A tool for Facilitating User Research for the GriDD UX LAB

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Preface

[pref-is] noun 1. a preliminary statement in a book by the book's author or editor, setting forth its purpose and scope, expressing acknowledgment of assistance from others, etc.

I proudly present you my Master Thesis about the creation of a tool for the UX lab of GriDD. I had the unique opportunity to be part of the GriDD team for the past year, and therefore I would also like to thank several people in particular.

Patrick for supporting and guiding me on a weekly basis the past year, and for sharing your knowledge with me. You provided an environment for me to learn new things and to explore the world of customer- and user experience. Thank you that I could always count on your help!

The entire GriDD Team for infecting me with their enthusiasm, including me in the team, and supporting me throughout the entire process of my graduation (including ups and downs). Also, for the most awesome team activities, dinners, drinks, the loads of (in)appropriate jokes, GIFs, and above all, the involvement with my project in this weird situation, now we all have to work from home. I learned so much from your team spirit and approach towards projects and clients. Thus, a big thanks for the whole team!

Armağan (whose name I still need to copy from her email in order to create the 'ğ') for trusting my capabilities and giving me lots of freedom to work on my Master Assignment. Also, for reading through my entire thesis and providing useful feedback every time I needed it. For providing me with her academic knowledge and helping me to move in the right direction with my thesis. Thank you!

The participants of the interviews because they made time for me in their busy schedule during the Corona outbreak. They shared their perspective on user experience with me with enthusiasm and thought me a lot about user research in practice.

Summary

GriDD is a full-service Customer Experience (CX) company. Their expertise ranges from research, and strategy, to design, including domains as storytelling, customer journey mapping and interaction design. GriDD is offering user research services for a long time already, which is one of their core business products. Recently, GriDD began to develop a UX (User Experience) 'Lab', which offers user research services in a new way. It is a mobile lab, consisting of a laptop with camera and screen recording software in combination with standard procedures to do user research. This Master Assignment will focus on developing a tool to support the UX Lab. The tool will be used by employees of GriDD, to support them doing user research for clients in the in UX Lab. The goal of the tool is to visualize the steps of the process, so that the user is guided throughout the user research.

Research phase

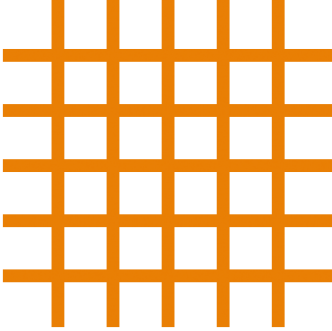
The research phase consists of an investigation to gain knowledge about what a UX Lab is, and in which forms it appears already. It will elaborate on existing UX Labs and why the UX Lab of GriDD adds value compared to existing labs. It contains an extensive investigation in different approaches and methods that facilitate user research. Thereby, it describes the vision of the clients and employees on the UX Lab, through interviews, and concludes with a list of requirements. A co-design session is held to clarify the joint vision on the tool for the UX Lab and draws conclusions for the design of the tool. Personas are created to investigate in and define the different types of UX Lab clients, and user profiling is applied to create design guidelines for the tool.

Development phase

The development phase starts with a roadmap that is created to investigate in the process of user research and to point out important touchpoints. The tool for the UX Lab is developed in Sketch, according to the requirements and the stages of engineering and design of user interfaces.

Validation phase

The thesis concludes with a validation of the prototype consisting of an internal testing. An elaboration is given on the product's prototype, which fully reflects the features and usability of the tool (in terms of the user interface).



Glossary

[This is a brief dictionary in alphabetical order, that documents all terms that are unique to this thesis]

Client: (Possibly) Purchases a package of the UX Lab.

CD (Customer dedication, as defined by GriDD): An organization's commitment and ongoing determination to reach out, get through, and build deep empathetic relationships with customers on their own terms and conditions. Based on where they are with their own personal rational, emotional, physical and even cultural preferences. CD is the driving force behind CX.

CX (Customer Experience, as defined by GriDD): The overall emotional and rational human connection of a customer with an organization and its direct and indirect offerings, interactions, and manifestation in the broadest sense) It is the sum of all the digital and physical brand experience, product experience, service experience, including all experiences with channels, touchpoints, platforms, and communities.

GriDD: GriDD Consultancy B.V.

Participant: A person that takes part in the user research.

User research: The entirety of methods and tests that help understanding the behavior of users, their needs and motivations, through observation techniques, analyses, and other feedback methods.

UX (User Experience): The holistic experience of interaction with interactive products, systems, services, or objects.

UX Lab: One of the core business products of GriDD. A mobile lab, with as main goal, offering quick and accessible user research.

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Chapter 01

01 | Introduction

[This chapter elaborates on what GriDD Consultancy BV. is and does. It explains in more detail about the UX Lab, one of the core business products of GriDD, and what part this Master Thesis will play in developing a tool for such a lab.]

This Master Thesis will elaborate on the Graduation Assignment about developing a tool for the UX Lab of GriDD. First, I will introduce you to GriDD, the external organization where the assignment is carried out. Then I will explain more about their UX Lab. Finally, I will discuss the role of the Master Assignment within the UX Lab and the associated research questions.

1.1 GriDD Consultancy BV.

GriDD is a full-service Customer Experience (CX) company. Their expertise ranges from research, and strategy, to design, including domains such as storytelling, customer journey mapping and interaction design. GriDD identifies essential contact moments in the customer journey and improves experience and effectiveness. In this way GriDD creates overview and concrete solutions, so that the needs of the customer go hand in hand with the services and products of the organization. By being customer dedicated, they build strong relationships with their clients on the right level, to realize an excellent customer experience.

Clients of GriDD are for example Philips, NXP, Signify, KPN, Telfort, Royal Haskoning, Vitens, Ten Cate, universities, governmental-, and non-profit organizations. GriDD has worked on a broad variety of cases for these clients in different expertise fields such as effective storytelling, user research, information architecture, digital strategy, and UX design.

1.2 Introduction to the UX Lab

GriDD is offering user research services for a long time already, which is one of their core business products. Recently, GriDD began to develop the UX (User Experience) Lab, which offers user research services in a new way.

1.2.1 The goal of a UX Lab for GriDD

The UX Lab is a mobile lab, developed to execute user research in a quick and easy way. Its goal is to make user research accessible for the clients of GriDD, also with lower budgets and little time. Without big reports and long lead times, but practically oriented, and focused on useful insights (GriDD, 2020).

1.2.2 The way of working for the UX Lab

The following steps are taken up in the standard UX Lab package.

1. Intake interview with an expert in which the goals and wishes of the client are discussed. Also, is discussed which (minor) changes in approach are needed.
2. Design method and processes. Based on the intake interview, a proposal for the study is made and how to conduct it.
3. Respondent selection and recruitment. Respondents are approached and the research is scheduled.
4. The investigation. Research data is gathered through user research.
5. Analysis and presentation of results.

The level of involvement from GriDD in the research and analysis can differ from case to case. Therefore, the client is offered three different packages to choose the guidance that suits them: budget, standard, and enterprise. The budget package makes sure user research is executed in an efficient and accessible way. The enterprise package however also includes an analysis of the results of the user research by an experienced UX researcher and offers coaching.

An additional idea is to create UX Lab certifications for researchers who want to make use of the Lab themselves. They have to follow a training to become certified as a GriDD UX Lab researcher. It works as follows: A fee is asked to follow a training. At the end of the training the participant will receive a certificate, which needs

to be updated or renewed annually. This ensures a certain consistency and quality of the UX Lab.

1.2.3 The added value of a UX Lab

GriDD does user research projects for clients. This currently takes several weeks to complete. It is time consuming and therefore costly. This is not necessarily a disadvantage. Especially in larger or B2C companies. An in-depth research is then valued, since small changes in customer experience can make a big impact. However, smaller companies, freelancers, B2B's, and start-ups, have a need for efficient and accessible (pricewise) user research. Thereby, the UX Lab offers a great opportunity for potential clients (also for larger companies) to get introduced to GriDD without large investments. In this way, the UX Lab creates a starting point for GriDD to build relations with possible clients.

GriDD describes multiple benefits of the UX Lab on their website. The four benefits listed below differentiate most from their traditional way of doing user research.

- *Provides useful insights from an expert. Analyses are done by our user research expert, who does not write a large report but provides useful insights with practical points of improvement.*
- *Is quickly arranged and accessible price wise. Because procedures are standardized, you can quickly organize user research for all budgets. You do not have to purchase any resources yourself, because everything is already arranged in the UX Lab.*
- *Takes work off your hands and / or guides you to do it yourself. In the UX Lab you can choose how much you do yourself and what work you would like to be taken off your hands. That way, you can arrange respondents yourself, or we can do that for you. You can be very involved in the research and analysis and thus gain more insight or learn to conduct research from our experts, or we can do it for you entirely. This way you can choose the guidance that suits you.*
- *Conduct user research at any location. The UX Lab is also mobile: we can build it wherever and whenever you want. At your location too, or maybe at the next trade show or conference where you are?*

1.2.4 The target group

The UX Lab can be used for generative and evaluative user research. The goal of generative research is to let users express their needs and wishes, resulting in information for concept development (Martin & Hanington, 2012). For example, when a client wants to develop a new website and wants to better align the end results with the wishes and needs of the target group.

Evaluative research involves the testing of prototypes or products be potential users (Martin & Hanington, 2012) It is used when a client wants to optimize an existing platform because conversions are lagging behind, or the market or target group is changing.

Other reasons to do user research is when a new product or service is introduced or when a client wants to get to know their customers better. This can be both generative and evaluative.

