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Service Design

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Using service design methods to improve discovery process in an e-learning business

Accelerating innovation in user-centric product development – a case study

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Using service design methods to improve discovery process in an e-learning business

Accelerating innovation in user-centric product development – a case study

This work emphasizes the importance of adopting a user-centric approach in the realm of product development in an e-learning service. The research objectives encompass understanding and promoting a user-centric approach in the discovery process, as well as steering and supporting lean and agile product development using design thinking and service design methods.

The methodology used was mixed methods, including qualitative and quantitative interviews, user observation, brainstorming, workshops, benchmarking, and a comprehensive literature review. Key findings are related to the lack of customer participation in the discovery phase and documentation related to the user's process and proper alignment and design towards the outcome delivery.

This thesis contributes to the field of product development and service design by providing a handbook based on the principles and methods to be applied for a user-centric process throughout the product development cycle.

Keywords:

Service design, product development, e-learning, design process, handbook

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1 Introduction

Since the end of the twentieth century, numerous businesses have been compelled to reimagine their operations and introduce approaches to offer relevant and customized experiences through online platforms. This trend has also been observed in the realm of education, where the desire to leverage digital business opportunities has stimulated the integration of online educational services into highly scalable business models.

The steady rise in the number of students, courses, trainers, and service providers in the e-learning sector each year signifies a permanent shift in the way knowledge is acquired in the coming decades. It also consolidates continuous learning as a daily habit for a permanent life and work-changing environment.

As a Service Design student and a product owner at a Nordic e-learning company, I am deeply committed to gaining insights into market dynamics, user behaviours, and the enhancement of product development processes. My role demands a seamless approach that begins with addressing unmet customer needs and consistently delivers tangible improvements in due time. Strategic thinking is highly important in my position, focusing on long-term business outcomes, sustaining long-term customer relationships, and ensuring their continuous satisfaction.

With degrees in communications, marketing, and business, and experience spanning over a decade in marketing roles, transitioning to roles as a business analyst and product owner, I aim to advocate for a customer-centric approach to product development. This thesis aims to create an accessible, cross-functional process that delivers long-term value to users as their e-learning service provider.

The case study context

The case study presented in this thesis is an e-learning platform that offers educational services for business-to-business in the Nordics.

The company is part of a specialist growth investment firm whose funds have held over six billion euros in fast-growing business since 2003. The group specializes in investing in small and medium-sized enterprises in the technology and sustainability sectors, supporting their international growth.

The e-learning service provider in this study case aims to be recognized as the most valuable partner for e-learning solution partner for organizations, in a business-to-business environment. The targeted customer base is composed of companies in the most diverse business sectors, including private and public services, in the Nordics and with plans for further expansion in Europe.

1.1 Research design

Main problems in the case study

Currently, the product development process at the e-learning provider in the case study is divided into two phases: Discovery and Development, meaning from the identification of the customer's needs to the actual product delivery. The problem area to be addressed in this thesis is concentrated in the discovery phase. The Discovery phase is conducted by the product team, which is formed by the chief product officer, product owners, UX designer and CX designer. Main stakeholders such as sales, customer success and customer support team members are invited to collaborate in this phase. The Discovery phase in the case study is constituted of the main phases of the Double Diamond design process: discover, define, develop, and deliver.

The Double Diamond process encompasses key phases: firstly, the investigation and comprehension of the issues that require resolution; secondly, the acquisition of insights to frame these issues; followed by ideation and the generation of potential solutions; and finally, the creation of prototypes for the most optimal solutions on the specified problem to be tested with stakeholders before any development of the actual product occurs. The Development phase unfolds in the steps of the agile development process oriented by sprint cycles (two-week timeframe) after the

proposed solution is validated in the discovery phase. The steps for development are solution review and kick-off, sprint refinement, sprint planning, development in sprints, quality assurance, and deployment when the product is released to the customer.

1.2 Main objectives

The primary objectives entail the systematic interrogation of confirmation bias towards the hinders within the discovery phase. I believe that by converging and combining customer-centric methodologies with the existing process, an optimal outcome can be achieved in due time. It aims to ensure the delivery of a comprehensive and rigorously tested service concept to the development team, aligning with the user-proofed designed solution and clear requirements.

Currently, existing gaps within the user journey only come to light during the coding phase, thereby resulting in an innovation lag and a subsequent reduction in the velocity of new feature releases. For that reason, projects and new features are delayed constantly due to a lack of proper design (user interface design or system design). It also hinders the team from suggesting more innovative solutions during the discovery phase, as there is a shortcut to exanimating the problem closer.

Ultimately, it is a quest to find synergies among design thinking, service design methods, and lean and agile methodologies for the benefit of both customers and businesses. The first aim is to deliver improvements brought by those methodologies, via a handbook to facilitate the discovery phase in the study case company. It will equip both the company and the product team with customer-centric and clear methodology frameworks, as well as practical tools for application whenever the need arises to address customer pain points.

1.3 Frame of reference

The frame of reference in this work (Figure 1) consists of a holistic view of how teams can work together to deliver relevant products in due time. The primary focus of this

thesis revolves around the provision of methodologies and tools aimed at problem identification and solution development, through the integration of design thinking principles, service design methodologies, continuous customer feedback mechanisms, and lean and agile practices.

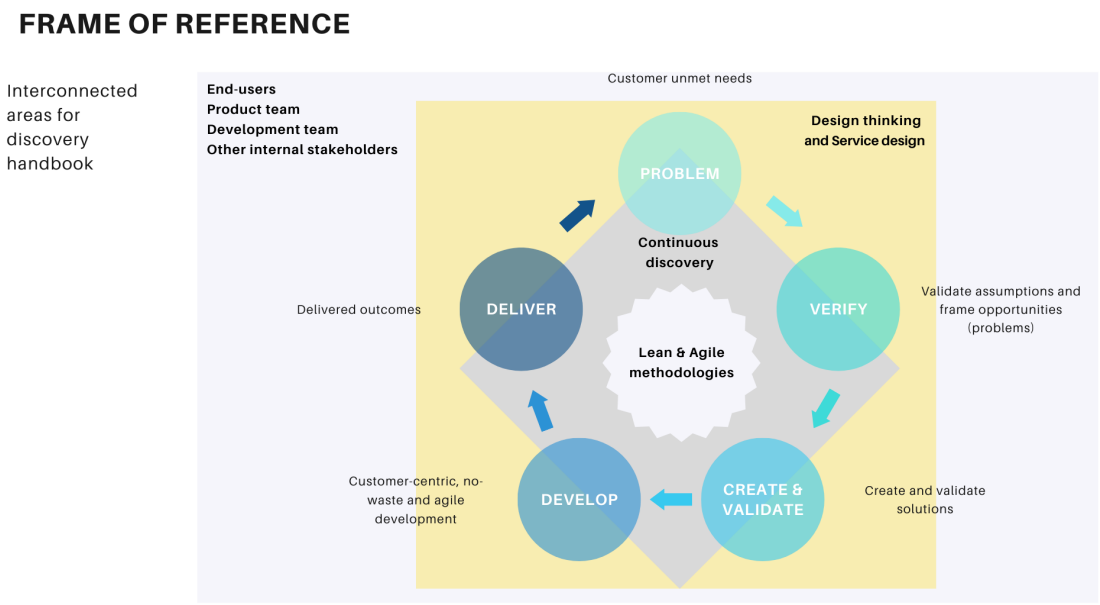

Figure 1. Frame of reference.

This conceptual framework underscores the importance of adopting an analytical perspective, encompassing diverse processes and team dimensions, and focusing on the customer problem to the very end of the chain. The integration of these perspectives culminates in a customer-centric product development approach, supported by the deliverable of this thesis.

The stakeholders involved in the frame of reference are the end-users of the service, the product team, the development team, and other stakeholders who can contribute to identifying customer problems. The well-known methodologies utilized in product development (lean and agile product development) are supported by design thinking, service design, and continuous discovery from a broader perspective. The idea is that each methodology and each working group can be placed more closely in their mindset and synergies within the teams, and utilizing shared methodologies

can be beneficial for the discovery phase, resulting in more efficiency in the whole product development process.

This integrated approach also serves as a guardian, effectively overseeing various interests from customer, business, and product development. When implemented holistically, it not only mitigates inefficiencies but also enhances product development velocity, thereby enabling the timely delivery of value to customers.

1.4 Research questions

The research questions defined for this thesis work are focused ultimately on deliverables to the product team and the development team with a handbook to support product discovery and delivery processes:

- *How can continuous customer feedback support the discovery process?*
- *How can Design Thinking and Service Design methods support lean and agile product development?*

1.5 Research structure and methods

The research method applied to this thesis work is the double diamond design process model (Figure 2). The stakeholders involved in those phases are the product and development teams.

In the discovery phase, a substantial focus will be placed on conducting user observations during daily interactions with key stakeholders who play an important role in the discovery process within the case study company.

Furthermore, structured interviews are planned with targeted stakeholders. The intention is to complement these primary research findings with desk research, which will be utilized to gain insights into project management, service design, and evolving improvement processes within the case study company.

In the define phase, a few crucial activities take place to establish a clear and comprehensive foundation for subsequent stages. Work review meetings are

convened to assess previous efforts and outcomes, allowing the team to share valuable insights and lessons learned. These meetings serve as a platform for constructive feedback and facilitate continuous improvement.

Simultaneously, still during the define phase, the reference to a customer journey map is presented, enabling a visual representation of the user's experience throughout their interaction with the service. This map serves as a holistic guide, pinpointing the customer's general actions and the process support needed. Complementary to those is, the creation of an initial service blueprint, which searches through the complex details of the service's internal processes. It delineates the interplay between frontstage and backstage actions, providing a comprehensive understanding of service delivery and its weaknesses. Collectively, these activities in this phase lay the groundwork for ideation and conceptualization in the subsequent stages of the process.

In the development phase of the Double Diamond process (Figure 2), the emphasis is placed on translating ideas and concepts into tangible solutions and prototypes. Prototypes in their initial stages are created to provide a concrete representation of the proposed process improvement. These prototypes serve as a bridge between conceptualization and realization, allowing for user testing and refinement. In addition, to the initial prototype, a final service blueprint is delivered to outline the improvements in the structure and key touchpoints of the service delivery process. These activities collectively build the foundation for iterative development, with a focus on integrating internal stakeholders and insights to ensure that the final process aligns closely with ultimately the user expectations and needs.

Finally, in the deliver phase (Figure 2), the primary actions involve refining and preparing the solutions for implementation. This phase includes the creation of final prototypes, which represent the polished and near-complete version of the proposed handbook. These prototypes serve as a critical tool for testing and validation before the actual development phase, or in this context, the use of the concept, begins. Additionally, concept walkthroughs are conducted to review and validate the proposed concept, ensuring that all aspects align with the project's goals and process requirements. Together, these actions in the delivery phase aim

to fine-tune the design concept, align it with project objectives, and set the stage for the successful use and advocacy of methodologies and processes proposed in the handbook.

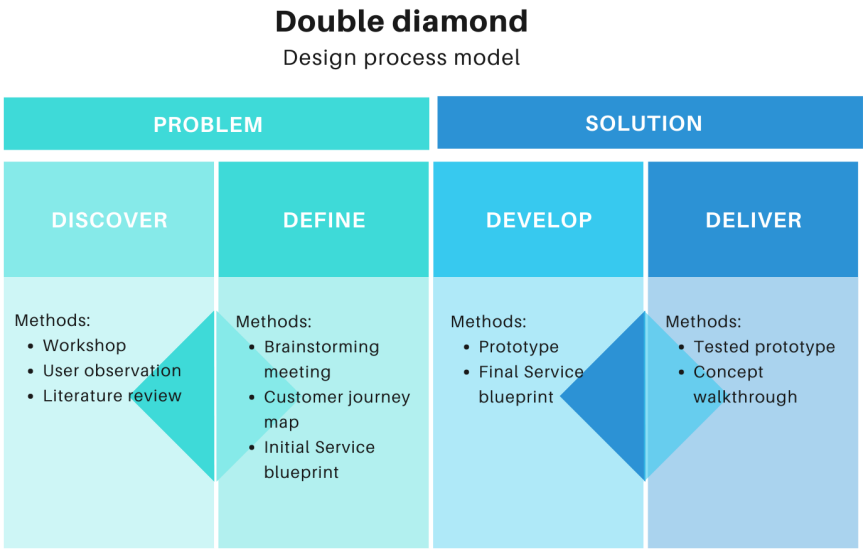

Figure 2. Double diamond design process model (adapted from Design Council, 2019).

1.6 Timeline and process chart

The process chart timeline (Figure 3) follows four phases from the double diamond process model (Figure 2): discovery, define, develop, and deliver. The stakeholders involved in those phases are the product and development teams.

The Gantt chart (Figure 3) shows most of the phases carried out in 2023. Most of the problem identification and aim of this thesis was realized in 2022 when the study case company had gone through changes in its organization and ways of working. The milestones are focused on deliverables to the study case company in three simple steps: identification of pain points (Figure 3, milestone 1), identification of opportunities (Figure 3, milestone 2), and delivered solution (Figure 3, milestone 3). Each task is presented in Chapter 3 as part of the empirical studies for this thesis.

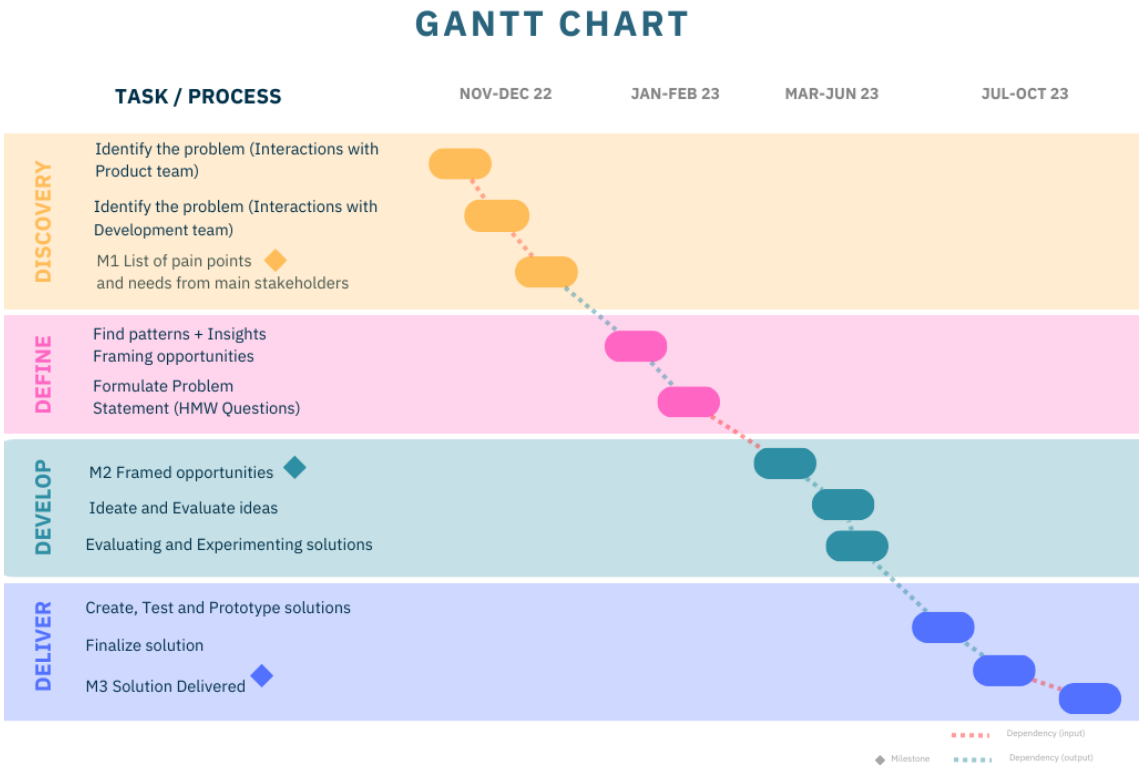

Figure 3. Process chart.

1.7 Stakeholder map in the case study

A product or a service is seen as an experience that has agents or stakeholders involved at different levels. It is crucial to know who is involved and the impact those stakeholders are having throughout the experience.

Stakeholder maps can indeed be used as a tool to identify possible agents and relationships that need more attention dedicated from the product or service provider, evaluate the role of peripheral stakeholders, and even eliminate them if the relationship is more detrimental than beneficial. In this thesis work, the model for stakeholder mapping (Figure 4) with three levels is used: core users, direct stakeholders, and indirect stakeholders.

