Ramaswamy, V., & Ozcan, K. (2018). *The co-creation paradigm: Transforming business for the digital economy*. Stanford University Press.
- Ritchie, J., & Lewis, J. (2014). *Qualitative research practice: A guide for social science students and researchers* (2nd ed.). SAGE Publications.
- Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a General Theory of Planning. In *Sciences* (Vol. 4).
- Rukonić, L., Kervyn de Meerendré, V., & Kieffer, S. (2019). Measuring UX Capability and Maturity in Organizations. *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 11586 LNCS, 346–365. Springer Verlag. https://doi.org/10.1007/978-3-030-23535-2_26

- Saunders, M. N., Lewis, P., & Thornhill, A. (2023). *F01 Research Methods for Business Students 02727.indd*. Retrieved from <https://www.researchgate.net/publication/367780349>
- Schwandt, T. (1998). *Constructivist, Interpretivist Approaches to Human Inquiry*. Retrieved from <https://www.researchgate.net/publication/232477264>
- Shah, D., Rust, R. T., Parasuraman, A., Staelin, R., & Day, G. S. (2006, November). The path to customer centricity. *Journal of Service Research*, Vol. 9, pp. 113–124. <https://doi.org/10.1177/1094670506294666>
- Sheth, J. N., Sisodia, R. S., & Sharma, A. (2000). The antecedents and consequences of customer-centric marketing. *Journal of the Academy of Marketing Science*, 28(1), 55–66. <https://doi.org/10.1177/0092070300281006>
- Silverman, D. (2017). *Doing Qualitative Research*.
- Prick, J. (2017). Six ways to measure the impact of your service design efforts | Koos Service Design. Retrieved September 5, 2024, from <https://koos servicedesign.com/blog/getting-grip-on-cx-six-ways-to-measure-the-impact-of-your-service-design-efforts/>
- Thomas, D. R. (2006). A General Inductive Approach for Analyzing Qualitative Evaluation Data. *American Journal of Evaluation*, 27(2), 237–246. <https://doi.org/10.1177/1098214005283748>
- Tutkimuseettinen neuvottelukunta. (2023). *HTK-ohje*.
- Vaismoradi, M., Turunen, H., & Bondas, T. (2013, September). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing and Health Sciences*, Vol. 15, pp. 398–405. <https://doi.org/10.1111/nhs.12048>
- Vargo, S., Lusch, R., Akaka, M., & He, Y. (2004). *Service dominant logic*.
- Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Qi Dong, J., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889–901. <https://doi.org/10.1016/j.jbusres.2019.09.022>
- Zeithaml, V. A., Bitner, M. J., & Gremler, D. D. (2018). *Services marketing: Integrating customer focus across the firm*(7th ed.). McGraw-Hill Education.