The UX Lab should be accessible for everyone who wants to do user research. Especially for clients of GriDD with a lower budget and little time. With the UX Lab, GriDD wants to attract a new target group. Their current target group mainly consists of larger B2B companies. By doing user research in a short amount of time for a lower price, they are able to attract small- and medium sized enterprises.

1.2.5 The tool for the UX Lab

This Master Assignment will focus on developing a tool to support the UX Lab. The tool will be used by employees of GriDD, to support them doing user research for clients in the in UX Lab. The goal of the

tool is to visualize the steps of the process, so that the user is guided throughout the user research. This should include all the steps per phase and the corresponding documents that are needed.

1.3 About the Master Assignment

1.3.1 Research questions

Thesis question: How can a (digital) tool for the UX lab of GriDD be created to facilitate efficient and accessible user research?

Research questions: What are elements that facilitate user research for the UX Lab?

(1.1) Which (digital and physical) tools do already exist to execute user research?
(1.2) Which research methods are used by GriDD to execute user research?
(1.3) Which are (new) research methods that can be used to facilitate (efficient and accessible) user research?
(1.4) What type of clients does GriDD have and what type of clients do they want to attract?
(1.5) What is the goal of the tool for the UX Lab of GriDD?
(1.6) What are the goals and needs of clients?
(1.7) What is relevant for a tool that will facilitate user research?

Developing the tool: How can all relevant aspects of user research be covered in a (digital) tool?

(2.1) How can user research methods be translated to a (digital) tool?
(2.2) What is the potential added value of the UX Lab for the users?
(2.3) What is needed to standardize a (digital) user research tool for GriDD?

Validation of the tool: How can the (digital) tool be tested?

(3.1) How can the efficiency and accessibility of the (digital) tool be measured?
(3.2) Which elements are needed to perform a user test?
(3.3) How does the tool perform while executed by the users?
(3.4) How does the tool fit in the portfolio of GriDD?

1.3.3 Objectives

- Understand the essence of UX design and user research.
- Create a valid tool to facilitate (efficient and accessible) user research.
- Prepare, perform, and interpret a validation of the complete tool.

1.3.4 Design method and planning for the Master Assignment

In figure 1 you will find an overview of the design method and planning for the Master Assignment.

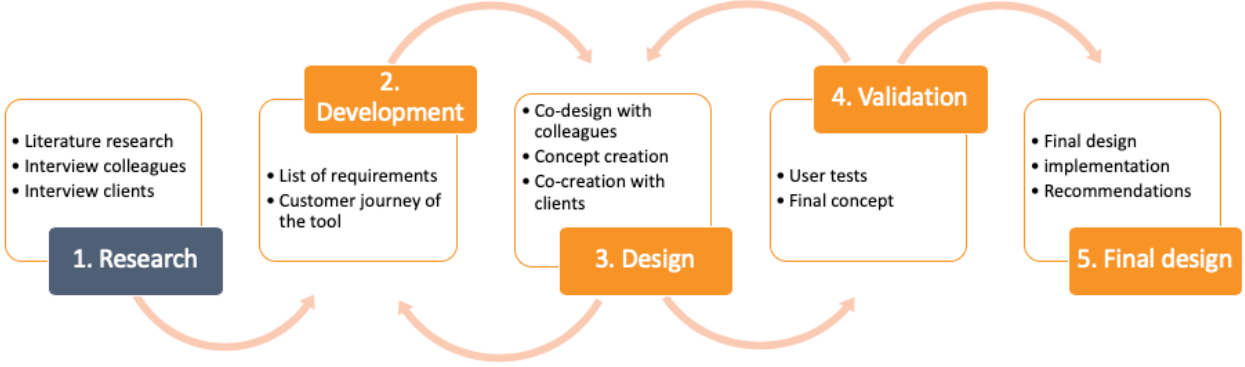


Figure 1: The design method and planning for the Master Assignment.

Chapter 02

02 | User research methods and tools

[This chapter will elaborate on what a UX Lab is, in which forms it appears already, and why the UX Lab of GriDD adds value compared to existing labs. It explores what methods facilitate (efficient and accessible) user research for the UX Lab.]

2.1 What is User Experience?

UX stands for user experience. In a UX Lab, the user experience of a certain (digital) platform can be tested. This is done through user research. In more simple words, a UX Lab is a place where user research can be done. This is mostly done for digital products like websites or applications.

2.1.1 Customer Experience

To understand what user experience is, one first needs to understand what customer experience is. User experience is namely a part of customer experience. As defined by GriDD (2020). Customer experience is the overall emotional and rational human connection of a customer with an organization and its direct and indirect offerings, interactions, and manifestation in the broadest sense. It is the sum of all the digital and physical brand experience, product experience, service experience, including all experiences with channels, touchpoints, platforms, and communities. UX (User Experience) is then specifically the experience of people interacting with your product. This is what can be tested in the UX Lab, by means of interviews and user tests. The product here, will most probably be a digital product, for example a website or app. The keywords of CX are individuality and consistency. Thus, the distinctiveness of a company and having this clear/showing this, for all colleagues, through all channels, and in all contact moments with customers. This forms a clear customer experience. Creating a clear customer experience within a company is a large investment, that leads to more loyal customers that buy more and more different products/services. Thereby, happy customers can be seen as promotors of an organization and lead to more customers. To create a successful customer experience, it is of great importance that all employees have the same customer strategy in their DNA.

2.1.2 The origin of User Experience

The term ´user experience´ used to be only applied to websites. Nowadays, User Experience (UX) has emerged as an umbrella phrase for new ways of understanding and studying the quality-in-use of interactive products (Bargas-Avila & Hornbæk, 2011). Although, it is still mainly used in web-related products.

The development of Web-technologies had fostered use of the term user experience (Garrett, 2010). For remote software interfaces, there is no instruction manual to read beforehand, no training seminar to attend, no customer service representative to help guide the user through the site. There are only the users, facing the site alone with their personal experiences. Therefore, on the Web, user experience becomes even more important than it is for other kinds of products (Kraft, 2012). To engage users on your website for as long as possible, and to make them come back, the user experience needs to be excellent.

The origin of UX can be found in Human Computer Interaction (HCI). HCI focuses on the achievement of behavioural goals. Wherefore, user centred analyses focussed on analysing the tasks to achieve these goals (Hassenzahl & Tractinsky, 2006). Where first the instrumental value was the main endeavour of the field, this was repeatedly challenged. Beauty, for example, was found as an important quality aspect of technology (Alben 1996), which goes beyond the instrumental.

Although website interfaces are often remote, usability research should not be too focused on task efficiency and work only. More encompassing notions of quality are needed to evaluate the user experience (Bargas-Avila & Hornbæk, 2011). Initial UX research focused on dissatisfaction by removing usability problems and improving task completion time.

Later, UX aimed at convincing the HCI community to take issues beyond the task-related more seriously. It has been a counter movement to the, task- and work-related 'usability' paradigm (Hassenzahl & Tractinsky, 2006). UX proposed to focus on positive aspects of interaction, in particular, on hedonic, non-instrumental aspects. They include for instance visual aesthetics, and joy of use. This led to a focus on human values and needs, because they ultimately determine why something is positive to users (Bargas-Avila & Hornbæk, 2011).

Research from Robinson (2017) found that services, websites, and imagined objects/prototypes were among the most frequently studied artifacts, while usability studies, surveys, and interviews were the most commonly used methods. They found a significant increase in quantitative and mixed methods studies since 2010. Probably because of the development of web-technologies that enable remote user research, which makes it easier to test with larger sample sizes.

2.1.3 The User Experience design process

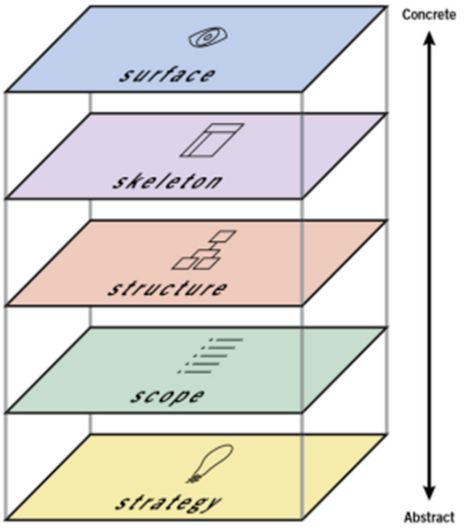


Figure 2: The Elements of User Experience (Garrett, 2010)

User experience makes the difference between a successful product and a failure. It is often overlooked when designing a product (Garrett, 2010). To offer structure for the user experience design process, Garrett (2010) developed the 'Elements of User Experience' model (figure 2). It shows how the user will experience your product from an abstract to a concrete level in five elements: strategy, scope, structure, skeleton, and surface.

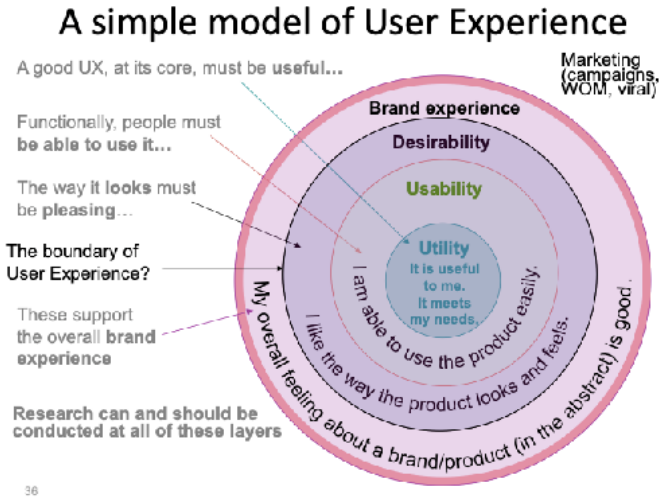


Figure 3: A simple model of User Experience (Rohrer, 2009).