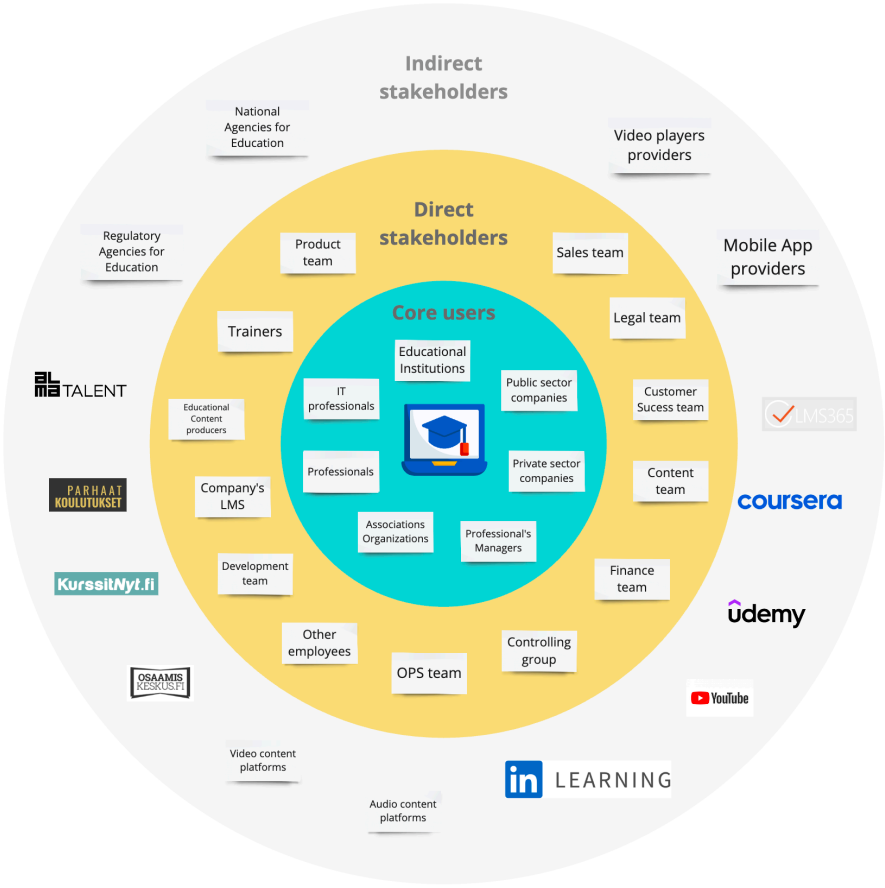

Figure 4. Stakeholder map.

In the context of the study case, as per Figure 4, core users entail the end-user and customer types of the current product offering and recently added mergers with similar online businesses.

In direct stakeholders, most of the e-learning platform is engaged in providing and marketing the service and creating the educational product. In the context of this thesis, the main group of direct stakeholders is product and development teams. They are engaged in the discovery and development of new features and improvements to current features. The product team works directly with other stakeholders (including end-users and customers) to identify current pains, ideate possible solutions, and implement them in the current service.

In indirect stakeholders, the list of external environment agents which impact other businesses conveys mostly regulatory decisions, third-party service availability, and competition.

For the sake of simplicity in this stakeholder map, the relationships are not drawn in the mapping above (Figure 4).

2 Literature review

E-learning opportunities can be applied to any age group that needs to acquire competence at their fingertips at their own pace. As this work is focused on e-learning for adults and continuous development for professional purposes, the main key points from a reputable report, focused on the future of jobs and the global labour market landscape, are presented.

To the core of the proposed outcome of this work, the literature review also outlines the Lean product development framework, delving into the Lean product process, a systematic approach involving six steps to achieve a product-market fit, incorporating Agile principles for incremental delivery. Olsen (2015) and Torres (2021) emphasize problem and solution spaces, and continuous discovery, while Cagan (2017) concentrates on the human-centric approach in tech product development, which suggests an integrated approach. The chapter concludes by highlighting the alignment of Agile methodology with Lean principles, emphasizing continuous feedback, collaboration, and adaptability to change as central tenets in the context of product development.

2.1 The present and future of e-learning

The context where e-learning is analyzed in this work is the workplace and the need for role-related competence development. In contrast with school learning, learning in the workplace takes place in the context of use and application, simultaneously, where it aims at everyday problem-solving while acquiring competence. Workplace learning is also more informal, incidental, and collaborative. (Seow & Hughes, 2005.)

The World Economic Forum conducted recent research focused on the macrotrends that drive business transformation and, thus, labour market transformation in 2020's years. The three most impactful macro trends are related: new technology adoption, broadening digital access and broadening the application of Environmental, Social and Governance (ESG) standards. When new technology adoption and broadening digital access macro trends are analyzed towards their impact on jobs, the report's

survey results show an interesting effect. Both macro trends suggest similar impact expectations in terms of job displacement (discontinuation) which reaches about 20% of the total organizations surveyed. In terms of job creation (creation including reskilling), more than 50% of the organization's respondents believe that those macro trends are affecting the new labour market until 2027. Environmental, social and governance standards broaden the application macro trend, also have over 50% of expectations on the bright side of job creation, and a low impact of job displacement. (World Economic Forum, 2023c.)

According to the survey introduced in the last paragraph, over 80% of organizations are willing to adopt technology for education and workforce development. A few reasons for the high number could reflect the perceptions accrued by the respondents to date: a. employers estimate that more than 40% of their employees' skills will be disrupted in the next five years according to Figure 5; b. 60% of employees need training before 2027, but it seems that only half of them have proper training opportunities currently, and c. employers are more confident in improving talent internally than relying on the talent availability on the market in the next five years. About 80% of respondents expect to invest in learning, on-the-job training, and automating processes. Those are the most common workforce strategic goals to be adopted in the next few years to deliver their organizations' business goals. In this context, the primary objective of e-learning is to provide training opportunities for employees' upskilling and reskilling endeavours by 2027. A noteworthy discovery from surveys indicates that a substantial over 60% of organizations are directly correlated to the pressing demand for workforce training within five years. (World Economic Forum, 2023c.)

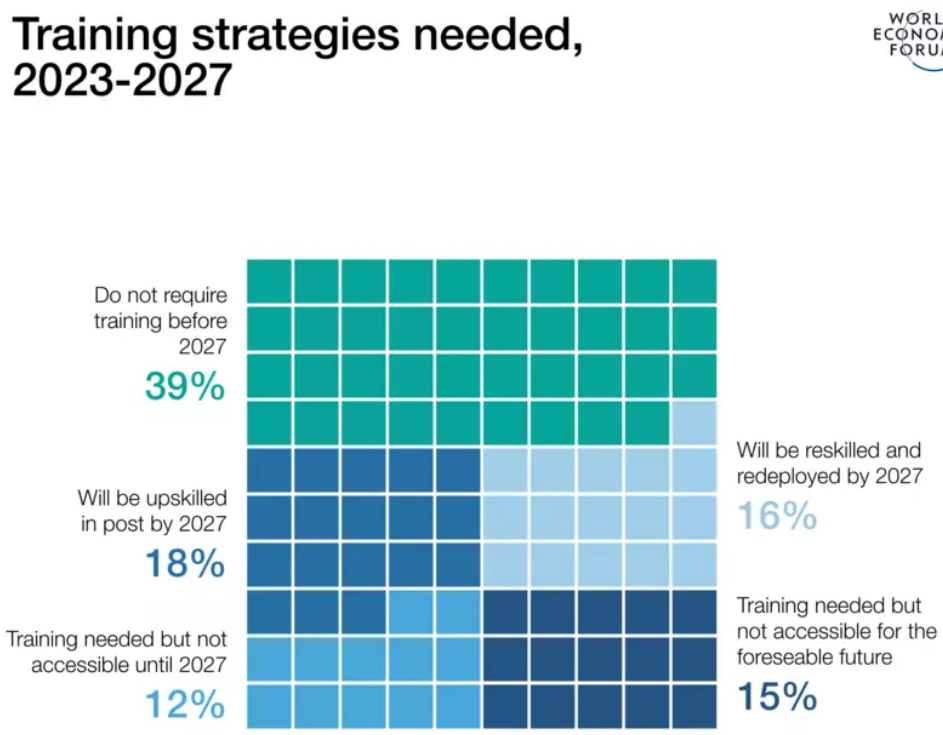

Figure 5. Training strategies needed 2023-2027 (World Economic Forum, 2023c).

2.2 Brief Findings in customer behaviour in e-learning platforms

Starting in 2020, after the COVID-19 pandemic and quarantine measures, education institutions were forced to move to digital distance learning worldwide. This societal, economic, and even cultural shift has highly impacted how knowledge is acquired and where learning opportunities can be found. To confirm the trend, by switching to remote working during the pandemic, a three-fold increase in newly registered learners on a certain platform was observed, bringing the figure to 71 million in 2020, and 92 million in 2021. (World Economic Forum, 2022b.)

There are a few main behavioural changes and values perceived towards adult education online learning that were influenced by labour market conditions forecast for the next decade. Online learners are increasingly accessing online courses for continuous learning due to an ever-changing labour market on a global scale. Reskilling learning needs due to new job descriptions because of digitalization, automatization, and robotics. Emerging countries have recently been at the top of

the list of new learner growth online, perhaps due to the availability and affordability of e-learning in those countries. Globally, the skills gap is narrowing, thanks to the vast availability of online learning opportunities (World Economic Forum, 2022b.)

Research suggests that online learning has been proven to increase retention of information and is more effective timewise. It has been proven that the learning method shift from face-to-face to hybrid or fully online has a solid basis for steady growth in the next decade (World Economic Forum, 2021a). Below, in Table 1, a comparison between global, developed, and emerging countries is shown to illustrate the main aspects of the online learning experience.

Table 1. Key figures on adult online education (adapted from Statista, 2019a; Udemy, 2023b; Nordic e-learning business intranet, 2023).

	Global online learners (Figure from competitors' analysis)	**Developed countries** (Figures from Nordic e-learning case study)	**Emerging countries** (Figures from competitors' analysis in Brazil)
Overall satisfaction with (1) learning content or (2) learning method	70% (1)	78% (1) (2)	70% (1)
Use & Purpose Amount of overall internet users using the web for (1) learning purposes or (2) the search leading to online platform services (3) In Finland, as a developed country reference, data comes from the case study; therefore, the figure represents the percentage of all users using the business-to-business platform in comparison with the overall number of internet users. Users coming from external searches are not considered in this figure.	21% (2)	4% (1) (3)	48% (1)
Corporate users amount of traffic to online learning services by business users (employees using corporate licences) (3) In Finland, as a developed country reference, data comes from the case study; therefore, all users are using a corporate licence.	80%	100% (3)	80%
Recommendations influence others to take the (1) learning method change or (2) referrals to actual traffic	4% (2)	84% (1)	67% (1)

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Global online learners

The digital population, which is the term used to represent people with access to the internet, in the world is over five billion users. In Table 1, global learners' data comes

from a global online learning platform with more than fifty million users, where the biggest traffic comes from two of the largest emerging countries (Brazil and India), and the United States. Most users come from a corporate or business background. Their satisfaction regarding content is good levels, although the use of most internet users is not learning-related. The platform also reports that under five per cent of their traffic is based on referrals. (Statista, 2023c; Udemy, 2023b.)

Developed countries

To represent figures for developed countries, the data sample comes from Finland. The country is considered a developed nation according to standards defined by the United Nations, utilizing a few parameters such as gross national income per capita, human assets index, and economic vulnerability index (United Nations, 2020). The data for developed countries comes from the study case company customer satisfaction survey results in 2023.

The study case has a high rate of satisfaction, with 78% of the survey respondents. Over two thousand users replied to the customer satisfaction survey. The total number of users using the service is around 250 thousand users, corresponding to four per cent of the total of internet users in Finland in 2021, and it is represented in the use and purpose figure in Table 1. The corporate users' rate presented in Table 1, is represented by 100%, as the data used to represent the group of users for the other figure calculations comes exclusively from the case study. The rate of recommendations is also high, as 84% of the respondents have declared that they would influence or recommend the learning method and the service provider to colleagues and friends. (Nordic e-learning business intranet, 2023; Statista, 2021b.)

Emerging countries

Countries are considered emerging nations mainly based on their gross domestic product per capita and other factors. For emerging countries, such as Brazil a survey was conducted online in 2019 with respondents from the age group sixteen and

older. The number of respondents was over two thousand internet users. (Statista 2019a; United Nations, 2020.)

In this emerging country, users of online learning are keen to recommend the service to others. They seem to be satisfied, and the rate of using the internet for learning purposes seems to be closer to the levels of the referred developed country when compared to the same indicator for global online learners. (Statista, 2019a.)

As a conclusion, based on the numbers presented in Table 1, key findings on the online learners' behaviour have been assumed: a. most online learners are satisfied with the content and/or the learning format available online; b. 48% of online learners are keen to use the internet for learning purposes; c. 80% of online learners are sponsored by their organization (via corporate licenses) to engage with and use online learning platforms; and d. 67% of online learners are eager to influence and recommend online learning content to others.

2.3 Trends in product management and development

As per the frame of reference (Figure 1), the theoretical groundwork for this thesis revolves around four main disciplines: design thinking and service design, lean product development and product management. Design thinking and service design are the main disciplines orienting this work in terms of outcomes. However, synergies towards the process and the customer-centric aspect are found in the product management discipline and more recently in lean product development.

Initially, this chapter aims to compare the processes of the four disciplines mentioned when applied to both product discovery and delivery processes. However, a key deliverable of this chapter is to highlight the benefits of core shared mindset characteristics. With origins in design thinking, all three disciplines have common principles.

The principle of a customer-centric approach is paramount, focusing on framing the problem space and addressing unique end-user needs. Another common principle is to embrace experimental methodologies, including hypothesis validation through

rigorous experimentation which enhances the credibility of findings. A key principle is to incorporate a visual dimension, with UX and testing as key phases, to create an intuitive service environment. The most crucial common principle is to have an outcome-oriented perspective, aiming to formulate a compelling value proposition for both the business and end customers, emphasizing tangible and meaningful benefits.

A more detailed examination of this literature review is found in the following sub-sections. The starting point is to briefly resume the dominant customer behaviour in e-learning services. Scanning and investigating the customer behaviour and potential pains and gains pictures an opportunity market scenario that an e-learning service provider is willing to solve. Subsequently, an analysis of the common-step processes applied in product management and lean product development on how a discovery process (focused on the problem faced by the users) is presented. The analysis endorses the main methodology and discipline in this work, meaning design thinking and service design.

Following the primary principle of a customer-centric approach, the lean tech product development process confirms customer pains as the core factor in product-market fit. Lean also aims to minimize rework, consequently eliminating waste. A comparison of the processes in each discipline converging to a human-centric approach in the delivered service is proposed in the next chapters.

Lean product development process

In lean product development, to better understand how a product-market fit could be achieved, a pyramid-shaped framework is presented (Figure 6). The three main layers of market, product-market fit, and product are composed of five key components. The pyramid shape creates dependencies from the lower component towards the next upper one. (Olsen, 2015.)

In the market layer, existing and potential customers with the same or a set of related needs are represented in this component. The market layer can also represent in monetary value what those needs if fulfilled, could generate. Different

solutions can be proposed for the same need; therefore, the market size itself does not correspond in absolute number to a specific product. Rather, competition and market share are analyzed in this phase, so a more accurate market size is estimated. Segmentation and product market positioning also play an important role in defining the targeted customers and their underserved needs. Defining the targeted customer incorporates more than product management in most cases, such as company strategic goals, product positioning, and market niches. During product development, specific bites of the intended targeted customers can be considered for a feature or a set of them. (Olsen, 2015.)

The market layer also addresses the product or service life cycle. Depending on the maturity of a product or service, it can perish, migrate to substitutes, or maintain its position and relevance with or without innovation. Disruptive and/or new markets can emerge, originating from new customers and new needs. A product, or its features at individual levels, is offered to meet a set of customer needs and desires. Frequently, in tech products, it combines product capabilities and user experience (UX) as those create the final deliverable offer. Not only technical feasibility is evaluated by the user, but design and experience play an important role in platform-based products. Also, comprehensive strategic competitiveness needs to be in place: a product that fits all the expected needs of different stakeholders. Ultimately, serving the customers is how profit is generated. (Olsen, 2015; Torres, 2021.)