User experience can be explored at different levels as can be seen in figure 3. At its core, a good user experience must be useful, thus meet the needs of the user. Functionally, the user experience must be usable, thus the user needs to be able to use the product easily. Also, it is desirable that the product (can also be a digital product) looks pleasing (Rohrer, 2009). The brand experience is the boundary of UX and CX design. Brand experience includes not only interaction with the branded products, but interaction with the company, its products and services. Brand experience is a broader concept than user experience (Interaction Design Foundation, n.d.). When designing for user experience, all these different levels need to be taken into account.

Subsets of user experience, are product experience and service experience. The term product experience is used when discussing the interaction with an artefact. Product experience has a narrower scope than user experience, as not all objects are commercial products. If we want to emphasize that experience is subjective ("I had great experience using this") rather than a product attribute ("this product has excellent user experience"), we recommend using the term user experience over product experience. The same applies to service experience. Service experience can refer to face-to-face services (e.g. in a restaurant or repair point), public services (e.g. roads), digital services on the Internet servers (e.g. gambling site), or anything in between (Interaction Design Foundation, n.d.).

User Experience Design is in practice often confused with terms like "User Interface Design' and 'Usability'. They are not the same, however, user interface design and usability are subsets of User Experience Design. A UX designer is namely involved in the entire process of integrating a product, which includes aspects of branding, design, usability, and function. This is all thought through before the user gets to interact with the product (Interaction Design Foundation, n.d.).

2.1.4 The definition of user experience

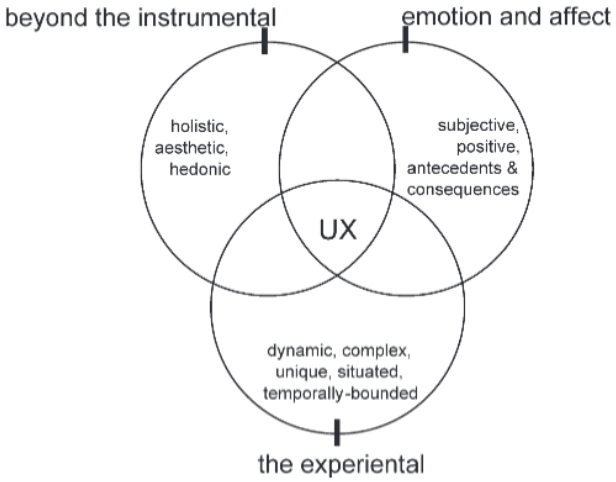


Figure 4: Facets of UX (Hassenzahl & Tractinsky, 2006)

The term 'user experience' is associated with a wide variety of meanings (Forlizzi and Battarbee 2004). It is hard to get a universal definition of UX, because it is associated with emotional, affective, experiential, hedonic, and aesthetic variables (Law et al., 2009). Figure 4 shows the three perspectives that contribute to the definition of UX. It is a consequence of a user's internal state, the characteristics of the designed system. and the context within which the interaction occurs (Hassenzahl & Tractinsky, 2006).

If we want to emphasize that an experience is subjective ("I had great experience using this") Interaction Design Foundation, n.d.) we use the term user experience. User experience is the experience the product creates for the people who use it in the real world (Garrett, 2010). UX emphasizes the situational and dynamic aspects of using interactive products and the importance of context. Research does not focus exclusively on the value of a product to accomplish tasks; it focuses also on symbolic and aesthetic value (Bargas-Avila & Hornbæk, 2011).

The key focus of the UX movement is on the holistic experience of interaction with interactive products (Bargas-Avila & Hornbæk, 2011).

2.2 Mapping out user research techniques

Now that the definition of user experience is defined, it is interesting to look further in how to measure or test this with the UX Lab. According to Goodman et al. (2012), user research aims to bridge the gap between what companies think they know about their users and the actual user experience. It is the process of figuring out how people interpret and use products and services (Goodman et al., 2012). Schumacher (2010) offers one definition for user research: 'User research is the systematic study of the goals, needs, and capabilities of users.' It is a broad term that encompasses many methodologies that generate quantifiable outcomes, including usability testing. Usability testing is a central activity in user research and typically generates the metrics of completion rates, task times, errors, satisfaction data, and user interface problems (Sauro & Lewis, 2016). However, we just saw that user experience has a broader focus then accomplishing tasks. Therefore, satisfaction data is an important denominator in this list.

2.2.1 The dimensions of user research techniques

Modern day UX research methods answer a wide range of questions. To get a better understanding of when to use which method, 20 methods are mapped across 3 dimensions (Rohrer, 2014) as can be seen in figure 4.

- Attitudinal vs. Behavioral
- Qualitative vs. Quantitative
- Context of Use

The distinction between the attitudinal and behavioral dimension can be summed up by contrasting "what people say" versus "what people do" (very often the two are quite different). The purpose of attitudinal research is usually to understand or measure people's stated beliefs (Rohrer, 2014). Lee & Lee (2007) argue that the differentiation between the attitudinal and behavioral dimension can be made based on the possibility of observation and explicitness. Figure 5 shows how this differentiation influences the type knowledge that is gained from user research, and the techniques that are useful (Lee & Lee, 2007).

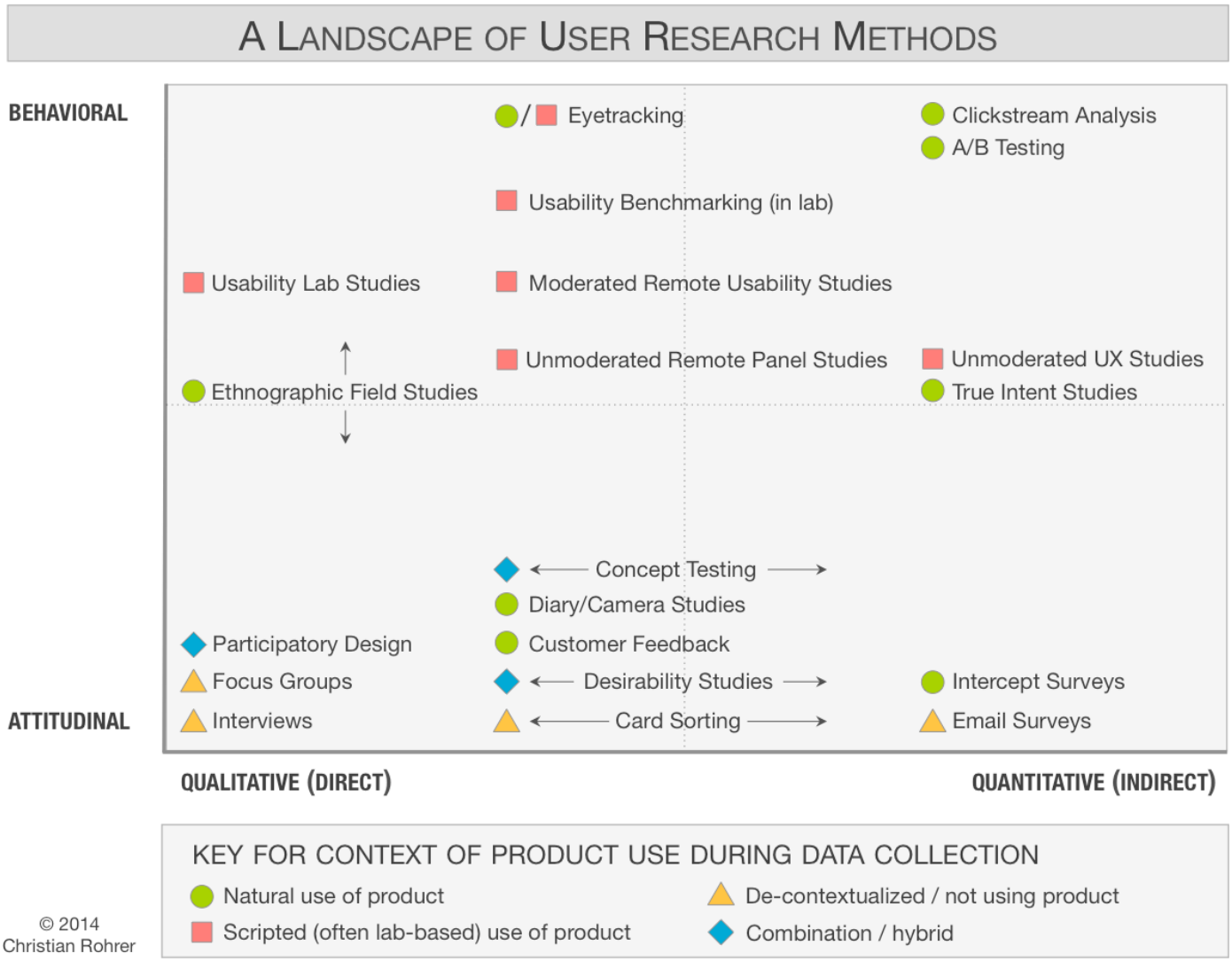


Figure 5: A landscape of user research methods (Rohrer, 2014)

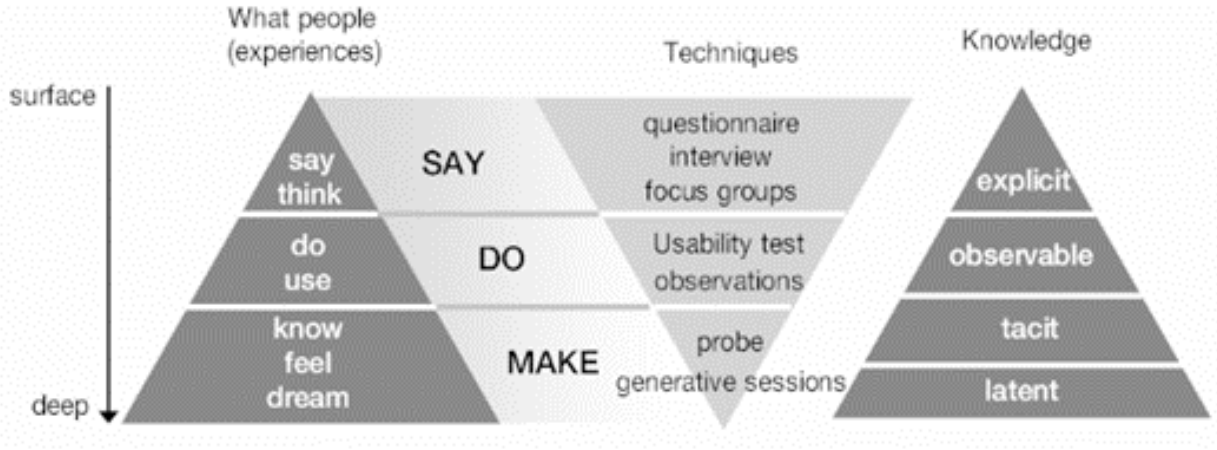


Figure 6: The 'Say, do and make framework' that classifies user research methods regarding communication patterns (Sanders, 1999)

The qualitative dimension differs from the quantitative dimension. Studies that are qualitative in nature generate data about behaviors or attitudes based on observing them directly, whereas in quantitative studies, the data about the behavior or attitudes in question are gathered indirectly, through a measurement or an instrument such as a survey or an analytics tool (Rohrer, 2014). Due to the nature of their differences, qualitative methods are much better suited for answering questions about why or how to fix a problem, whereas quantitative methods do a much better job answering how many and how much types of questions. Having such numbers helps prioritize resources, for example to focus on issues with the biggest impact (Rohrer, 2014).

The context of product use has to do with how and whether participants in the study are using the product or service in question.

2.2.2 User engagement in user research

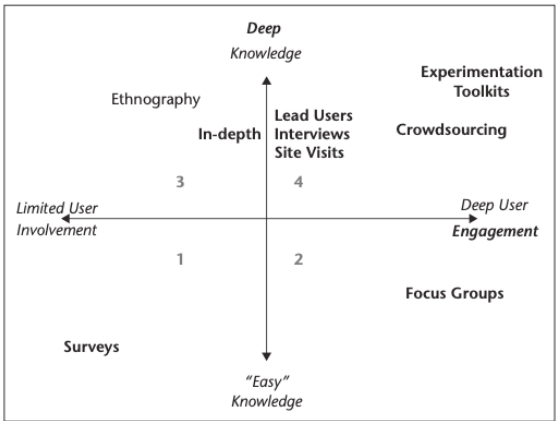


Figure 7: Knowledge mapping (Schirr, 2013)

As user needs and use contexts became increasingly important in system development, ISO 13407 (1999) recommends the active involvement of users for understanding user and task requirements (Kujala, 2003). Companies may find it harder to access user input as markets mature and become more competitive. Why should a user grant your company her time and wisdom instead of one of your competitors? It is important to forge and maintain strong relationships through customer engagement. Ideally, a positive feedback loop is formed such that the involvement of the customer in the innovation strengthens the relationship and makes future engagement more likely (Schirr, 2013). It is often thought that deep user engagement takes more time and is thus more expensive. Methods that facilitate deep user engagement are mapped in figure 6. However, Kujala (2003) argues that (deep) user involvement increases sales and user productivity, and decreases training costs and user support, and thus has a lot of benefits. To identify the costs associated with the usability work for the project, a cost-benefit analysis is generally used. It attempts to quantify the potential sources of benefit. The difference between the costs and the benefits shows the value of user research (Mayhew and Mantei 1994).

Another question that arises is how many participants should be included in user research. The Nielsen Norman group (2012) states that five persons are enough participants for qualitative research, since five persons will find most usability problems. Weak arguments for more than five test participants are:

- A big website has hundreds of features. This is an argument for executing multiple tests, not for more participants.
- We have several target audiences. This argument only holds when the different users are going to behave completely different. Also, this can be solved with multiple tests. Maybe even with less than five participants, since the user experience of the different target audiences probably overlaps.
- The website makes so much money that even the smallest usability problem is unacceptable. Even then it is better to test multiple times than one time with more users. Since testing multiple times will employ an iterative process,

which will lead to a higher quality.

2.2.3 When do you use which type(s) of user research techniques?

	Product Development Phases		
	STRATEGIZE	**EXECUTE**	**ASSESS**
Goal:	Inspire, explore, and choose new directions and opportunities	Inform and optimize designs in order to reduce risk and improve usability	Measure product performance against itself or its competition
Approach:	Qualitative and Quantitative	Mainly Qualitative (formative)	Mainly Quantitative (summative)
Typical methods:	Field studies, diary studies, surveys, data mining, or analytics	Card sorting, field studies, participatory design, paper prototype, and usability studies, desirability studies, customer emails	Usability benchmarking, online assessments, surveys, A/B testing

Figure 8: Product development phases (Rohrer, 2014)

An important distinction to consider when making a choice among research methodologies is the phase of product development and its associated objectives (Nielsen Norman, 2014). Figure 7 shows the product development phases are divided in three stages: strategize, execute, and assess. Qualitative approaches are mainly used when a design already exists and needs optimization. Quantitative approaches are mainly used to assess the performance of a design.

The services of GriDD consists of three different components to improve the user experience of digital products. Strategy, research, and design (GriDD, 2020). User research naturally belongs to the 'research component'. According to GriDD, there are three different phases in a research project where user research can be valuable, as you can see in figure 8. Exploration, validation, and improvement. These correspond with the phases in figure 7.

Figure 9: The way of working for user research (GriDD, 2020)

In the exploration phase, a client has an idea for a digital product, that is not developed yet. Then it is important to map potential users for this digital product. Therefore, a concept is developed, a customer journey is made, requirements are listed, and personas are created. The second phase in which user research can be valuable is validation. This is the phase wherein a client already has a concept for a digital product, either in an early stage or a later stage. This is the moment where user research can still help to correct certain aspects of the design. UX researchers help to structure the design and give proposals to improve the content. The last phase in which user research can be valuable is improvement. This is when digital product already exists. A reason to examine this existing digital product is when it gets (negative) feedback from users. This will lead to improvement proposals from UX researchers and validation.

Validation and improvement especially lend themselves well to do user research, since then you have an actual concept to test (GriDD, 2020). During the exploration phase, generative research is done. According to Estes (2020) generative research helps you define the

problem you would like to design a solution for. It helps to collect data and human insights that reveal people's behaviors, needs, and opinions. Common generative research methods include ethnography, contextual interviews, focus groups, and data mining (Estes, 2020). GriDD already does interviews in the exploration phase. However, for validation and improvement, a concept, or at least a prototype is needed.

During the validation and improvement phase, evaluative research is done. Evaluative research helps you evaluate an existing design. It is a research method used for assessing a specific problem to ensure usability and ground it in wants, needs, and desires of real people. The goal of the evaluative research methodology is to test the existing solution to see if it meets people's needs, is easy to access and use, and is hopefully even enjoyable (Estes, 2020). Techniques that GriDD already uses to do user research, are interviews, user tests, and possibly focus groups. Interviews can help to ask feedback on concepts and, user tests help to detect improvements and errors in the test version of the end-product (GriDD, 2020). During the improvement phase, interviews give insights in where improvements are needed for an existing product and user tests help to detect improvements and errors in the final product (GriDD, 2020).

2.3 Research methods that are commonly used in user research

As mentioned before, research methods can be divided in quantitative and qualitative methods. For quantitative methods, a large sample size is needed, otherwise the research is not valid (Nielsen Norman group, 2012). According to the Nielsen Norman Group (2012) you need at least twenty participants to get statistically significant numbers for quantitative research. However, for a UX Lab, there is not much time and money to invest in large sample sizes. Which makes it harder to execute quantitative research. Interviews with employees support this finding. Thus, quantitative methods are not useful for the UX Lab, since this type of research requires too many participants, which does not fit the idea of an efficient and accessible UX Lab. Therefore, they are not listed in figure 9.

Besides quantitative methods, some qualitative methods are not suited for the UX Lab (They are marked red in figure 9). For example, ethnographic field studies. They are not relevant for digital products since digital products do not particularly have a natural use environment. Also, participatory design and dairy/camera studies do not fit the UX Lab. They are time consuming, and similar information can be obtained from interviews in a more efficient and accessible way. Lastly, Unmoderated remote self-studies do not fit the UX Lab since you need trained participants, which is time consuming.

Figure 9 is created to map out user research methods that are useful for the UX Lab. Mapping out these research methods will help to determine how, why, and when to use user research methods in the UX lab. This will be elaborated upon in the next chapter.