The cornerstone of the definition of product-market fit is to build a product that creates significant customer value. It also addresses, to a certain extent, the fit compared to other available alternatives. Profitability is often mentioned as the core of product-market fit. In this literature review, product-market fit is understood as a factor that stands on its own, regardless of the context of profitable businesses (Olsen, 2015).

The lean product process follows the same pyramid framework. In established or existing products or services, experience tells that most likely key stakeholders have been listening to customers, and hypotheses have been drawn. The moment the same pain or need is listened to over and over, a hypothesis gets prioritised and becomes a key hypothesis to be considered when the lean product process has

started. The main point of the process is to articulate and test those key hypotheses in each step of the process. (Olsen, 2015.)

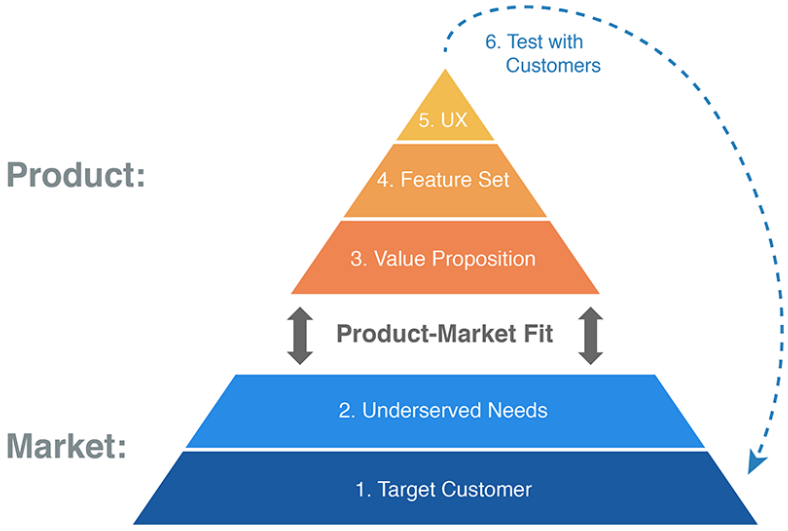

Figure 6. The lean product process (Olsen, 2015).

There are six steps in the process suggested by Olsen (2015) as per Figure 6. The first step is related to determining the target customers. As mentioned in the previous section, when defining the pyramid components, determining the target customers is the first step of the discovery phase. Secondly, it is important to identify underserved customer needs. Also, underserved needs are related to the pains and needs part of the discovery phase, where the problem to be solved is framed. The third step is to define the value proposition. Defining a value proposition is related to the define phase, where the framed problem is connected to possible solutions and the direct value created for the customer. The fourth step is related to specifying a minimum viable product feature set. As per Figure 6, steps 4, 5, and 6 refer to the important lean concept of a minimum viable product. Those are steps directly related to the concept of minimizing rework and waste during the whole process while bringing enough value to the customer. (Olsen, 2015.)

In the context of agile development, improvements to a specific set of needs can be delivered in a shorter development period (usually two weeks). This means that solutions can be reduced to a manageable development workload allocated to

developers and delivered to customers on time. The minimum viable product can also lead to an incremental delivery approach. When the decision is to take smaller solution bites, a subset of the set of features, the next steps can be taken independently and in short iterative periods. When this incremental delivery approach is chosen, most likely steps one to three from the pyramid process do not need to be revisited, meaning that the key assumptions are still valid for ideating prototypes and further to be tested with the users. (Agile Manifesto, 2001; Olsen, 2015.).

At the top of the pyramid lies the user experience layer where a set of candidate features for the minimum viable product, or incremental work, can be built. Usually, a prototype that can have different formats, from the sketchiest to the techiest solution, is delivered to a set of customers so hypotheses can be tested. The idea is that no further development (in tech products, usually means developers coding) is taken before an iterative process to confirm the proposed solution to the user is confirmed. The question of what a minimum viable product prototype is and what is not should be considered that it is not the minimum functional product, rather it is the minimum functional, reliable, usable, and delightful product that can be delivered, creating customer value. (Olsen, 2015).

Once a design for a minimum viable product prototype is created, the next step is to introduce it to the users. Tests can have different formats, either quantitative or qualitative, so different objectives can be set during this phase. The focus of this phase is to avoid flying solo and landing nowhere when creating a solution and to avoid product blindness. The more hypotheses are tested closely with the customers, the less product-blind a company or a team becomes. (Olsen, 2015).

2.4 Continuous discovery process

This thesis also explores the problem space and solution space, drawing on service design methods to define the former and relying on user feedback for the latter. Olsen (2015) emphasizes the iterative process of hypothesis confirmation, design creation, and testing, creating a continuous loop of learning outcomes.

Torres (2021) proposes that continuous discovery is introduced as a process where the problem and solution spaces evolve together. The Opportunity Solution Tree framework is presented as a visual representation of paths a team might take to achieve a desired outcome, managing the tension between business and customer needs (Torres, 2021).

Defining problem and solution spaces

As thoroughly described in the last subsection of this chapter, product-market fit is presented as the concept that encapsulates all considerations to build a relevant product that serves a purpose. Lean product process is designed based on the conviction that the market and product are connected by their fit (Olsen, 2015).

Problem space deals with non-verbal needs or abstract feelings that, most of the time cannot be addressed properly by the end-user. The product team needs to unearth those needs by utilizing service design methods to define the problem space. Hypotheses around customer needs are confirmed during this phase, and relevance and value can be estimated. Solution space is where customers are usually good at giving their feedback. By showing a prototype or testing certain features, users can more concretely express whether they like or not a specific product or service. The end-user's evaluation in the solution space can be more tangible, and it usually leads to more fruitful discussions. Solution space discussion with end-users supports possible improvements to the problem space. (Olsen, 2015; Torres, 2021.)

Olsen (2015) defined the solution space as the territory where end-users can see and react. The problem space is defined as the territory where the product team can influence and interfere. The value proposition is the key to fine-tuning the interaction between the spaces, keeping in mind a couple of main concepts. The first concept is that unserved customer needs can be targeted but cannot be changed. The second concept is that feature sets and UX are under product team control and can be adjusted to fit underserved needs and the aimed value proposition. The aim of those two spaces for Olsen (2015) is to create a loop where hypotheses are confirmed, a

design is built, a test is applied and ultimately, there is a learning outcome to the hypotheses' feedback. (Olsen, 2015.)

Problem and solution spaces are the basis for the continuous discovery process. In this process, both spaces evolve together as proposed in Figure 7. Learning about one affects the other directly in an intrinsically intertwined relationship. Once potential solutions are ideated, more awareness of the problem is created, leading to possible new solutions. But then, what should come first? Torres (2021) suggests that consideration to the guideline of beginning to explore both spaces with the end in mind. (Torres, 2021.)

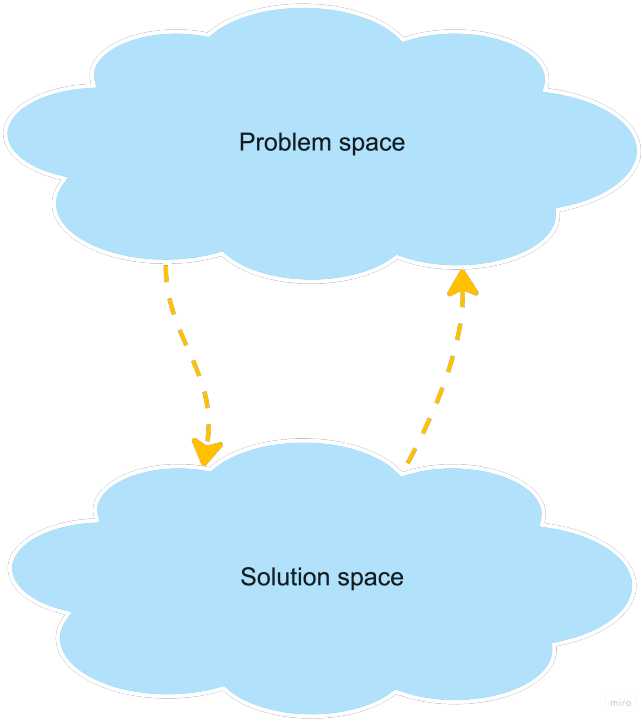

Figure 7. Problem space versus solution space (Torres, 2021).

Opportunity Solution Tree

In the continuous discovery process, a common framework is proposed. An opportunity solution tree is not only a visual representation of the paths a team might take to reach a desired outcome. It also tries to manage the tension between business needs and customer needs. It should support the product trios (product manager, UX designer, and developer) to share understanding and adopt a

continuous mindset, not losing sight of the desired outcome and the actual delivered benefits. (Torres, 2021.)

An opportunity tree is composed of outcomes, opportunities, and solutions, according to Figure 8.

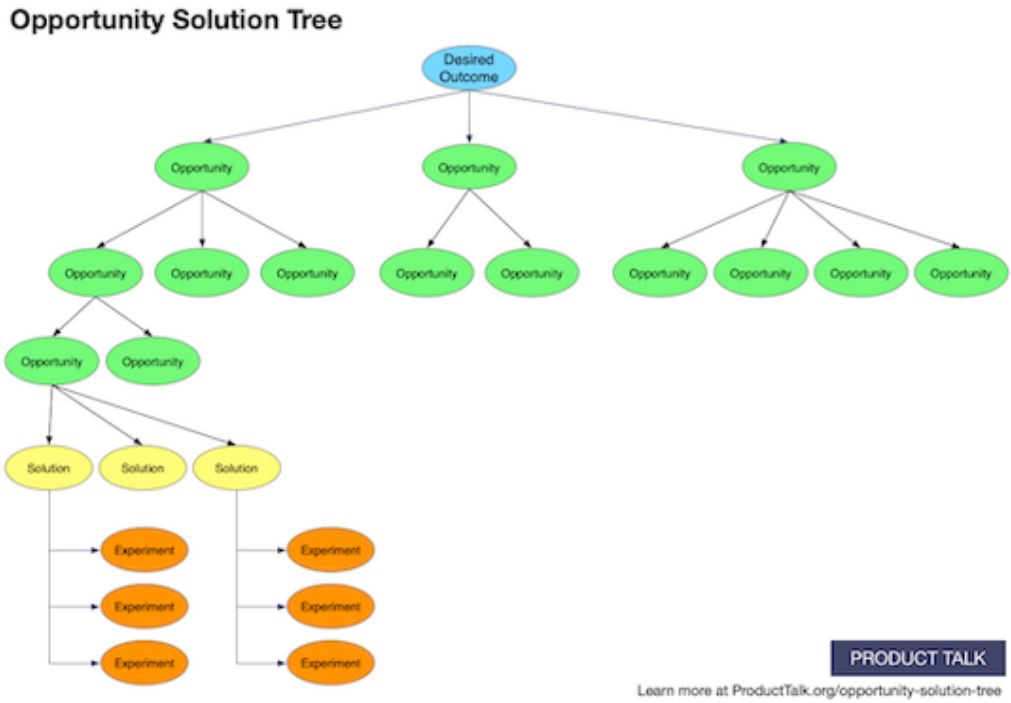

Figure 8. Opportunity solution tree (Torres, 2023).

As per Figure 8, a desired outcome is placed as the root of the tree. In this concept, teams should address the business need that ultimately creates business value. The layer of opportunities, represented by the different branches, states customer needs, pain points, and desires that if addressed, will deliver the outcome. A common term used for this layer is problem, which in this representation is translated into opportunities for the company to intervene in customers' lives positively and generate revenue for its businesses. (Torres, 2021.)

For each opportunity in Figure 8, solution branches can be added. Only opportunities that are relevant to the outcome are added in this context. Opportunities are kept relevant for further iteration, even if at a given moment, there is no suitable solution to be validated and offered. Under each solution space are assumption tests that will

validate which solutions are creating value for the customer and, per consequence, driving business value. The framework revolves around the concept and guidance towards an outcome-driven solution instead of an output-driven solution. An example of the conceptual change is shown in Figure 9 below. (Torres, 2021.)

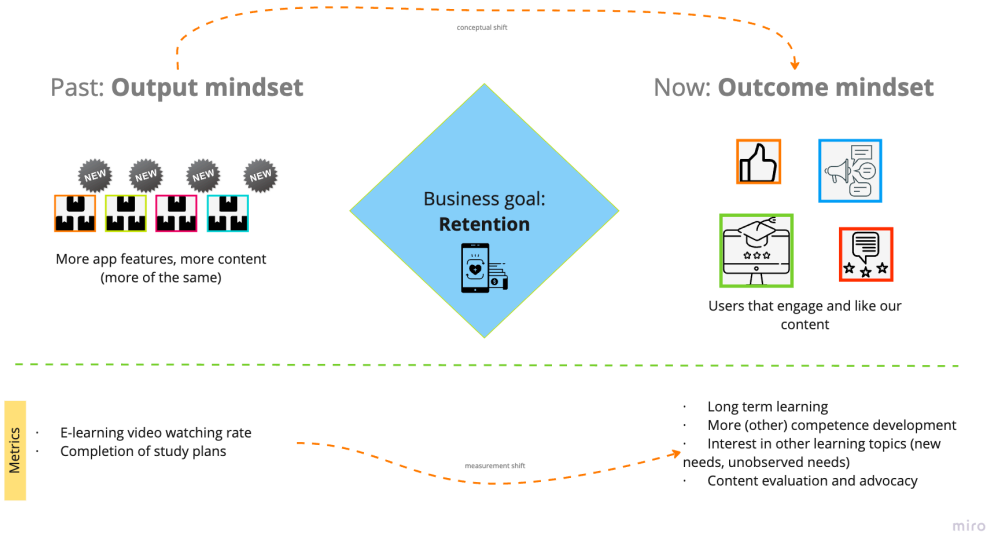

Figure 9. Continuous discovery framework – conceptual change in e-learning business (modified from Torres, 2021).

In the example, where the business goal is customer retention in Figure 9, an in-depth understanding of what makes the user interested, willing to use and like the product is key when defining the solution and setting outcomes. This is the era of tech-lovable products. A service needs to be placed among the user's routine activities and long-term habits. Supporting recurrent activities, creating a lasting relationship, leading to loyalty, and with the optional operational costs, a profitable business. With the conceptual shift in mind, practitioners of continuous discovery can benefit even more from the Opportunity Solution tree framework. (Cagan 2017; Torres, 2021.)

2.5 Human-centric approach in tech product development

A company should aim to establish a product culture instead of product management and product development. The two dimensions to achieving this mental shift are

consistently innovating valuable solutions for their customers and how those solutions can be executed and delivered. It is about focusing on the discovery process, and human-centred aspects are at the core of the proposed solution: it must be desirable, feasible, and viable. What does it take to achieve a product culture mindset with a human-centric approach? Other sub-cultures that, when applied together, result in the main culture with the user at the centre of the process. To start, the culture of experimentation is where trial-and-error testing scenarios are used to experiment and validate hypotheses, anticipating scenarios, having a more practical approach, and keeping customers engaged to participate in the co-creation process. (Cagan 2017; Torres, 2021.)

Cagan (2017) also proposes to foment ideas with a culture of open minds as good ideas can come from everywhere. All stakeholders in a business should listen to the users, be less judgmental, and see from other perspectives. So that ideas are brought out, a culture of empowerment should be in place to encourage teams to contribute, try out innovations, advocate for the customer, or engage the customer in the discussion. In the data era, the culture of technology and the use of collected data and breakthrough tech-driven innovations are in the favor of customers or to inspire them. (Cagan, 2017.)

A key culture of business- and customer-savvy teams where all engaged stakeholders in the company should have a deep understanding of the customers' pains and needs. Whenever possible, everyone in the company should have access to interact with customers and users. (Torres, 2021.)

A multitude of backgrounds is part of the culture of skill sets and staff diversity. Different life contexts, experiences, and skill sets can contribute to innovative environments and solutions. It also leads to a more empathetic relationship with the customers and their different points of view and diverse business contexts. Lastly, Cagan (2017) advocates for a culture of discovery techniques. Mechanisms to fast and safely test ideas to protect the product, revenue, customers, and internal stakeholders. The core sub-cultures are especially encouraged during the discovery phase, but they should be propagated throughout product development. In this context, other sub-cultures such as the culture of urgency, accountability,

collaboration, results, and culture recognition are equally important when creating a service. The core sub-cultures guarantee that the human-centric approach is not forgotten in any phase of product development, and teams commit to their share of the workload so that a desirable, feasible, and viable product is delivered. (Cagan, 2017.)