User research method (Rohrer, 2014)	Quantitative vs. Qualitative (Rohrer, 2014)	Strengths	Weaknesses	Phase of product development	Typical time frame	Research question	Deliverables	Common mistakes
Usability-Lab Studies: participants are brought into a lab, one-on-one with a researcher, and given a set of scenarios that lead to tasks and usage of specific interest within a product or service.	Qualitative	Instant feedback and direct observation (Hu et al.,2019)	Long preparation time, possible bias associated with lab setting (Hu et al.,2019)	Validation, innovation (Hu et al.,2019)	3-4 weeks (Unger, 2009)	What roadblocks exist in the product? (Hu et al.,2019)	Use cases, quotes, videos, product recommendations (Hu et al.,2019)	Too much focus on verbal feedback instead of behaviors (Hu et al.,2019)
Ethnographic Field Studies: researchers meet with and study participants in their natural environment, where they would most likely encounter the product or service in question.	Qualitative	Diverse and deep insights (Hu et al.,2019)	This data can be very open-ended, and the method can take a lot of time (Hu et al.,2019)	Exploration, validation, innovation (Hu et al.,2019)	2-4 weeks, not including recruiting (Goodman et al., 2012)	How does a user's environment shape their actions? (Hu et al.,2019)	Personas, journey maps (Hu et al.,2019)	If the research team gets to large, it can bias the data (Hu et al.,2019)
Participatory Design: participants are given design elements or creative materials in order to construct their ideal experience in a concrete way that expresses what matters to them most and why.	Qualitative	Capture diverse information (Spinuzzi, 2005)	Not suited for radical change (Spinuzzi, 2005)	Validation (Rohrer, 2014)	-	What shapes people to use a product the way they do? (Spinuzzi, 2005)	Guidelines for the design of the product (Spinuzzi, 2005)	Not involving users repeatedly (Spinuzzi, 2005)
Focus Groups: groups of 3-12 participants are led through a discussion about a set of topics, giving verbal and written feedback through discussion and exercises.	Qualitative	Uncovers participants' feelings, attitudes, and ideas (Unger 2009)	Only suited to discuss a specific topic (Unger 2009) Subject to groupthink among participants (Goodman et al., 2012)	Exploration (Goodman et al., 2012)	3-4 weeks (Unger, 2009)	What does a user think about a certain product? (GriDD, 2020)	Classified fragments (GriDD, 2020)	Bias data because the researches does not understand how to target questions to get the right information (Unger 2009)
Interviews: a researcher meets with participants one-on-one to discuss in depth what the participant thinks about the topic in question.	Qualitative	Ability to ask follow-up questions and generate a rich understanding (Hu et al.,2019)	Time and effort intensive, outcome depends on the interview's skills (Hu et al.,2019)	Exploration, validation, innovation (Hu et al.,2019)	2-4 weeks (Unger, 2009)	What does a user think about a certain product? (Hu et al.,2019)	Word clouds, personas, emerging themes, quotes, and product recommendations (Hu et al.,2019)	Too much focus on what people want instead of on their problems (Hu et al.,2019)
Eye tracking: an eye tracking device is configured to precisely measure where participants look	Both	Very definitive and	Does not work well with a broad scope	Validation, innovation (Hu et al.,2019)	-	Can users discover a certain feature	Heat maps, gaze paths (Hu et al.,2019)	Wrong conclusions (Hu et al.,2019)

Figure 10: Methods for user research matrix (1)

Figure 10: Methods for user research matrix (2)

as they perform tasks or interact naturally with websites, applications, physical products, or environments.		quantifiable data (Hu et al.,2019)	and for those with certain eyewear (Hu et al.,2019)			intuitively? (Hu et al.,2019)		
Usability Benchmarking: tightly scripted usability studies are performed with several participants, using precise and predetermined measures of performance.	Both	See Usability lab studies	-	Innovation (Rohrer, 2014)	-	-	-	-
Moderated Remote Usability Studies: usability studies conducted remotely with the use of tools such as screen-sharing software and remote-control capabilities.	Both	See Usability lab studies	-	-	-	-	-	-
Unmoderated Remote Panel Studies: a panel of trained participants who have video recording and data collection software installed on their own personal devices uses a website or product while thinking aloud, having their experience recorded for immediate playback and analysis by the researcher or company.	Both	See Usability lab studies	-	-	-	-	-	-
Concept Testing: a researcher shares an approximation of a product or service that captures the key essence (the value proposition) of a new concept or product in order to determine if it meets the needs of the target audience; it can be done one-on-one or with larger numbers of participants, and either in person or online.	Both	See Usability lab studies	-	-	-	-	-	-
Diary/Camera Studies: participants are given a mechanism (diary or camera) to record and describe aspects of their lives that are relevant to a product or service, or simply core to the target audience; diary studies are typically	Both	Long-term data from the user captures behavioral and attitudinal changes	Results depend on the motivation of the user (Hu et al.,2019)	Validation, Innovation (Hu et al.,2019)	4-6 weeks (Goodman et al., 2012)	How do people use a product over time?	Workflows, user journeys, personas (Hu et al.,2019)	Underestimate work and time required from the researcher (Hu et al.,2019)

longitudinal and can only be done for data that is easily recorded by participants.		over time (Hu et al.,2019)						
Customer Feedback: open-ended and/or close-ended information provided by a self-selected sample of users, often through a feedback link, button, form, or email.	Both	Quick, inexpensive way to generate data (Rohrer, 2014)	Low response rate, recall bias (Hu et al.,2019)	Exploration, (Hu et al.,2019) Innovation (Rohrer, 2014)	2-6 weeks (Goodman et al., 2012)	How do users feel about a product? (Hu et al.,2019)	Descriptive statistics, charts and graphs (Hu et al.,2019)	Asking leading questions that influence the result (Hu et al.,2019)
Card Sorting: a quantitative or qualitative method that asks users to organize items into groups and assign categories to each group. This method helps create or refine the information architecture	Both	Quick, easy, inexpensive, and well known (Hu et al.,2019)	Data is limited by choice of cards (Hu et al.,2019)	Exploration (Hu et al.,2019)	3-4 weeks (Unger, 2009)	How should a product be structured? (Hu et al.,2019)	Information architecture diagrams (Hu et al.,2019)	Bias the research by choosing cards (Hu et al.,2019)
Top Task Analysis: Explore the most important tasks of users by arranging tasks in order of importance. Thereafter you can execute a user test on the most important tasks.	Both	Focus on the top tasks, easy to setup and distribute, and easy to repeat (GriDD, 2020)	Cannot go into detail. A follow-up research is necessary to track down improvements (GriDD, 2020)	Validation, innovation (GriDD, 2020)	-	What are the most important tasks of the product? (GriDD, 2020)	Lists of the most important tasks according to users (GriDD, 2020)	Not doing a follow-up research like user tests to track down improvements (GriDD, 2020)
Tree test: Discover the paths that user will take to reach their goals with a tree structure to improve the (website) structure where necessary.	Both	Quick and easy testing of new (website) structures and clear results (GriDD, 2020)	Only tests the structure, not the visual aspects (GriDD, 2020)	Validation (GriDD, 2020)	-	How should the product be structured? (GriDD, 2020)	Tree structures of different participants (GriDD, 2020)	-

Figure 10: Methods for user research matrix (3)

2.4 What UX labs do already exist?

To find out what is the added value of the UX Lab of GriDD, it is important to know what position it has in the market. Therefore, research is done about different UX Labs that already exist. What are the common denominators? And how will the UX Lab of GriDD differ from the existing offerings?

2.4.1 Happy Labs

Figure 11a: Happy labs interview room (happy labs, 2020).

Figure 11b: Happy labs observation room (happy labs, 2020).

Happy labs (2020) is located in three cities in the Netherlands. They offer two sorts of spaces: an interview space (see figure 11a) and an observation space (see figure 11b). They provide their customers with (eye tracking) devices, video recordings, and live stream technologies. Standard facilities are a host, technical support, and a lunch. Happy labs also provides PIP (picture in people) recordings, and they developed a 'quick capture button' to directly save the last 90 seconds of a recording. Their method looks as follows:

1. The target group of their client is divided in 4 categories. Simple: easy to recruit. Basic: good to recruit. Extra: difficult to recruit. Complex: Extremely difficult to recruit. The more difficult to recruit, the higher the price.
2. Looking for the perfect target group. Planning and confirming sessions participants and let them sign a consent declaration form.
3. Get to work. Make a planning for all participants with their name, characteristics, and times.

It costs 1200 euro to test for a day at their location without guidance. 2500 euro to test for a day at their location, get support and a coaching session about interviewing, and 6500 euro to let Happy labs test execute user tests for you for a day.

Figure 12: The UX lab of Adwise (Adwise, 2020)

2.4.2 Adwise

The UX lab of Adwise (2020) consists of a space that looks like a living room, and an observation room including a secret see through wall as can be seen in figure 12. The space is designed like a living room to make the participants feel at ease, so the test results are not influenced. Their UX lab consists of:

- A test space in living room setting.
- An observation room where a maximum of three persons can follow the user research, both on a computer screen and via the observation wall.
- Tobii eyetracker, including software to merge video, sound and eyetracking, and software to follow the user tests live from the observation room.
- Whiteboards
- Fast internet
- A tablet to do the user tests.
- A mobile phone to do the user tests.

The costs are 1800 euro to rent a space for a day. Recruiting and selecting participants, and guidance from a UX consultant cost extra.

Figure 13: Billy usability lab (The factor E, n.d.).

Billy from 'The Factor E' (2018) is focused on simple and affordable user research. It is a mobile lab, created in a van, that can drive towards you and your clients. Whether you want to test and app, website, prototype, or idea. Billy is able to perform user research in one day. First the test scenario is discussed, then Billy drives directly to the target group. Afterwards, all results are collected, and the recommendations summarized in a clear document. Different methods of user research that billy is suitable for:

- Eyetracking
- A/B testing
- Cardsorting
- Focusgroup research
- In-depth interviews
- Enquetes

2.4.3 How is user research executed currently?

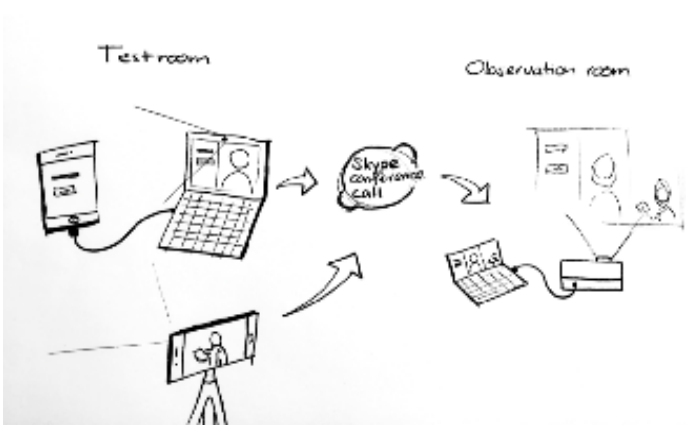


Figure 14: Visualization of an improvised set up of a UX Lab (Somers, 2018).