2.6 Agile product development

By the discussions presented in the preceding subsections of Chapter 2, a significant portion of agile methodology within the context of product development aligns with the principles articulated in lean methodology, particularly the pursuit of achieving market fit. This pursuit underscores the importance of harmonizing the exigencies of product-oriented business objectives with the evolving demands and unmet needs of customers. (Olsen, 2015.)

Agile methodology emphasizes a holistic engagement with both the problem space and the solution space, facilitating a continuous feedback loop that allows for iterative improvement within their respective domains. Foremost among Agile's guiding tenets is the prioritization of individuals and their interactions, valuing them above formal processes and tools. Agile methodology also places a strong emphasis on collaborative teamwork and a close partnership between product team and customers. This collaborative environment is founded on proactive responsiveness to change as opposed to strict adherence to pre-determined plans. (Torres, 2021; Babar et al., 2013.)

3 Improving the product development process with service design

In this chapter, empirical research for this thesis work is presented. The double diamond process is orienting the phases of this chapter, and a representation of the steps is presented in Figure 10. In the discovery phase, secondary research is used for the tools that represent the interactions of the end-users with the service: personas and customer journey maps. Primary research is used for defining personas for the product trio which consists of product owner, UX designer and experience developer. They are ultimately the main stakeholders in the process to be improved with this thesis.

The benchmark of main competitors is also addressed to ground the main gap findings in the process and the user-centric mindset and customer business goals orientation. Service design methods and tools were applied for the core of the main objective of this thesis: to create a discovery process handbook. Service blueprint is one of the key deliverables that represents the internal process to be improved with the help of the nearly created handbook.

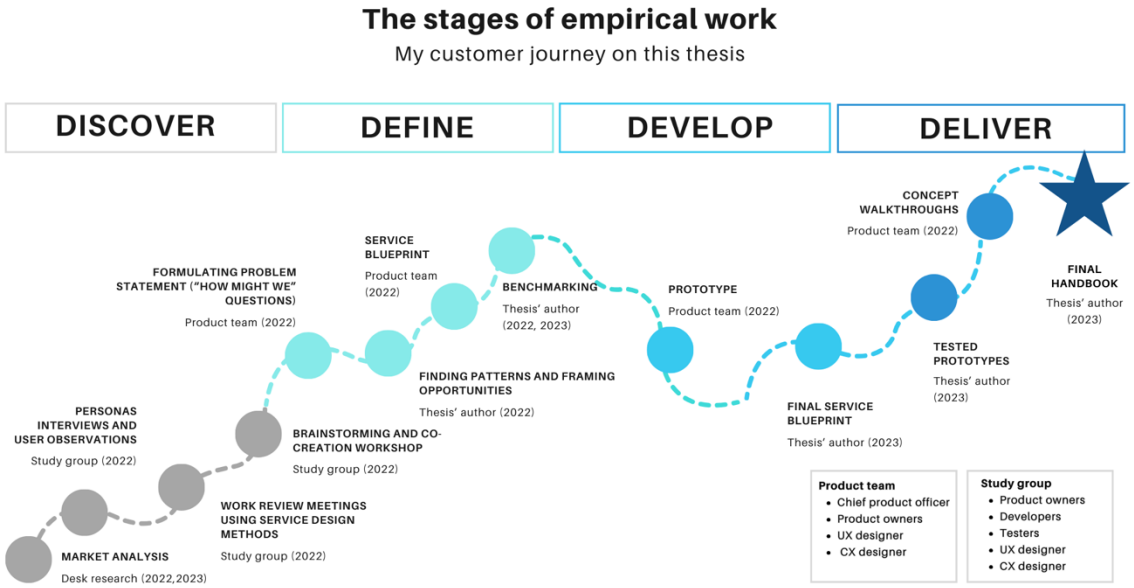

Figure 10. The stages of empirical work in this thesis.

3.1 Discovery phase

Strategic goals drivers in e-learning service providers: market analysis

Service providers are benefiting from the massive opportunity created after individuals awaken to a new learning behaviour, and workplace skills are demanding from current evolving needs in the global job market. The main market drivers are that 40% of core competencies will be changed in the next five years, 50% of employees will need reskilling, and the e-learning global market opportunity will reach 476 billion in 2027 (166 billion in 2021). (Udemy, 2023a.)

Online learning numbers have been steadily rising since 2016. As an example, from a global open online course provider (Coursera), the number of users has been growing at a rate of 30% between 2016 and 2020. During the pandemic lockdown, the number has doubled in most countries where the online course provider operates. An undeniable demand for e-learning opportunities has skyrocketed in one of the main global service providers (Udemy) from 85 million in revenue at the beginning of 2020 to 350 million by the end of 2022. (World Economic Forum, 2022b; Udemy, 2023a.)

After the COVID-19 pandemic, e-learning service providers seem to be focused on boosting their strategies to engage more and more users and conquer a large slice of market share in global e-learning opportunities. As per the numbers from 2022 and 2023, the three main global service providers with the highest number of users are Coursera (over 100 million users), Udemy (over 57 million users), and LinkedIn learning (over 27 million users). Revenue-wise, in first place is Udemy (629 million dollars), then Course (142 million dollars), and LinkedIn learning revenue is not informed. The strategy to penetrate the global market, the competitors are focused on content creation: high-quality, fresh content, global footprint with localized content, and immersive learning experiences; technology-boosted advantages: powerful data insights and analytics, and innovative and flexible tech platform; and sales strategy: business and consumer revenue streams. (Coursera, 2022; Udemy, 2023a; LinkedIn, 2022; Octopus CRM, 2022.)

Foreseeing the future of the business, the largest global service providers have similar growth drivers focused on external factors such as increasing digital transformation, growth of the creator and skills economies, and change drivers directed applied to workforce behaviour such as remote work flexibility, renewed investment in learning and development in organizations, and workforce reskilling and upskilling expectations. (Udemy, 2023a; Coursera, 2022; LinkedIn, 2022.)

It seems that e-learning providers are willing to support and influence the learning and development of employees in organizations. Learning becomes an agent of transformation where both employees and organizations benefit from the learning culture and learning opportunities. By offering ways of self-development, organizations are highlighting the importance of being ahead of the game regarding employee growth and retention, which may unleash new business opportunities. When fostering demand and emphasizing the significance of continuous development, e-learning providers strategically position themselves to seize opportunities for forging valuable business relationships. (World Economic Forum, 2020a.)

Global e-learning service providers benchmarking: Udemy and LinkedIn examples

Udemy and LinkedIn learning platforms are paving their way towards more market share, by giving insights and supporting the lifelong learning culture built into organizations. They are keen to state the future environment of work and competence development, providing free consultancy reports annually on their websites. LinkedIn has a learning resource centre, focused on employees' development: sourcing materials, articles, and courses. The service provider also publishes a comprehensive annual report on workplace learning and how the learning and development of employees play a central role in business. They advocate for a few areas of expertise in organizations' ecosystems, such as tech skills, business administration, and leadership development to support companies in achieving their business outcomes (Udemy, 2023a; LinkedIn Learning, 2023).

Understanding the customer's business outcomes is key in e-learning businesses. Skills are not developed in a stand-alone manner or just by the interest or preference of an individual or team. Employees should be using the service to meet, ultimately, those business outcomes. However, as e-learning services are not offered to machines but rather to human beings, as part of their freedom to choose, the employee gets to decide on the learning acquisition, regardless of unalike motivations (employee development goals, new job opportunities, personal interests, and others). The important takeaway is to figure out how to meet organizations' and employees' goals when it comes to learning and development. (Udemy, 2023a.)

In Table 2 below, a comparison is made between both competitors regarding the shift from a traditional online learning business focused on adoption is moved towards business impact and how a business-to-business partner can support business outcomes. As seen in Table 2, the impact can be more concretely measured when e-learning is supporting business and learning outcomes, by offering for example, relevant programs (trainings) tied to business and learning results. The mindset shift also supports the online learning providers to keep in mind the primary goal, where the main groups of impact - employees and organization - unmet needs are identified. (Udemy,2023a; LinkedIn Learning, 2023.)

Table 2. Udemy and LinkedIn benchmark comparison.

	Udemy	LinkedIn Learning
Primary goal strategic shift From adoption to business impact	✓	✓
Mindset shift From linear relationship between user and learning needs to learning achievements towards business goals	✓	✓
Business outcomes to impact Main desired business outcomes mentioned to support	• Business results • Learning outcomes	• Business results • Learning outcomes • Employee retention
Core metrics examples Alignment of e-learning service providers metrics with business impact	Business outcomes • Higher employee productivity • Faster product deliveries • Improved customer satisfaction Learning outcomes • Skills acquisition • Behavior change • Competence development Adoption • Course consumption • Minutes learned • Frequency of learning	Business outcomes • Improved employee engagement • Innovation and time to market • Improved customer satisfaction Learning outcomes • Shortening skills gaps • Job rotation • Improved performance reviews Employee retention outcomes • Lower employee turnover • Higher employee satisfaction

LinkedIn has an approach to influence the service interest and relevance. Learning and development, which is a core function of the Human Resources department in an organization, is a key function to be influenced. Learning and development functions have a human-centric approach and aim to elevate people and their skills for business impact. The function has four focus areas: aligning learning programs

to business goals, upskilling employees, creating a culture of learning, and improving employee retention. Currently, the function has great recognition of its importance amongst organization executives, as per survey results, and the will to dedicate a budget to support the function initiative is strong. With a challenging rate of retention, companies and executives are focusing on internal mobility. To spark mobility, the learning and development function aims to provide skill-building paths and resources, aligned to business needs and employee career goals, creating a pipeline of internal talent to match opportunities. Other program areas in learning and development are focused on mentoring, large-scale upskilling, reskilling, and improving data literacy to progress towards closing workforce gaps. (LinkedIn Learning, 2023.)

Udemy has created different learning types to support different companies' sizes and needs from on-demand learning (a marketplace model with curated content) to three different types of e-learning service enhancements. The first type is guided learning, which focuses on career guidance, learning paths, and AI-enabled personalization. The second type is immersive learning focused on hands-on experiences in labs, workshops, and exercises. The third type is cohort learning for a senior group of experts, where applied learning and community support are the main learning practices. (Udemy, 2023a.)

Personas

Personas represent different groups of segments of users, a market segment, a set of employees, or any other stakeholder portion. Those are archetypes and not stereotypes, based on real research (Stickdorn et al., 2018). Personas should represent people with similar needs and behaviours. Personas are useful not only to product-related teams but also to the whole company as the focus is on the end-user, leading to a human-centric approach as described in the previous chapter, 2.3.3. Human-centric approach in tech products development. The study group was composed of product owners, developers, testers, UX designer and CX designer which were nearly composed of a few members who came from different work

backgrounds and cultures, company mergers, and external hires, with different levels of seniority within the company.

Visual representations of the main personas involved in the discovery and development processes are added below.

End-users

End-users are represented by a main persona (Figure 11) that represents the group of end-users that is mostly active in the services. A single, most representative user archetype to simplify the mapping is revealed in this work, as in the case study there are about three to four main profiles for end-user personas. The representation is based on secondary research conducted in 2022 and 2023 with a group of diverse end-users from different customer segments using different methods such as online interviews and online user observation during new feature prototyping testing. Those personas were created based on their business profile, such as the company they belonged to, job title, age, gender, professional expertise, professional seniority level, tech savviness, innovation interest, and even hobbies. Other aspects gathered to create those personas were based on how they behaved and expressed their feelings throughout the prototyping testing. Discovery materials related to the end-user and persona research are available and stored in the study case intranet systems. (Nordic e-learning business intranet, 2023.)

The end-user of an e-learning service is represented as a middle-aged person who is willing to develop professional competencies and solve problems at work, as the license to access the service is provided by the employer. The end-user has a certain amount of time weekly to dedicate to competent development approved by the employer. The end-user is not always capable of dedicating time and being motivated to learn, so finding relevant content and effectively acquiring knowledge, whether to solve a problem or study a work-related trendy topic, is key for use and engagement.

Figure 11. End-user "Eero" persona (Nordic e-learning business intranet, 2023).

To this end-user, having curated content by trustworthy experts on their topics is crucial, and often, they rely on other sources of information such as videos on YouTube, podcasts, news, and other academic studies. The challenge is to use the time dedicated to studies, when the workload is heavy, and deadlines are tight. Although the end-user acknowledges the importance of utilizing this benefit for the benefit of the company and its own and tries to meet learning goals as much as possible.

Product owner

The product owner persona (Figure 12) is represented by an archetype that represents the responsible for product development and delivery in this case study. She should have both business and technical competencies and a strong user-centric driver attitude. She connects discovery phase deliverables with the solution kick-off work planning for the development team. Ultimately, she needs to make sure that the underserved needs are addressed and delivered in the service as defined in the planning, respecting a schedule.

The representation is based on primary research over ten interaction sessions with three product owners who were part of the study group in 2022. The methods applied were qualitative interviews via Microsoft Teams meetings (three sessions), qualitative interviews face-to-face (four sessions), and user observations during meetings (biweekly). Discovery materials related to the product owner persona research are available and stored in the study case intranet systems.

Figure 12. Product owner “Alice” persona.

Product owner Alice is very mindful of the expectations from the customers and the tangible outcome in time. She is engaged in creating solutions to ease customers’ pains and underserved needs. She is quite a dedicated professional, who has a grounded personality, and advocates for her sense of accomplishment and purpose.

She can work either way, more independently or engaging in teamwork, which is a great motivation for her. She steps into the customer and technical arenas, but she is aware of her challenges regarding technical skills, so she needs to rely upon other team members for solution validation. She seems to have a high achiever profile, where a notable level of collaboration is evident in both the planning and execution phases. A summary of the interviews is added as Appendix 1.

Developer or architect

A persona to represent more technical roles (Figure 13) is mapped as a developer or architect. They are the team members within the product development who create the solution specifications from a technical point of view and demand the business context and requirements for the solution overall. They also contribute to the discovery phase, playing an important role in the solution feasibility check. They align current product capabilities with the new proposed features to be added to the existing service. Eventually, a whole new service concept needs to be reassessed due to technical limitations.

The representation is based on primary research. In 2022, around 10 developers were part of the study group. The methods applied were qualitative interviews via Microsoft Teams meeting (five sessions), qualitative interviews face-to-face (four sections), and user observations during meetings (biweekly). Discovery materials related to the developer persona research are available and stored in the study case intranet systems. A summary of the interviews is added as Appendix 1.

Figure 13. Developer or architect “Dan” persona.

Developer Dan is a very knowledgeable professional in the software development field. With his long-term experience in developing digital products, he has a holistic

view of both problem and solution areas. He is keen on participating in solution explorations with the product trio, comprised of the product owner, UX designer, and experienced developer, to create the best deliverable solution product.

As he is quite an expert in his field, he might be overwhelmed sometimes by the constant multitasking aspect of his job, not allowing him to be involved in Discovery activities, as he would like to or should.

Although he is solicited to contribute to different groups, he values autonomy, whereas teamwork is also a motivational factor. On the other hand, he needs to have clear documentation and processes and a clear orientation on how to prioritize his work. To him, the purpose is a driver to turn a designed solution into actual products that address value to the end-user.

UX designer

Usually, this persona (Figure 14) embodies a human being equipped with creative thinking and visual skills. They are deeply part of the whole process, and in the context of this work, they act as a service designer in some cases. They need to promote understanding of underserved needs in a visual format to customers and internal stakeholders. They need to support the problem and solution spaces, connecting the visual solution and enhancing it whenever needed.

The representation is based on primary research over ten interactions with two UX designers who were part of the study group in 2022. The methods applied were qualitative interviews via Microsoft Teams meeting (six sessions), qualitative interviews face-to-face (five sessions), and user observations during meetings (biweekly). Discovery materials related to the UX designer persona research are available and stored in the study case intranet systems. A summary of the interviews is added as Appendix 1.

Figure 14. UX designer “Liz” persona.

UX designer Liz is a young professional with seniority acquired during the past decade. She advocates for good design that addresses real customer needs. She is very keen on interacting with diverse groups of stakeholders, and she feels very inspired by those interactions. Although she likes the initial discussion and ideation of designs, she needs her work to be validated by other stakeholders.