When companies do not get help with user research, it is likely performed in an improvised setting. Existing software allows the participant to record their screen while recording their face as can be seen in figure 14.

2.5 What digital tools do already exist to do user research?

First, let me explain why I chose to develop a digital tool for the UX lab, over a physical tool. Lund (1997) emphasises the importance of matching design with user needs. Because the cost-effectiveness of understanding user needs is difficult to evaluate, the role of users must be carefully considered, and more cost-efficient practices are needed for gathering users' implicit needs and requirements in real product development contexts (Kujala, 2003). This is why the UX Lab can be of such great importance. Keep in mind that the UX Lab is targeted to small- and medium sized enterprises without a large budget. By creating a digital tool with all the technologies that are available today, this cost-efficient practice can be created. Thereby, the UX Lab is meant to test digital products or prototypes. A digital tool is more capable to test digital products or prototypes on a high level than a physical tool.

2.5.1 Other digital tools that support user research

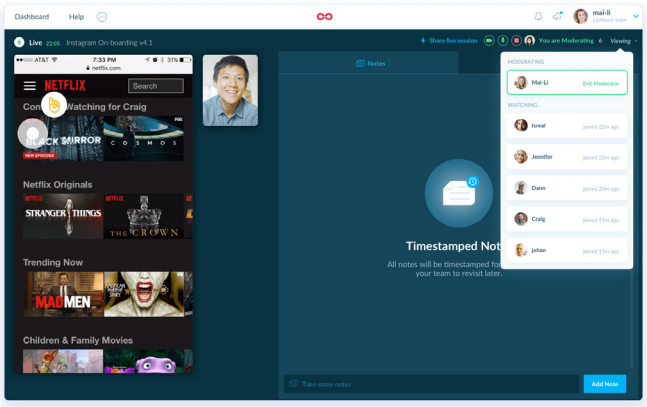


Figure 15: Lookback

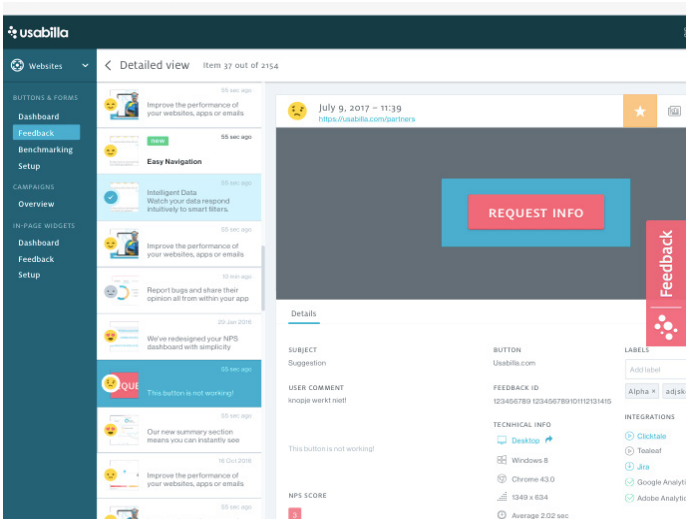


Figure 16: Usabilla

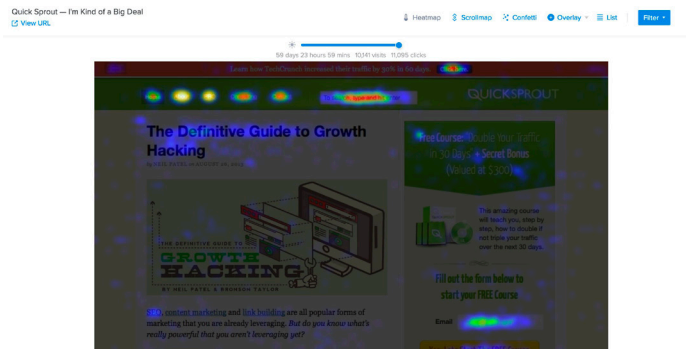


Figure 17: CrazyEggs

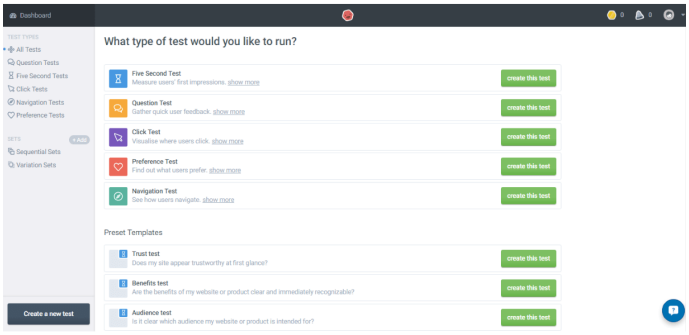


Figure 18: UsabilityHub

Many tools exist for doing or supporting user research. Most of them are digital. This helps to save the results of the user test and is also useful when participants of the user test are not able to meet in real life easily and quickly. Lookback (figure 15) is an example of such a tool. It records the user while executing tasks during the user test, and simultaneously tracks the mouse movements of the user.

Also, popular, are applications that constantly monitor the digital products of clients without human interventions. For example, Usabilla (figure 16), UsabilityHub (figure 18), or Crazy Eggs (figure 17), are applications that do this. It works as follows. The application places a popup on the website of the client, asking its users for feedback. Thereafter, the application organizes the generated data, so that a UX designer can use it to improve the user experience of the digital product. A disadvantage can be that constantly monitoring your website can slow down its performance.

2.6 What do we learn from the existing UX labs and tools?

Everybody seems to have a different definition of what a UX Lab is. The offerings differ from organisation to organisation. When searching for the term 'UX Lab' online. Often, only the space to execute user research in, is rented. Sometimes with additional services. This is the case for Happy Labs and Adwise. Think about fully equipped interview spaces and observation spaces. Extra services can be eye tracking devices, live stream technologies, and a host to welcome participants of the user test. Renting a UX Lab space for a day costs around 1500 euro. However, if you want guidance from professional UX consultants, costs can quickly rise till 6500 euro. Other UX Labs focus more on the methods for user research, than on the space, for example, 'Billy'. All the existing labs use technology to both record the screen of the participant, and to record the participant themselves. Also, most UX labs are designed like a living room to ease the participant. This is not necessary, but it might help to not influence the test results.

Clients of GriDD do not buy a space or technology, but mainly guidance and training from a professional UX researcher (GriDD, 2020). This is what adds value to the UX Lab. Everybody can do user research. However, not everybody knows how to do good user research, and how to interpret the results. Which is why the knowledge of an experienced UX researcher is a need. This can be time consuming, and costly. The tool for the UX Lab should support the UX researcher to do user research. This saves time, and therefore money, which is, among other things, why a tool for the UX Lab is of such value. The end result of the GriDD UX lab will be a clear overview of data, with insights that will serve as input for a (re) design.

Chapter 03

03 | Mapping clients of the UX Lab

[In this chapter, the perspective and vision of employees and clients on the UX Lab is researched with the help of interviews. Requirements are set up, based on the interviews, and validated in a co-design session, which investigates in the joint vision on a tool for the UX Lab. To find out what the similarities and the differences are that are important to include in the Tool, personas are created and user profiling is applied.]

In the previous chapter, existing methods and tools, and their relevance for the UX Lab were described. These existing methods and tools offer guidance in the development of the tool for the UX Lab. In addition to that, the knowledge and opinion of GriDD and their clients, offer guidance in developing the tool. To get a deeper understanding about the perspective and vision of employees and clients on the UX Lab, interviews are held. The knowledge and opinion of the employees of GriDD and their clients, together form the list of requirements for the tool. The requirements will be prioritized and taken into account for the first prototype design.

3.1 The perspective and vision of employees and clients on the UX Lab

3.1.1 The employee's perspective and vision on the UX Lab

- The UX Lab should attract small and medium sized enterprises with a small budget. GriDD wants to create three 'flavors' that will appeal to different target groups. The light version, which can be a free tool on or website, for people without knowledge of UX. A medium version, for freelancers or practitioners, so that they can use our tools and methods via a license. Lastly, an enterprise version, where GriDD executes the UX Lab for clients, however the clients can be involved.
- The tool should be some sort of protocol, that clearly explains all the steps of our process, and contains all the corresponding documents. In the ideal situation, it is some sort of MyGriDD online environment. The first version can be in Trello, or like an app, or webpage.
- Clients need to be guided and educated in user research, and user research should be fun!
- The name should be thought through. Is it a lab? And will it fit to services that will be productized in the future? The UX Lab will be part of a family of products in the future.
- The UX Lab need modern technologies to attract clients.
- The UX Lab is a product. GriDD should not have to put much time in it. So, a lot needs to be automated.