She has been working solo for some time, and this sometimes takes a toll on her daily tasks. She would like more support and collaborative peer work. She is very purpose-oriented, so she is not afraid to speak her mind and go into depth about real customer needs and desires.

Blueprint map: Udemy example on user journey and service blueprint

According to Stickdorn et al. (2018), customer journeys are concrete and visual representations of intangible users’ episodes, aiming to share data and knowledge on the service offering from a common denominator: the customer’s experience. Among a few customer journey features, in the example below (Figure 15), the main interest elements in the mapping are the main user goals and the service provider

goals, the customer journey, support processes, and opportunities for the service provider.

When both the user and service provider are trying to match their expectations and goals, the service is getting closer to the market fit as mentioned in Chapter 2. The customer journey and support processes are directly related to support users' actions which is the outcome of the product development phase. Opportunities are ways to continuously improve the service, preferably driven by customer feedback and internal software development quality assurance as mentioned in Chapter 2. In the context of this work, in Chapter 3.2 the core process blueprint that is aimed to be improved is presented.

In Figure 15, three bookmarkers are added to the user journey blueprint map example: trust generator, money flow, and touchpoint. Trust generators are connected to the touchpoint from which the user interacts with services (e-learning and others), an institution, and other people.

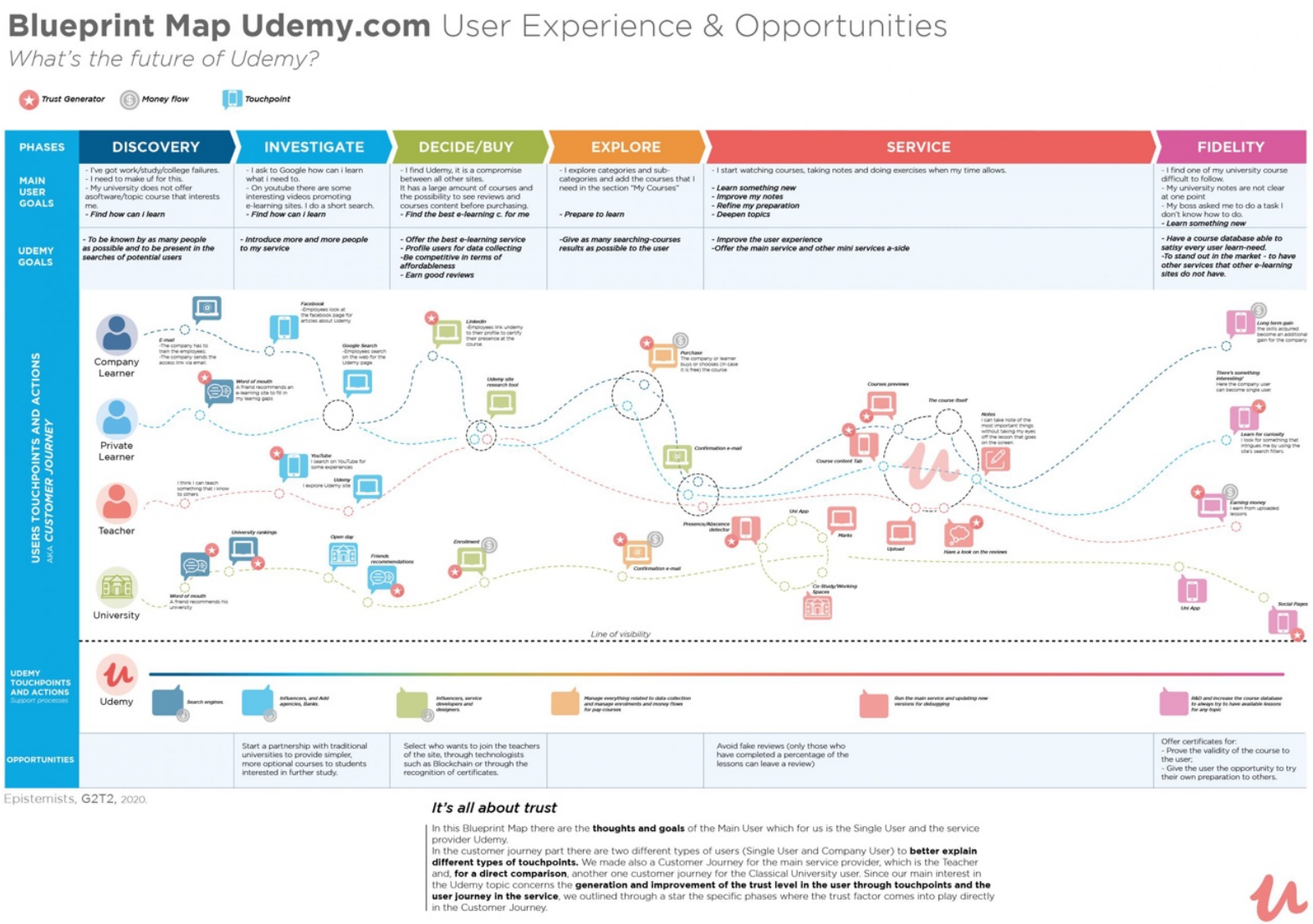

Figure 15. User journey blueprint map: Udemy example (Service Design Blog, 2020).

Workshops in the study case

During the discovery phase, a workshop was held in November 2022 with the study group. The group of participants consisted of eight developers, a product owner and a UX designer. The main objectives of the workshop were to map the current discovery phase, exercise a real-life situation, and evaluate how the process went and what benefits of such a workshop and improvements to its model were identified. By utilizing methods such as workshops, it is possible to engage a larger multidisciplinary group of stakeholders and gather different points of view more rooted in reality (Stickdorn et al., 2018).

The group was recently working together, and this was the first interaction on-site where both teams were together in an information session and co-creation workshop. The workshop was divided into six steps: introducing the current discovery process, using a method from the current discovery process with the teams in a real-time (real customer need) situation, engaging developers in a new dynamic of co-creation and problem and solution brainstorming, creating a list of possible solutions, prototyping and initial technical discussion, and evaluating the workshop format and contents worked during the day.

During the workshop, the teams could exercise the discovery as if they were real customers. The topic of discussion, or the problem to be solved, was the need to improve a dated reporting feature where few unmet needs and business requirements have been identified and validated beforehand. The methods utilized were open brainstorming and the MoSCoW prioritization framework (Agile Business Consortium, 2023) using a Miro board. The framework aims to classify ideas and needs into four categories: *must have*, *should have*, *could have*, and *will not have*. The classification is given as per the criteria of each category, where the core differentiation is related to the cruciality level (from highest to lowest) for business and customer, besides legal and security-binding criteria. *Must have* are essentially mandatory requirements or needs; *should have* are considered important but not vital; *could have* conveyed the wanted or desirable but less important; and *will not have been* negotiated or unwanted requirements or needs that will not be part of the

service or product scope. After prioritization, participants were divided into four groups to co-create in smaller groups at first, and then present and iterate with all participants. During the discussion with all participants, technical aspects of a possible design were discussed and addressed.

At the end of the workshop, the main insights from the team during this interaction were towards the beneficial effect of co-creation with a diverse group of stakeholders on-site, in a dedicated and focused manner and early-stage discussions towards new features to the product with a good balance between customer needs, and technology and product limitations. The possibility to divide the discussion into smaller groups, expose the ideas to all groups afterwards, prioritize them and have a positive impact on alignment and solution creation.

The main constructive feedback was that the actual customers were not involved, so the identified needs or pains were already filtered to a certain extent. Developers are eager to be part of discussions with customers and internal stakeholders with access to customers, and they asked to be more involved in the discovery phase. They understand the benefit of creating a solution based on genuine needs, free of assumptions from other groups, and use iterative methods to compose the outcome. Discovery materials related to the workshop method are available and stored in the study case intranet systems.

User observations in the study case

In 2022 and 2023, during the product improvements (new features) discovery and delivery phases using the user observation method (Stickdorn et al., 2018) where the goal was to observe and be part of the group to identify the main issues faced by the study group. During the observation, it was noticed that a few gaps were beginning to surface, and a few figures also confirmed that a more holistic and participative process was missing. For some features, the conceptualization was not facilitated by the product team, nor was it counted with the participation of key stakeholder groups such as the actual end-user, sales, customer success, and customer support teams. Those determined solutions were based on the perception

and knowledge of specific groups, such as content producers and the company's management, and the contributions from other groups were gathered too late.

The main observations from product and development teams conducted in November and December 2022 showed similar results, such as the ones presented as gaps in the methods applied in this work: service blueprint, four Ls method (Parabol, 2023a), and sailboat method (Parabol, 2023b). The four Ls method is a brainstorming session hosted so participants can give their inputs on activities or actions that they *liked, learnt, lacked*, and *longed for* during the past work iteration, usually happening every two weeks. Sailboat is a method that also gathers feedback and opens a brainstorming discussion on *what moved the team forward*, *what made the team feel good, what held the team back*, and *what are the future risks*. Those methods are presented in 3.2 Define phase in this work.

As mentioned in Chapter 2, sometimes it was unclear the targeted group and the unmet needs (Olsen, 2015) from which the problem assumption came. In those cases, the focus is on a given solution without a clear examination or framing of the problem. Another observation was that in the prototype phase, other scenarios were not provided for development, and the velocity of the teams and the delivery of new features were impacted.

A substantial amount of time dedicated to evaluating the problem space (Torres, 2021) was compressed. That also causes the limitation of different user backgrounds and cultures, as the study case operates in multiple countries when most contributors come from a single country. In addition to this more homogenous point of view, the focus was on the improvement delivery and not on the discovery phase. Usually, the time dedicated to the discovery phase is relatively low in comparison to the implementation and delivery phases. Discovery materials related to the user observation method are available and stored in the study case intranet systems. A summary of the user observations is added as an appendix 2.

3.2 Define phase

Discovery and development process initial service blueprint in the case study

Service blueprints are an extension of customer journey maps where both physical and digital interactions that support user interactions are mapped. By creating a service blueprint, a more comprehensive visual representation of the service and its potential pain points is created clearly understanding its actors and ultimately the complexity of the service. The key elements are to identify the process, identify the customers to be served, connect the customer journey with the broader mechanisms to offer a service, understand the whole flow of activities, and interactions and identify evidence and key performance indicators (KPIs) – measurable values that align with overall business goals - for a desired outcome. (Interaction Design Foundation, 2021.)

In the case study, the interconnected processes and actions that lead to an actual delivery of the service to the customers are represented in the service blueprint, as shown in Figure 16. Starting from the customer actions swim lane, the unmet needs of the customers are communicated directly. As represented in the service blueprint, the interaction and inputs are intense at the beginning of the process, intensified during the discovery phase, and culminating in the final release communications when the service, or new feature, is ready for use. Customer feelings were also assessed during this mapping.

Alternatively, if the customer is not in direct contact with the product and development teams, internal teams (such as sales, and customer care) in direct contact with the customers will report pains and possible improvements to a well-defined process via submitting development ideas via the Microsoft Teams application. The application has an integration with the Microsoft Planner application where a backlog and list of candidates are created automatically.

The front-end stage actions are then taken by the product and development teams, whose actions are aligned via back-stage interactions, actions, methodologies, and processes. The front-end of stage actions is then making the bridge between the

end-user and other actors from the very top layer of interactions towards the most intrinsic internal processes. The focus is not to lose track of the initial identified problem and lose sight of for whom a certain service or improvement is designed, as well as to have a holistic vision of the product and the aimed value to be delivered to business and customers. Define phase materials related to the service blueprint method are available and stored in the study case intranet systems. The proposed final service blueprint was delivered to the study case for further process improvement.

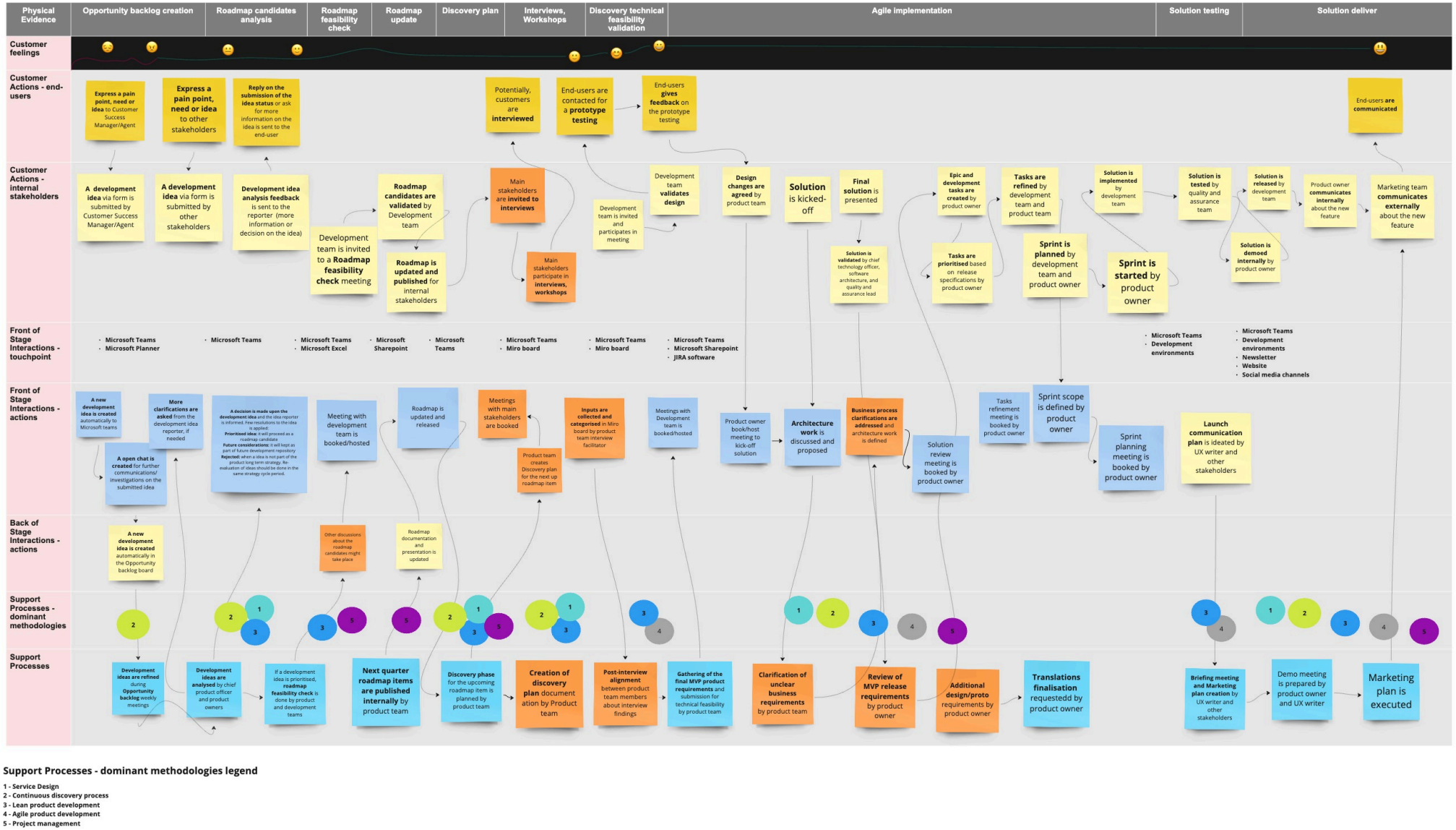

Figure 16. Discovery and development process service blueprint in the case study.

Identified issues in the process flow (orange colour coding used in Figure 16). They are identified below in each distinguishing service blueprint phase. In the roadmap feasibility check phase, there is a lack of discussion about the roadmap candidates identified as *other discussions about the roadmap candidates should take place* note. Those discussions do not often involve customers, which could be beneficial to investigate more about the actual pain point.

In the discovery plan phase, the *creation of discovery plan documentation by the product team* is based on very little knowledge about the actual customer pain point in a more holistic manner and could be based on more research-based results. In the same phase, the *main stakeholders are invited to interviews.* During the planning for inviting those stakeholders, usually, the point of view comes from internal stakeholders who are in contact with real customers. The customers themselves are rarely involved in the interview process for a possible feature.

In the phase where service design methods are applied, *the main stakeholders participate in interviews and workshops.* As mentioned in the previous point, the actual customer is not involved in most cases. This can lead to an unclear or biased definition of the main pain points. During those interactions with stakeholders, *inputs are collected and categorised* in the Miro board by the product team interview facilitator. Currently, in Miro board only considers one method applied: the MoSCoW prioritization framework (Agile Business Consortium, 2023). More methods could be taken to benefit the discovery phase. To finalize this phase, *post-interview alignment between product team members about interview findings.* The follow-up of interview findings may not address the actual pain point. Product experts should be demanding more clearly framed problems that are relevant to the user, instead of relevant to the business only.

Also, a few critical steps in the process are identified when the product and development teams are working more closely. *Regarding the clarification of*

unclear business requirements, again, the product team is expected to clarify unclear (missing) business requirements. A clearer process needs to be defined for this clarification, as the solution has been kicked off and delays in clarification represent possible delays in release. *A review of minimum viable product release requirements* as part of an interactive process, minimum viable product scope should be reviewed, and a few features can be descoped. This phase needs proper acceptance from the product team and proper communication with other stakeholders. Also, *additional design or proto requirements by the product owner* as the product is being modified or improved, additional designs could be needed during the implementation planning. Often, other designs related to the main feature are slightly affected by the main change, and it is not considered during the discovery phase.

Problem space (Discover and Define phases)

In this work, the double diamond design process model in Figure 2 was applied to empirical work.

During the problem identification and definition phase, interactions with two main groups of interest were held between November and December 2022 via work review meetings. In the first phase of the process, while discovering the main issues that affect the current discovery and development processes, a few noticeable patterns were found as possible opportunities to improve those processes.

The main pain points from the four Ls (Parabol, 2023b) brainstorming session with the development team (Figure 17) were related to a. business and technical documentation; b. lack of interaction with end-users; c. number of features to be released in a short period; and d. a reduction in the development team headcount. The number of participants that accounted for the development team iteration was around ten team members with roles as developers, architects, product owners, UX designer, and developer trainee. Define phase

materials related to the four Ls brainstorming method are available and stored in the study case intranet systems. The final Four Ls team's work review method is presented in Figure 17.

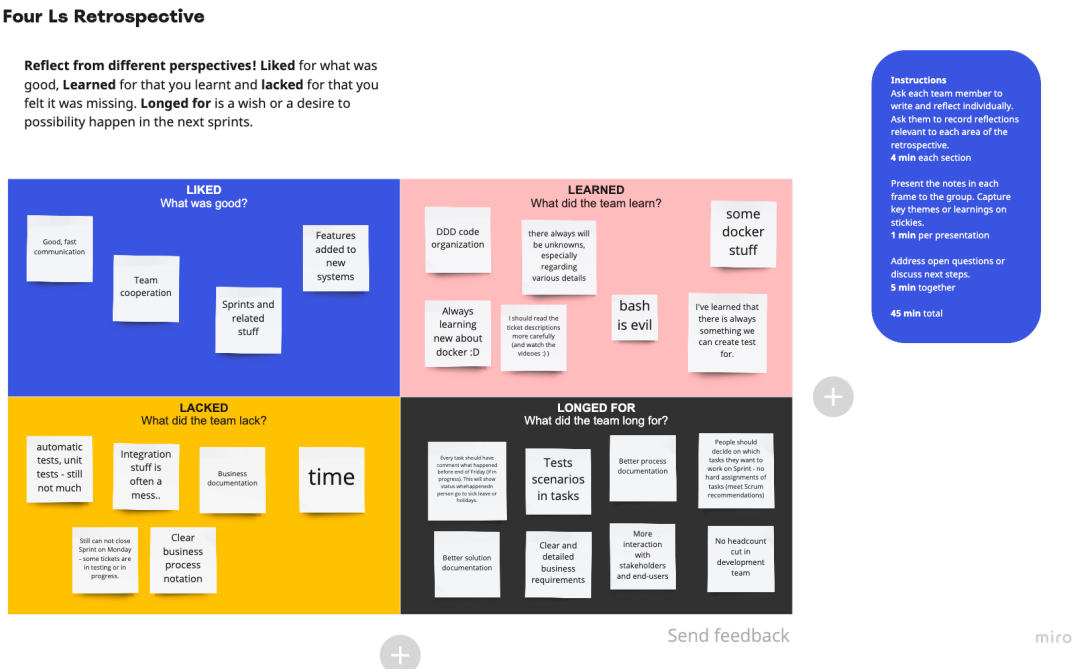

Figure 17. Four Ls method with development team (adapted from Parabol, 2023a.).

The main pain points from the product team sailboat method proposed by Parabol (2023a), a tool to facilitate meetings for Agile teams, (Figure 18) were related to: a. limited time for ideation with the end-users; b. lack of deliverables towards the product development phase; c. number of ad-hoc work; and d. lack of time or involvement of other important stakeholders. The number of participants that account for product team iteration was around five team members with roles as chief product officer, product owners, UX designer, UX writer and data analyst. Define phase materials related to the sailboat team work review meeting method that is available and stored in the study case intranet systems. The final sailboat team work review method is presented in Figure 18.

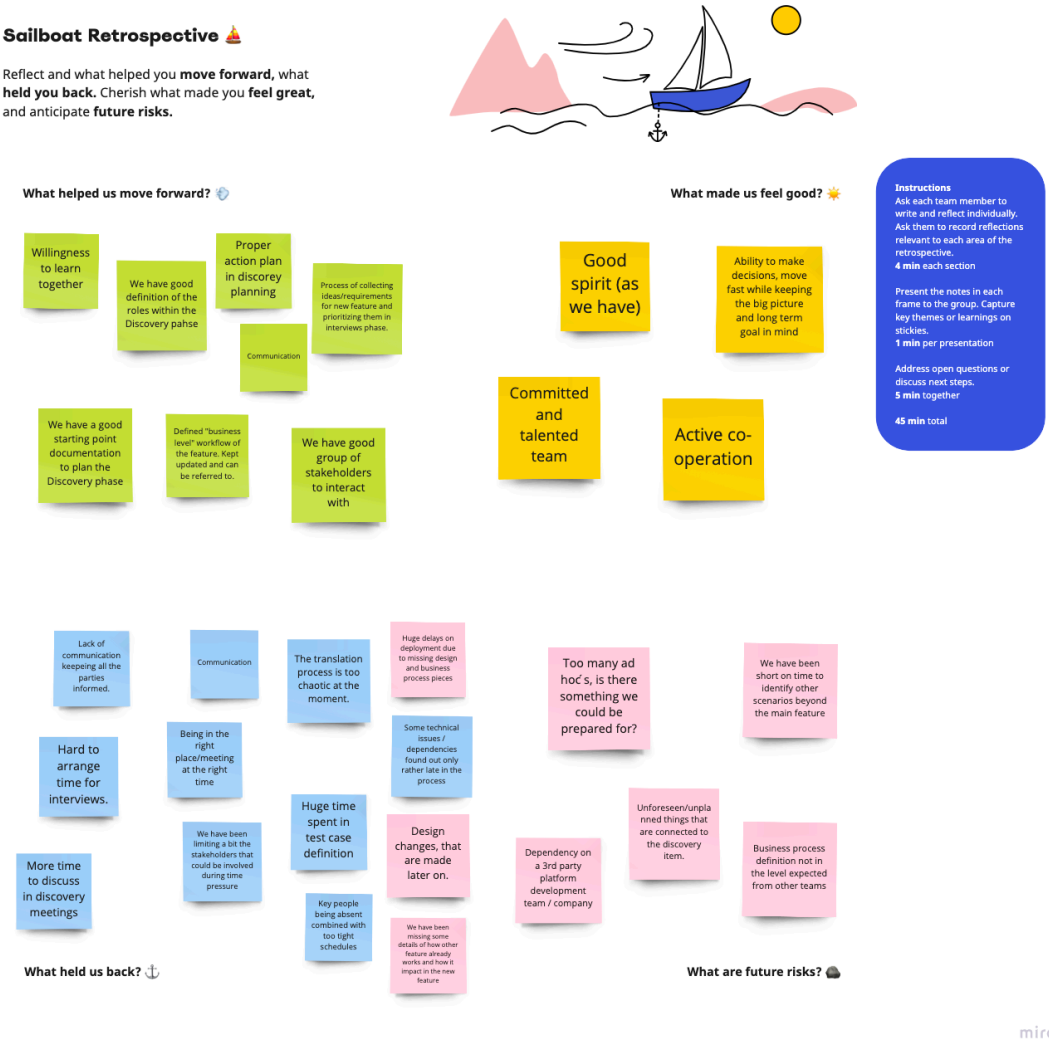

Figure 18. Sailboat method with the product team (adapted from Parabol, 2023b.).

After the discovery phase was held with the applied methods, the problem definition phase was started. Formulation of the problem statement by using "*How might we*" questions help to frame opportunities and create insights for possible solutions (NN Group, 2021). The main *"how might we"* questions are based on the inputs from the main groups of interest. The *"how might we"* questions focused on customer participation, proper documentation creation and aligning the processes throughout product discovery and development.

Regarding customer participation, the main problem to address is getting more involvement from actual customers: “How might we get more stakeholders (internal and external) involved in the discovery phase in due time?” and “How might we guarantee that we will have time to involve and promote more discovery meetings and workshops?”.

When it comes to proper documentation creation, there is a need to document the whole process including business and technical aspects: “How might we produce proper documentation from the discovery to the development process to include business process and business requirements documentation? “, “How might we get proper review and validation on design during discovery phase?”, “How might we have proper technical feasibility validation?”, “How might we produce technical documentation”, and “How might we synchronize processes during earlier phases of development including business process definition and representation, business requirements definition and validation, solution design validation and test case definition and validation”.

As per the identified and framed problems during this sub-chapter, the product and development teams lack proper processes for both critical phases of product development, where a more user-centric process drives the overall process and assumptions are more clearly validated and tested.

3.3 Develop phase

During this phase, it was identified that there are gaps in the overall process, considering both the discovery and development of the service. From those gaps, which became framed opportunities, a few ideas were ideated and evaluated. A few deliverables are at the level of the autonomy of the teams, which for the aim of this work, is not the focus, meaning that the process improvement will be addressed holistically.

During develop and deliver phase, framed opportunities are selected from the "*How might we*" questions. The deliverable of this thesis should address the following opportunities as presented in Table 3.

Table 3. Opportunities and *"How might we"* questions table.

	Opportunity 1: Better and timely engagement of main stakeholders (including end-users)	***Opportunity 2: Create and deliver proper business process documentation***
"How might we..." - question 1	*"...get more stakeholders (internal and external) involved in the discovery phase in due time? "*	*"produce proper documentation from discovery to development processes (including business process documentation)?"*
"How might we..." - question 2	"...guarantee that more time is dedicated to being involved and discussing during the discovery phase?"	*"...get a proper review and validation of the design during discovery phase?"*
"How might we..." - question 3	-	*"...have proper technical feasibility validation?"*
"How might we..." - question 4	-	*"synchronize processes during an earlier phase of development (including business process definition and representation, solution design validation)?"* miro

Specific documentation sets to address business requirements and technical documentation (such as testing cases) can be created as per each team's discretion and related processes and tools. A shared mindset and common methodologies that can be understood and applied by both teams are the most important factors for the overall process and deliverables. Clearly, in the case study, not much has been created or documented by the product team about its processes, nor has the dissemination of the customer-centric mindset company-wise. The typical case is that units are trying to address their problems in their silos (for example customer churn, no breakthrough sales opportunities in certain countries, low brand awareness, low or average net promoter score), relying on their knowledge about the problem. As the case study has no proper customer-centric documentation, the main idea of the

proposed solution is to create a Discovery process handbook where the starting point of product development is present and a key driver until product delivery.

Recently, service thinking as part of a broader application (and synergies with other methodologies) in corporate environments, has been promoted by consulting companies in Finland via materials such as handbooks, workbooks, and white papers. A few examples of mindset shift and synergic work with customer-centric methodologies are Solita: Designed strategies white paper (2023), Go Fore: Design and Agile Workbook (2022), and Futurice: The Lean Service Creation Handbook (2019).

The design concept for the proposed handbook was discussed by the product and development teams in September 2023, in the case study, as part of the latest large feature discovery process in the third quarter of 2023. A few improvements were identified during the discussion and presented in the next paragraphs. Amongst the considerations about methods, more interactive work for design improvements and, a feedback loop after the quality assurance testing cycle. Methods to reflect a more comprehensive design impact, such as user flows, and service blueprints, should be considered instead of the most simplified and unstructured methods.

Align agile teams to work on a more interactive matter for design improvement, for example, gaps in design, the design does not cover corner cases, which leads to significant delays in product development. Improvements after testing must be addressed as the next improvement discovery material to close the loop of outcome feedback from both internal and external stakeholders.

A few concepts were proposed on how the best format could be delivered. For a solid start, the idea that a printable material was key to underpin the needs of a scalable and easily accessible online and offline. Other material formats such as video and animated content, were also suggested as the study case has the availability to produce such material and a platform to host the content. Those

formats were kept in planning and for future considerations as per the study case company discretion.

As part of the proposed strategies to mitigate siloed working practices within the organization and foster collaboration among teams engaged in product conception and a user-centric approach, it was recommended to organize a series of advocacy presentations and workshops based on the handbook contents.

Further following events would be led by members of the product team, with facilitation by service designers, and involvement from various departments across the company. This initiative aims to further disseminate and reinforce the fundamental concepts articulated in the handbook. The implementation of these actions is scheduled for the year 2024.

Those events will also work in a collaborative manner where improvements and co-design activities can be scheduled periodically so the handbook addresses the most recent and relevant problems.

Meanwhile, during the testing phase of the handbook conceptualization, just by adjusting a few actions and starting bit by bit to discuss and improve the discovery process in each step-focused manner, there was a significant reduction in the number of identified bugs during official the testing phase. It was noticed that the number of issues comparing large releases before and after the initiatives has declined by 30%, where issues with the prototype design and final design account for less than 10% of total issues. A total of 60 bugs were identified after punctual improvements, and only four issues were design-related, whereas all others were code-related. This proves that there is a good level of alignment and accuracy from the design phase towards the development phase, but approximating those teams is needed even more.

3.4 Deliver phase

The handbook is created and delivered to be used by the study case company according to their discretion. The outcome followed the focus on the *"How might we"* question as part of this work. The handbook presented in this thesis has relevant modifications to not disclose the full process followed by the study case; however, there is no gap in conceptual terms. In the next chapter, a brief handbook concept walkthrough. A full version of the handbook is available in appendixes.

4 Discovery process handbook

The handbook is divided into three sections: mindset and collaborative spirit, methodologies and tools, and documentation and advocacy. The first two sections are dedicated to the introduction of a customer-centric mindset as an important starting point for empathy and analyzing the problem space from the perspective of the customer.

The idea is to set the beginning of the process with a different approach, meaning not rushing to conclusions, problem definitions, and solution statements, especially on auto-pilot ways of working. The conceptual difference between delivering features or outputs instead of outcomes (Torres, 2021), is exposed from the beginning, so the aim is to deliver more value to the customer. Outcome delivering value to the customer can be even a measurable key performance indicator (KPI) in the company and a potential indicator of success. Figures 19 and 20 present the handbook cover and table of contents.

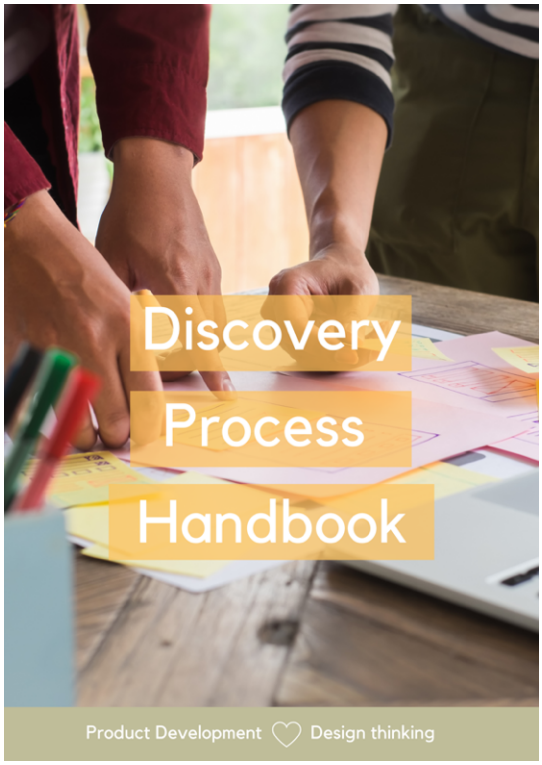

Figure 19. Handbook: discovery process handbook cover.