3.1.2 The client's perspective and vision on the UX Lab

- It should be scalable. So, it should be applicable for user research with 5 persons, but also with 100 persons or more. Clients want to be able to get information from enough participants from all over the world. Maybe also a function to approach and select participants should be created.
- The UX Lab needs tools that clients do not have, like eye-tracking, smart technologies, AI, etc.
- The UX Lab needs different levels. It should be low budget. Maybe you should be able to test one specific element.
- It should be applicable in short-term. Clients should receive results in terms of days, because our projects only last a few weeks. The B2C market is also extremely flexible. These websites need continuous monitoring and quick testing.
- Clients (for B2B) want to deliver the participants. Then GriDD should do the rest. At the and the client will get clear results and apply them. It can be fun and useful for clients to watch GriDD doing user research. Thus, to possibly be involved. Maybe GriDD can have a tool ready, to put on the website/newsletter/social media of the clients, to ask for participating in user research.
- It needs to fit the tools that the client already uses. Look at where their analytics come from and how to UX Lab relates to them. Look at the sort of clients GriDD has and what kind of questions they have. Make a flow of what GriDD does, what the client does, and what the UX Lab can add to make results clearer.
- The UX Lab should be reusable for different projects.

- It can be a reserved space, a suitcase, or a bus. It would be nice to have the possibility to come to clients, also so that they can watch the research.
- It should be easy shareable with team members. User research makes sure that the client has arguments for their choices. It is then needed to share the results of the user research, to show to your team, and show why something does or does not work.

3.1.3 Alignment with the literature findings

In the interviews with employees came forward that the UX Lab should attract small and medium sized enterprises. This vision is in line with the existing UX Labs in the market. Examples mentioned in chapter 2 (Adwise, Billly, HappyLabs), handled accessible prices, and are therefore suited for small and medium sized enterprises. Employees mentioned that the time and guidance of a UX consultant is most costly in the UX Lab. The UX Lab of Happy Labs also shows that the price depends on the involvement of experienced UX researchers. Therefore, employees should not have to put much time in the research, to keep the UX Lab accessible pricewise.

Both employees and clients mentioned that modern technologies would help to attract clients to buy the UX Lab. Existing UX Labs also advertise with eye-tracking devices and observation rooms. However, according to GriDD (2020), what adds value to the UX Lab is guidance from an experienced UX researcher. Therefore, modern technologies would be desirable, but not a requirement.

The UX Lab is called 'Lab', however the vision of employees on a UX Lab, differs from existing UX Labs. Existing Labs focus on physical spaces that facilitate user research. However, for employees, the UX Lab could be a space, but also a suitcase or a digital environment that facilitates user research.

Clients mentioned that they preferred a scalable 'lab'. Applicable for user research with 5 persons, but also with 100. However, previous literature (Nielsen Norman group, 2012) showed that you only need 5 persons for a user test. Therefore, scalability will not be considered as a requirement.

The vision of employees on the UX Lab tool, is that it should be some sort of standardized protocol. However, clients stress the importance of matching the protocol with their specific needs. Therefore, useful methods for the UX Lab were researched in chapter 2. Profiling clients and developing a framework could help to determine which small adjustments can be made in the protocol per client. By capturing this in the tool, it is still possible to work with a standardized method.

3.2 Requirements for the UX Lab tool

The requirements are based on the interviews with employees of GriDD and clients of GriDD.

- The tool should have an accessible price for small and medium sized enterprises
- The tool consists of a standardized protocol, in which small adjustments can be made depending on the needs of the client
- The tool should take UX researchers and clients by the hand to conduct user research.
- The tool should bundle the (reasoning behind the) results of the user research and tests in a clear overview.

The requirements are a starting point for the development of the tool. The requirements will be validated in the co-design session with employees of GriDD. This will help to clarify and specify the joint vision of the GriDD team on a tool for the UX Lab.

3.3 Co-design session

In the previous paragraph, requirements were setup for the tool. By means of a co-design

session, these requirements will be validated and further explored. In co-design, diverse experts, who are (potential) users come together (Visser et al., 2005). The employees of GriDD are experts of their experiences. Since, the user is seen as an expert of his own practice, an additional benefit is the use of existing knowledge and skills, while at the same time the designer gets the most recent information from the stakeholders. This will reduce the number of use problems in the resulting products (Garde, 2013).

The goal of the co-design session is to clarify and specify the joint vision of the GriDD team on a tool for the UX Lab. It is chosen to do a co-design session, since it brings different perspectives together. A broad perspective will help to prevent the product or service from failing. By taking everyone's perspective into account, considerations can be made to provide the best solution for everyone. The tool for the UX Lab will be used by the employees of GriDD to guide them in executing the user research, therefore the co-design session is held with them.

3.3.1 Demarcating the project for the co-design session

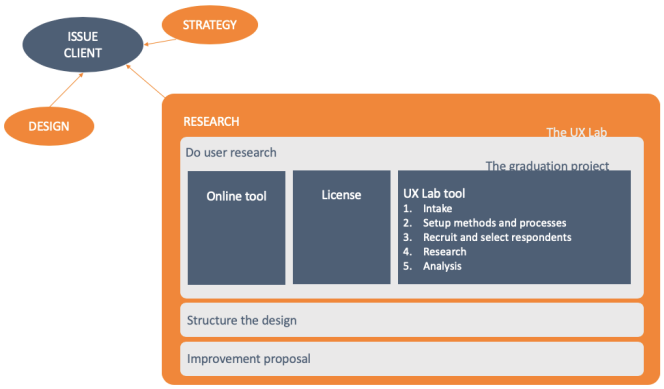


Figure 19: Visual of demarcating the tool for the UX Lab.

GriDD's way of working consists of three components. Strategy, research, and design. The UX Lab is part of the research GriDD does. The UX lab works at an operational level. The research consists of three components. The user research, structuring the design, and giving an improvement proposal. The UX Lab focuses on the user research. One idea is to create an online tool (for free) so people can get an introduction to the UX Lab, or people without knowledge about UX can evaluate their digital product quickly and accessible. Another idea is to give out licenses, so that practitioners can use the methods and tools of GriDD. Before those ideas can be realized, the UX Lab itself first needs to be setup. The UX Lab c onsists of three packages, ranging from budget to enterprise. The difference between these packages is mainly the level of guidance from a professional UX specialist. The process of these packages is the same. First, an intake is done. Then the methods and processes are setup. Thereafter the respondents are recruited and selected. The research and the analysis are done lastly.

The goal of the tool is to visualize the steps of the process, so the user is guided throughout the user research. This should include all the steps per phase and the corresponding documents that are needed.

3.3.2 Co-design session with employees of GriDD

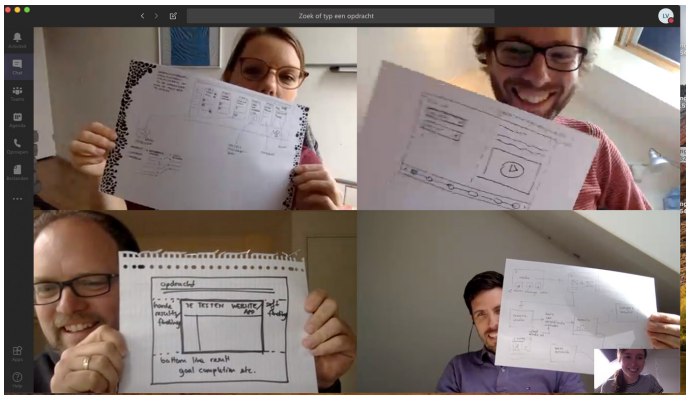


Figure 20: The co-design session with employees of GriDD.

The co-design session is held online, supported by Teams and Miro, due to the Corona crisis. It lasts 1,5 hours.

3.3.3 Setup of the co-design session

The participants are asked to do a preparation assignment beforehand, since the co-design session will be digitally, and meetings longer than two hours are not perceived as effective. 1.5 hours is little time for a co-design session, so a preparation assignment is needed to save time and get the participants in the right mood. The preparation assignment will include reading the main conclusions that are drawn from the interviews with the GriDD team and the clients. Also, the participants are asked to look at the demarcation of the tool.

Time	Description	Question	Participants
15 minutes	Introduction and validation of the starting point.		All participants
5 minutes	Make quick 5-minute sketch.	How do you envision a tool for the UX Lab?	Individual
15 minutes	Explain to the team what you sketched.	What is good about your sketch and what does it still miss?	All participants
15 minutes	Discuss this in teams of two and write down the results on (digital) sticky notes.	If you had the chance to design multiple interfaces, what would be the most important differentiators?	Teams of two
15 minutes	Draw/write this in teams of 2	Which processes, steps, methods, tools, and documents should be included in the tool?	Teams of two
15 minutes	Structured brainstorm	What is the joint vision on a tool for the UX Lab?	All participants

Figure 21: tructure of the co-design session

3.4 Results of the co-design session

3.4.1 The concrete expectations about the tool for the UX Lab

To answer this question, a Mindmap was made with the main question: How should the tool support user research in the UX Lab. The Mindmap showed examples of requirements that were repeatedly mentioned in the interviews with clients and employees: the tool should make user research fun, the tool should be reusable, the tool should include all methods for user research, he tool should be scalable, the tool should support education of the clients, The tool should support a short lead time. The participants thought of multiple ways to make these requirements concrete. This helps the participants to get in the right mood for the final assignment (Draw how you envision a tool for the UX Lab). Thereby this assignment helped to find out what the participants meant. Thus, what the idea is behind the requirement.

For the images of the digital co-design session, please see the Appendix.

3.4.2 The differentiating factors in the standardized protocol

The UX Lab is a productized service. This means that the UX Lab is not customized work, but a standalone product. However, the clients of GriDD and the questions they have vary extremely. Thus, the UX Lab should suit the client, but still maintain a standard approach. Therefore, insight in the differentiators will help to design the tool with a standardized method, while it takes the differences into account. With the help of Miro, the participants indicated which components should be standardized and which components differ per project.