Figure 20. Handbook: discovery process handbook table of contents.

Also in Section 1, concrete ways of being customer-centric are suggested by interactive feedback loops with customers, cross-functional collaboration within the company, and effective product development methodologies such as agile and lean. The idea is that this section sets up the environment and atmosphere for those who gain knowledge on possible business opportunities by understanding the target group and their unmet needs (Olsen, 2015).

As an introduction or setting for the next sections, still, in this section of the handbook, a full picture of the process and methodologies is mentioned so the whole path can be visualized by the teams using the material. The focus is on welcoming and making room for a possible diverse group of employees of the company willing to learn more about how they can participate and collaborate during the discovery phase. Clearly, it is stated that it should start by: 1. questioning potential needs or pains, 2. validating assumptions, 3. co-creating solutions, 4. testing and validating with customers and 5. developing and 6. delivering the actual product (Olsen, 2015). The final statement in the section

proposes a practical approach to how to achieve the goals and follow with ease the process steps in the discovery phase. Figure 21 presents the handbook proposal for finding common strengths.

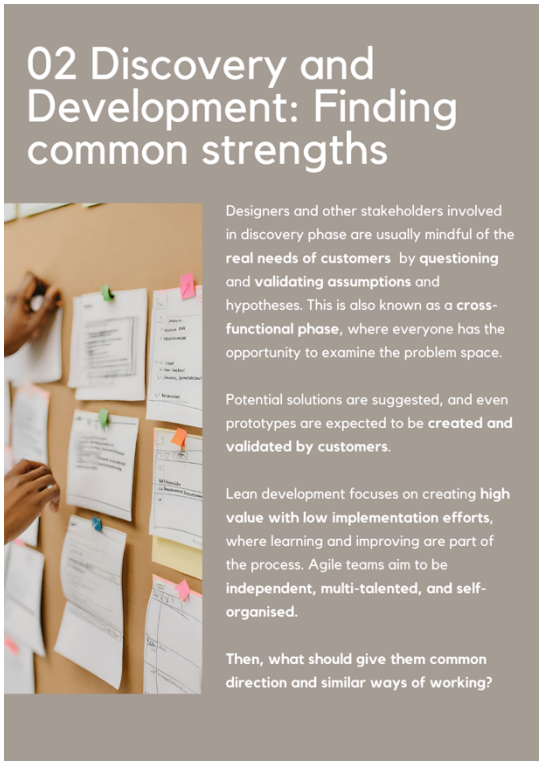

Figure 21. Handbook: customer-centric mindset and discovery and development: finding common strengths pages.

In the middle section of the handbook (Figure 22), the focus is on introducing key concepts from the main technologies that help all involved teams to see the synergies between problem and solution space from beginning to end. The idea is that contributors do not only hand over their part of the tasks, for instance, delivering the results of an end-user interview but also make sure that those results will guide the delivered service. A common knowledge of those methodologies is important to bind together very diverse groups, so they can still see their contribution present all along. The idea is to build the bridge between those groups so they can think and act with a righteous mindset in favour of a. exploring the problem (design thinking), b. building the right things

(lean product development) and c. building the thing right (agile product development).

Figure 22. Handbook: product success supporting methodologies.

In more pragmatic and empirical terms, a list of methods and tools and a three-step process is suggested. In exploring the problem, during the discovery process, continuous customer feedback mechanisms are put into place. Firstly, a passive or remote collection of customer feedback at any time by any employee of the company is available. This is the starting point of documentation to create a board with ideas freely submitted by the users while using the service or while prospecting. Those ideas are refined, which can lead to an actual return from the teams involved in this triage to understand the pain point or suggestion better. The point is that ideas can be coded or classified into possible opportunity trees aligned with desired outcomes.

After those trees are created, the value aspect of each opportunity is analyzed. After the customer-market fit is validated, the next step is to involve the

working team, mainly developers and other product-related team members, to get estimates on the development efforts. Often, and in the context of the case study, roadmap candidates are created based on the prioritization of customer-business value and implementation efforts. Also in this content, the roadmap is created quarterly.

This section is finalized at the beginning of the discovery phase (Figure 23), where documentation and a discovery plan are created. It is time to evaluate the prioritized opportunities and deep dive into interactions with the end-users, framing the problem, co-creating, creating, and validating prototypes. The basis for comprehensive discovery process documentation is ready, and it is called in this work the discovery deliverables.

Figure 23. Handbook: explore the problem: 1. keep an open feedback loop process page.

In the last section (Figure 24), the discovery deliverables aim to make data and information about the discovery process available to each team member

working on the solution development, or any other colleague interested in the findings during interactions with the customer. This documentation can be a source for future projects and valuable data for the historical evolution and maturation of the product. It can also help predict changes in the end-user's behaviour via trend analysis and other behavioural and statistical studies. Also, the documentation can be a good source for the structure of the dynamics of the discovery process and how it can be improved based on the interaction of other teams with the discovery deliverables. Methods and other aspects, such as prototype design, can be accessed and evaluated.

The main aim is that the development team working with lean and agile methodologies can benefit from the continuous customer feedback loops and sail together with other teams to achieve the desired outcome. In the case study, there is a great interest from developers to be aware of and understand the initial pain point. This handbook aims to be the start of a better and end-user-engaged discovery process. The full handbook is available in Appendix 3.

Figure 24. Handbook: discovery deliverables.

5 Conclusion

In conclusion, this master's thesis has explored the intricate world of design thinking, service design and product development, and its impact on creating a user-centric driven service. The journey of this research has been guided by the overarching aim of understanding how methodologies from different curriculums could together work in favour of better customer experiences, fostering innovation, and ultimately offering the most value to businesses and customers. The journey taken on this thesis has been both enlightening and transformative, as a service design student.

The research questions addressed in this work try to discourse on how continuous customer feedback can support the discovery process and how Design Thinking and Service Design methods can support lean and agile product development. Continuous customer feedback was mentioned in the theoretical section of this work, and clearly Discovery process would benefit from continuous checks with the customer and acting upon their feedback. The continuity aspect of embedding those iterations in the process is becoming a must-have in more Agile product development, and, consequently, in the Discovery phase that precedes the core work of the development team. Throughout this research, several key findings have emerged regarding the importance of applying Service Design methods. First and foremost, it has become evident that service design and its tools are not merely a theoretical concept but a practical approach with the potential to drive better products and transform the real world, in this context, how to support new behaviours in e-learning. The case study and empirical evidence presented in this thesis demonstrate that when applied effectively, and in combination with other methodologies to release a product, service design methods can lead to the creation of innovative and crucial service, achieving a near-to-optimal product fit.

Furthermore, the importance of a holistic and interdisciplinary approach to service design cannot be overstated and kept to the knowledge of a single group of experts. Collaboration among various stakeholders, including designers, customers, and internal teams, is essential for achieving successful service transformations. It is through this collaboration that a deep understanding of customer needs and pain points can be developed, leading to the co-creation of services that truly resonate with users.

Regrettably, the process in the study case has exposed certain shortcomings on the level of design needed for development, leading to additional iterations and clarifications once the product has transitioned to the development team. Such redundancies could have been preemptively mitigated through the meticulous execution of a well-defined process during the Discovery phase. The absence of effective Discovery processes results in delays in product delivery. This issue can originate from inadequate or incomplete formulation of business requirements, subsequently leading to continual revisions of features and code modifications. These challenges pose a substantial risk of rescheduling release deadlines, delays in the innovation pipeline and significant lost effort and time resources. They ultimately, increased expenses to the study case company.

In this sense, the research questions were addressed in a relevant way to bring methodologies together which can holistically benefit product and development teams during a product or service creation. Continuous customer feedback can support the discovery process by enriching the problem space, including the end-user in a more participative and cyclical manner, contributing to a more customer-centric mindset within the company. Design thinking and service design methods support lean and agile product development by validating problems creating the most valuable opportunities and testing the most suitable solutions. This is the groundwork to focus on building the right (lean) solution, delivered in the right (agile) manner.

I hope this thesis brings a point of view that can be fruitful for other businesses facing the same challenges. Product development needs to cope with fast-

paced evolving feedback loops and user-driven products, where design thinking and service design are more broadly applied for the benefit of businesses and their customers. In this work, a combined approach of methodologies is proposed, and frameworks can also offer practical insights into the implementation of user-centric initiatives in some business contexts.

Moreover, this research highlights the critical role of empathy and user-centred design in product development and innovation. It underscores the need for organizations to prioritize the user's functional need or goal of service provision, recognizing that customer satisfaction and loyalty are closely tied to achieving learning goals and the overall experience.

Despite possible insights gained through this research, it is important to acknowledge its limitations. The case study conducted was limited to a specific e-learning business in the Nordics, which may not fully represent the diversity of service design applications in a more geographical coverage. Additionally, the rapidly evolving nature of technology and customer expectations means that the service design landscape is continually changing, thus work is ultimately advocating for a continuous discovery mindset.

Future research in this field could explore emerging trends in service design and tech product development, such as the integration of data analysis and artificial intelligence into both processes. With the unknowns of the latter, ultimately the status quo of product development is likely to be defied and much can be achieved by trained intelligence.

In closing, I extend my gratitude to my advisor, participants in my research, and all those who supported me throughout this journey. With a commitment to continuous learning and a passion for improving the quality of products I am directly influencing, I look forward to a future where service design plays a central role in shaping our interactions, experiences, and societies.

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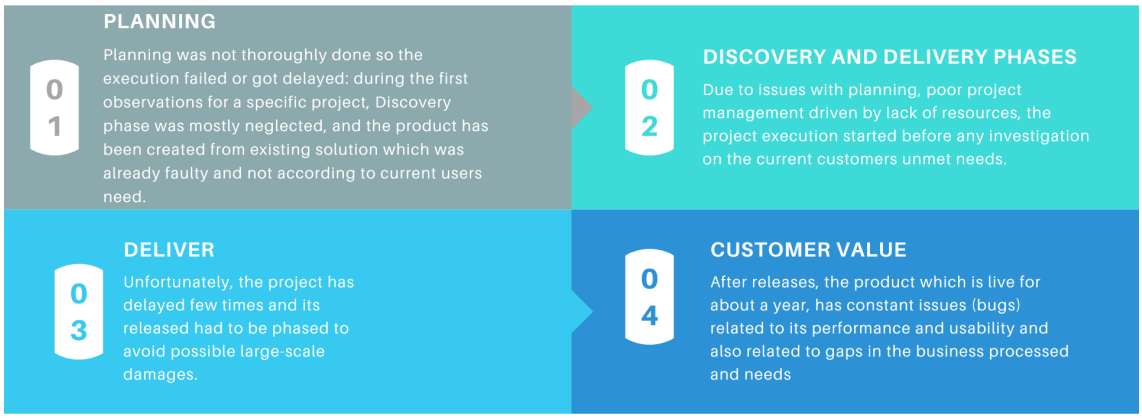
Appendix 1. User observations.

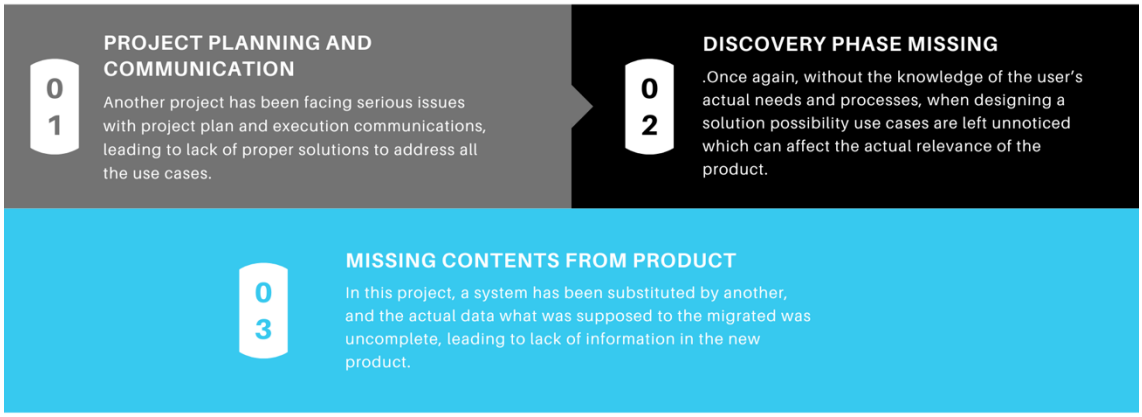
User observation: Project 1

User observation was done during participating the neighbor projects and observing their ways of working and input during rituals such as sprint plannings, sprint reviews, dailies, and retrospective meetings.

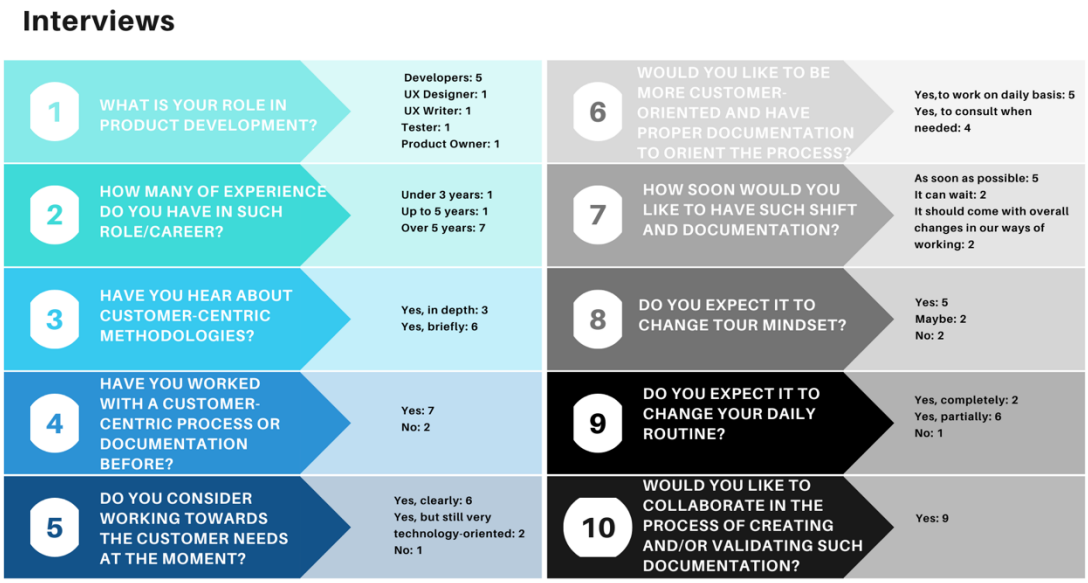


User observation: Project 2

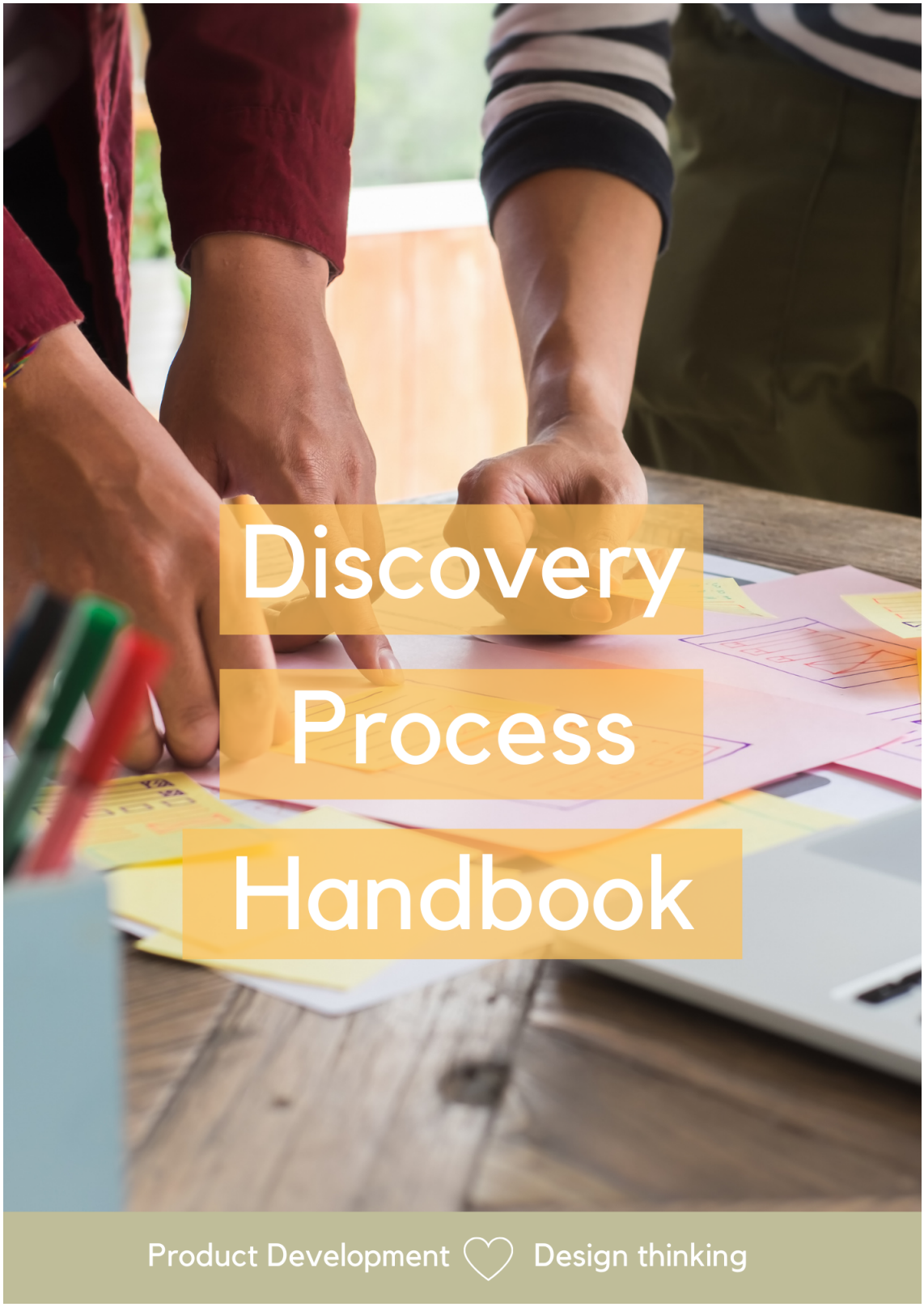
User observation was done during participating the neighbor projects and observing their ways of working and input during rituals such as sprint plannings, sprint reviews, dailies, and retrospective meetings.



Appendix 2. Interviews.



Appendix 3. Discovery process handbook.


Discovery
Process
Handbook
Product Development
Design thinking

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01 Customer-centric mindset

Delivering value in every interaction

Most companies are interested in delivering features, but more released features is not directly related to more value delivered to the customer. Instead, **delivering more value** should be a measurable KPI, not the number of new features released.

Customer value is more likely to be achieved by learning from **interactive feedback loops with customers, cross-functional collaboration,** and **agile and lean product development**.

Although this seems to be quite a straightforward recipe, **why is the desired outcome not always achieved?**

02 Discovery and Development: Finding common strengths

Designers and other stakeholders involved in discovery phase are usually mindful of the **real needs of customers** by **questioning** and **validating assumptions** and hypotheses. This is also known as a **cross-functional phase**, where everyone has the opportunity to examine the problem space.

Potential solutions are suggested, and even prototypes are expected to be **created and validated by customers**.

Lean development focuses on creating **high value with low implementation efforts**, where learning and improving are part of the process. Agile teams aim to be **independent, multi-talented, and self-organised.**

Then, what should give them common direction and similar ways of working?

Discovery and Development: united towards the road to success

Customer value focus

Do not let the number of features impress your team, rather the actual value delivered! **Outcome instead of output mindset is key.**

Cross-functional collaboration

Product managers are not the *"single source of truth"* holders when it comes to customer needs. **Every team member should share a customer-centric mindset and aim for customer value.**

Try and fail fast. Learn from feedback and improve

There is no shame in trying the best potential solution based on the customer' input and yet failing. Understanding the real need or pain is not an easy task. Luckily, **we can learn and improve from continuous customer feedback loops.**

How to keep the right customer-centric mindset along the process?

Methodologies, service design methods and tools can keep you in good direction.

03 Product Success supporting Methodologies

Design thinking	Design thinking is a problem-solving approach that focuses on understanding and empathizing with the needs and perspectives of end-users to develop innovative solutions.
Service design	Service design is a user-centered approach to creating, planning, and delivering services that meet the needs of customers and provide value to service providers.
Continuous discovery habits	Continuous discovery habits refer to the practice of regularly and systematically collecting and analyzing customer feedback, market insights, and industry trends to inform and improve the product development process.
Lean & Agile development	Lean & Agile development is an iterative and collaborative approach to software development that emphasizes flexibility, responsiveness, and continuous improvement, delivering maximum value.

04 Three "Must have" mindsets in product development

Explore the problem

Build the right things

Build the thing right

Understanding Design Thinking, Lean, and Agile (Schneider, 2017)

05 Discovery process: 1st step

1. Keep an open feedback loop process

Same old but different...what are the customer pain points at this right moment?

- Submission of development ideas
  - Create a systematic and widely communicated process that allows feedback loops.
- Refinement of development ideas
  - Gather knowledge around the ideas and how they are solving or identifying real customer pain points.
- Creating opportunities trees
  - Identify ultimate outcomes and create branching opportunities to get there!

Discovery process: 2nd step

2. Prioritization of opportunites

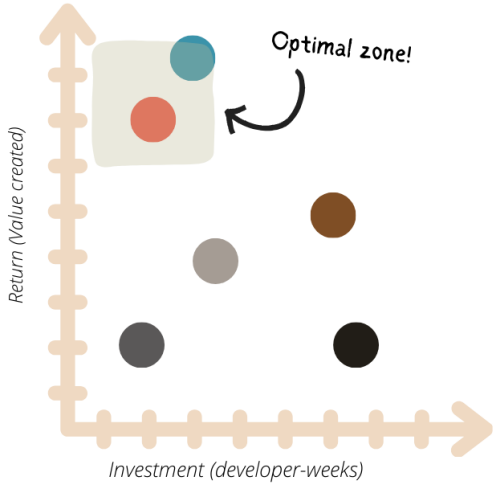
Which customer's pain points to solve first?

- Validate the value aspect of each opportunity
  - Not all opportunities will have the same impact, nor will they require same implementation effort. Consider them from the customer's value-impact perspective.
  - Check out the game on the next page and have fun!
- Prioritise your team's efforts based on value levels
  - It is time to manage your team's work allocation, give them the right visibility into priorities, and which outcomes to pursue.
- Create a plan to deliver those outcomes so expectations can be managed
  - It is time to communicate internally expected outcomes and join forces to pave the same road together!

2.1 Defining the most valued opportunities during discovery

Let's play a game!

- Use a scale (0-10) to classify the value created for the customer (y-axis)
- Use a scale (0-10) to estimate implementation efforts in weeks (x-axis)
- Calculate the return on investment (ROI) of each opportunity by dividing value created by implementation efforts (y/x)



We all win when we prioritize opportunities with the highest ROI!

Hey, what if it is a tie?

Teams should evaluate case by case...But, as a rule of thumb, delivering sooner to the customer should be considered an advantage. It is also a better strategy than taking a leap of faith and engaging in a long-term development for the same calculated value created.

The Lean product playbook (Olsen, 2015)

Discovery process: 3rd step

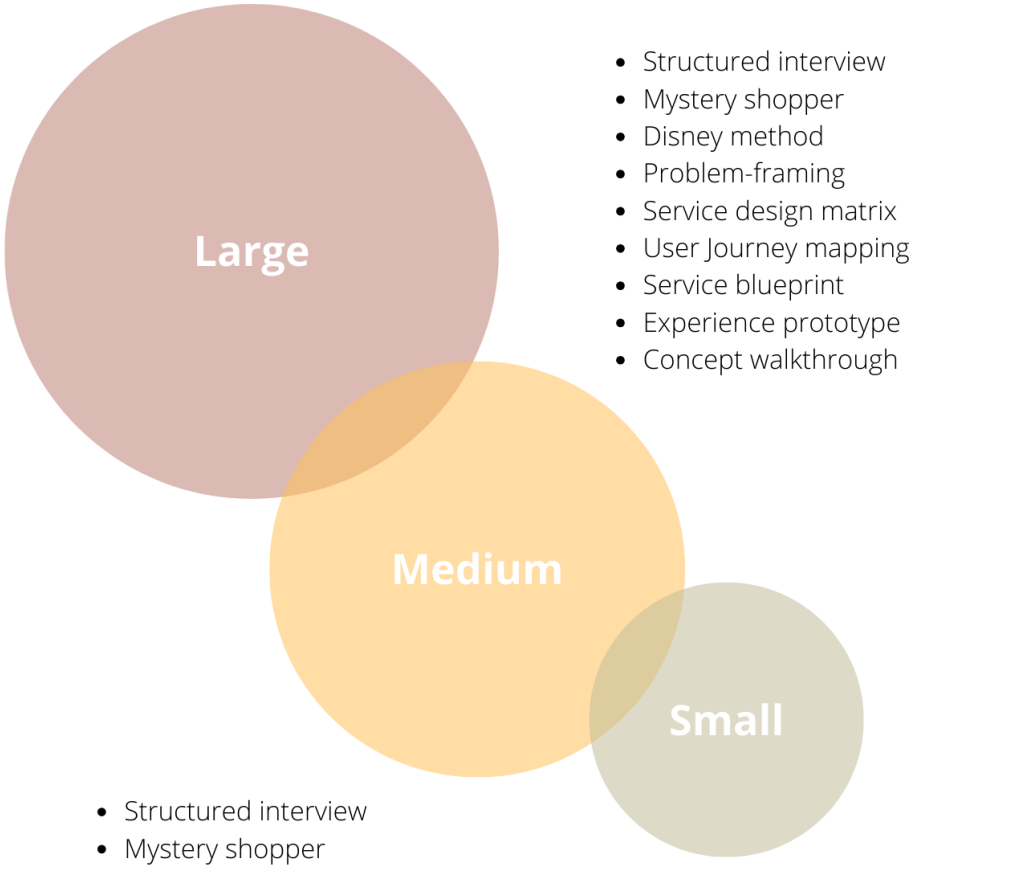
3. Discovery phase begins

Next steps to deep dive into the opportunities and co-create solutions!

- Discovery plan creation
  - Information about the next steps is gathered.
- Service design methods application
  - Select the most beneficial set of methods to confirm your hypotheses and co-creation initiatives.
- Discovery phase deliverables
  - The discovery phase is over! By now, problems were framed, solutions were proposed and validated, and the design is ready for implementation!

3.1 Applying the most suitable discovery methods

Recommended methods per complexity of opportunities or investment (as seen in 2.1 Defining the most valued opportunities during discovery, page



- Structured interview
- Mystery shopper
- Disney method
- Problem-framing
- Service design matrix
- User Journey mapping
- Service blueprint
- Experience prototype
- Concept walkthrough

- Structured interview
- Mystery shopper
- Design sprints
- User Journey mapping
- Service blueprint
- Experience prototype
- User scenarios

- Structured/open interview
- Talk aloud
- Design sprints
- Assumption mapping workshop

Sources: medium.com

06 Discovery deliverables

Customer pains

The compilation of customer pain points is systematically presented through customer journeys or user flow methods. Those methods enable a comprehensive delineation of the entire end-user experience, fostering a deep understanding of those pains by both product and development teams. This documentation is quite important to map the complex landscape of user experiences and actions, paving the way for targeted and effective solutions to address identified pain points.

Business requirements

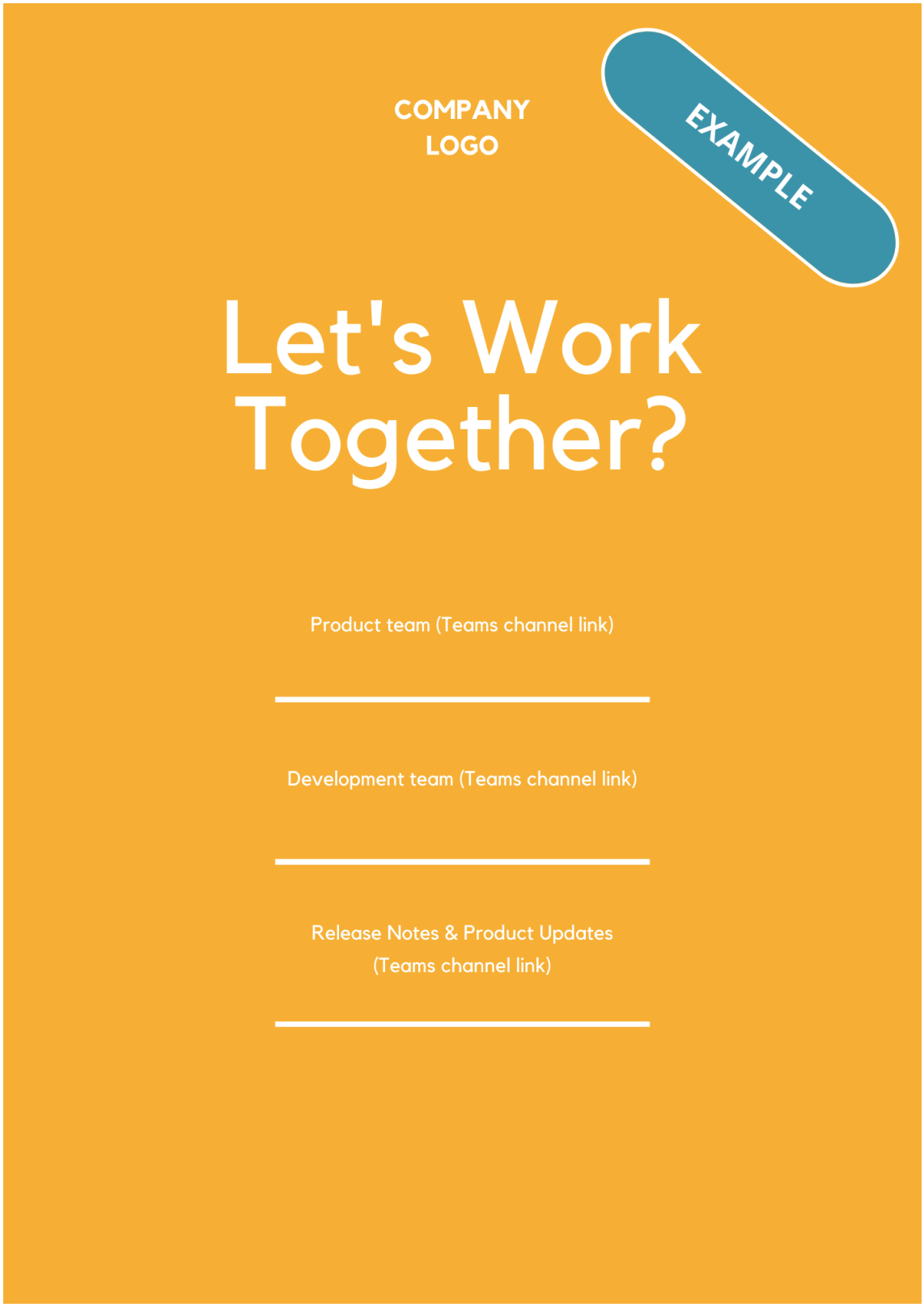
Business requirements are documented in such a format that it is more clear for all but all that satisfy compliance with more robust documentation systems. The business requirements can directly unfold from customer pains and in the context of the delivered service and its other functional requirements. This approach not only ensures transparency but also establishes a cohesive link between customer needs and the overarching functional specifications.

Use cases

Use cases serve as a creative and analytical process that reveals the interaction between user interactions and system functionalities. Each use case presents a narrative, elucidating specific scenarios and steps involved. Use cases support the identification of gaps in the design and functional specifications.

Validated prototype

It serves as a tangible and interactive representation of the envisioned product, allowing stakeholders to engage with its functionality and design in a realistic manner. This hands-on experience fosters a deeper understanding of the user interface and functionality. It also acts as a powerful communication tool, facilitating effective collaboration among end-users and cross-functional teams by providing a shared visual reference and conveying real customer value.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Let's Work Together?
Product team (Teams channel link)
Development team (Teams channel link)
Release Notes & Product Updates
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