The standardized components of the UX Lab are the steps of the user research and the explanation per step It is some sort of database or overarching

model that manages the expectations. What differs in each project is, the goal of the project, the client, the budget, and the language of the client. These differentiators should be considered for the design of the tool. This can be done by applying user profiling in the tool, which will be elaborated on in the next chapter.

For the images of the digital co-design session, please see the Appendix.

3.4.3 The vision on a tool for the UX Lab

In this assignment, the participants had to draw their vision on what a tool for the UX lab should look like. The Tool is looked at from different perspectives, as you can see in the drawings hereunder. As a research method generator, as a database, as a platform on which you can conduct the research and as a protocol. These different perspectives help to think about the main functions that the tool should have.

Nicky

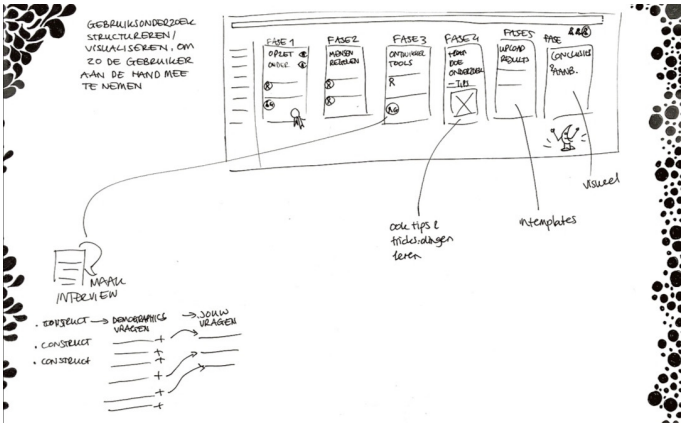


Figure 22: Nicky's vision on a tool for the UX Lab.

Nicky made a Tool that is divided in different phases. Like a Trello board. It is visible who needs to work on what. GriDD or the client. You get a reward when one phase is done. Every phase consists of steps. These steps for example exist of interview questions that you can personalize to your own projects. The Tool also contains tips and tricks for the client. The results of the tests can be put into templates. You need to be able to save the results to review them at a later moment. The results need to be visual, structured and clear.

Patrick

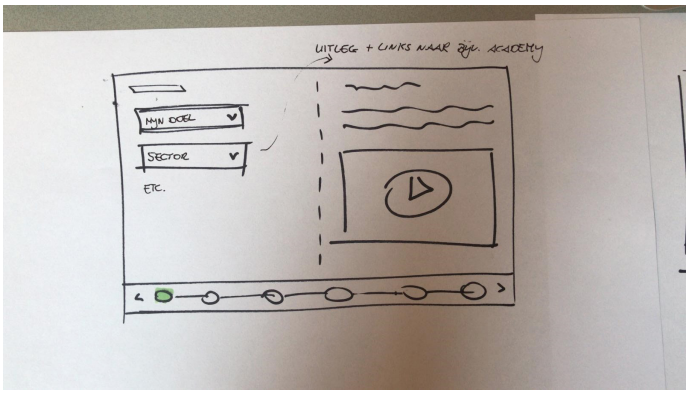


Figure 23: Patrick's vision on a tool for the UX Lab (1).

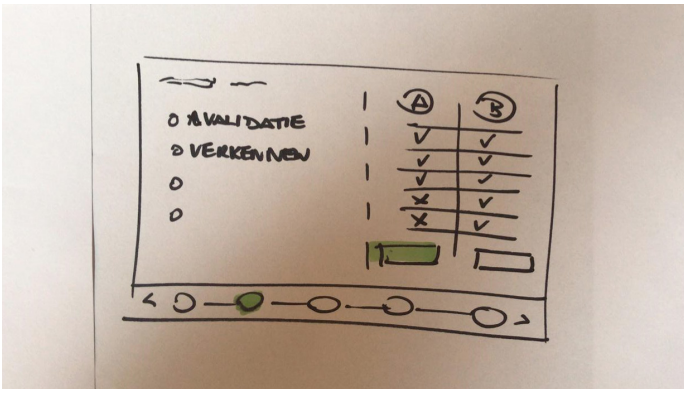


Figure 23: Patrick's vision on a tool for the UX Lab (2).

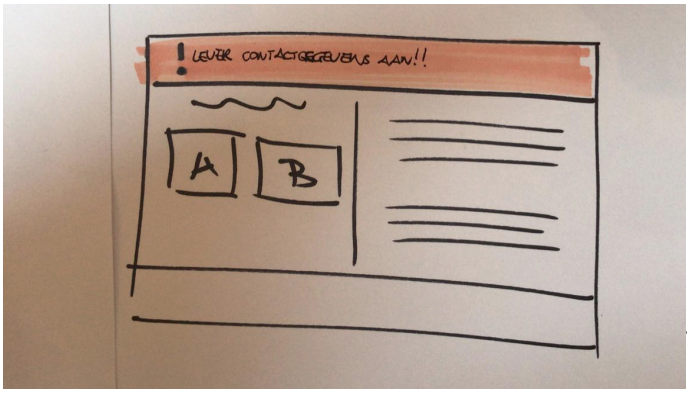


Figure 23: Patrick's vision on a tool for the UX Lab (3).

It is clear where you stand and where you are heading to. The Tool also refers to the academy. Explanation is given via video. Steps are shown per phase. Depending on the input of the client, the methods that are used are determined.

Jeroen

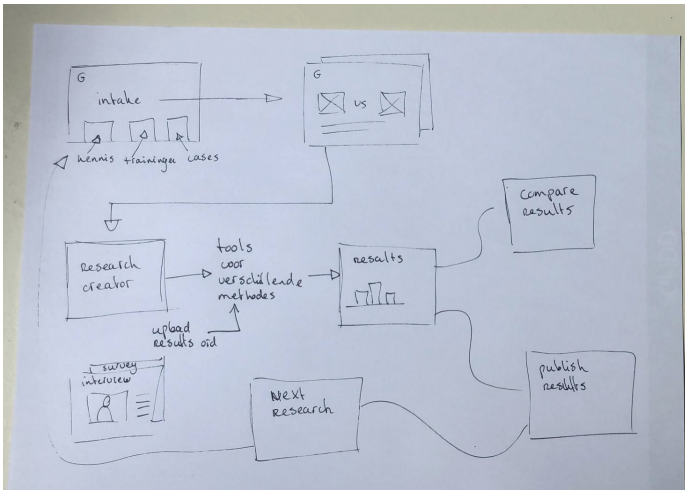


Figure 24: Jeroen's vision on a tool for the UX Lab.

The Tool is repeatable. After the results are published, you can directly start a new research. GriDD does the intake. Then a research creator follows. By uploading your input in different tools, you will get a visual result. The result needs to be comparable and have an option to publish them.

Mark

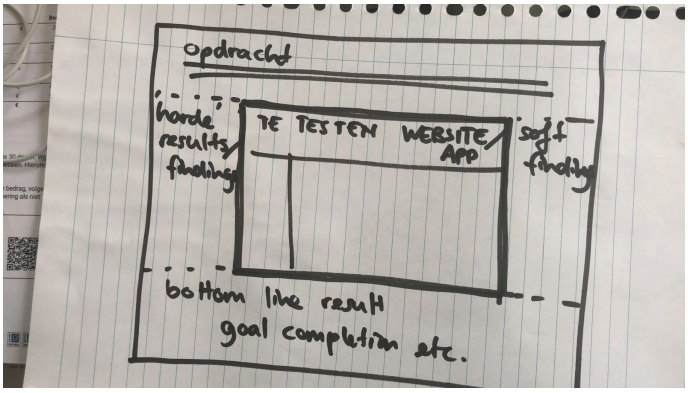


Figure 25: Mark's vision on a tool for the UX Lab (1).

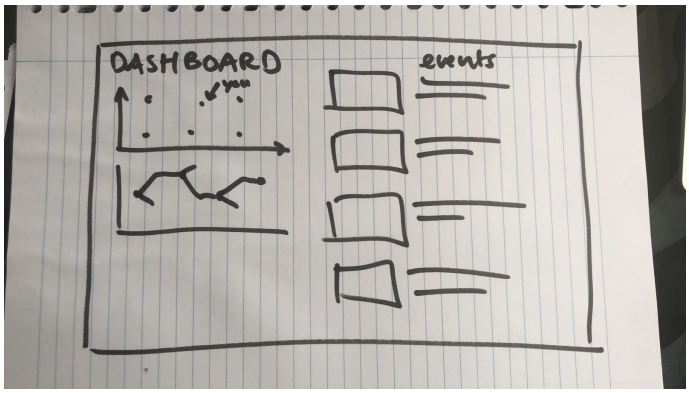


Figure 25: Mark's vision on a tool for the UX Lab (2).

The subject of the research is central in the Tool (for example and app or website). A difference is made between hard and soft findings. The goal completion is visible. In addition, a dashboard that visually shows the results of various parts and the events that take place

3.4.4 Concluding what is the joint vision on a tool for the UX Lab

To clarify and specify the joint vision of the GriDD team on a tool for the UX Lab, a structured brainstorm was held in the co-design session. By teaming up the participants and letting them do individual assignments, whereafter they could discuss their perspectives, a joint vision was found.

The joint vision on a tool for the UX Lab helps to determine what is relevant for a tool that will facilitate user research. Within the Co-Design session, three main perspectives came forward:

- One thing that is extremely important, is to involve the UX researcher in the process. UX researchers should have a reason to use the tool. Added value is the constant context and guidance that the tool offers to make the process efficient and accessible.
- Secondly, involving clients in the process. A dashboard with the latest results, coaching, explanation videos, and tools might help to

draw clients to the tool. It is a unique selling point for clients to be high level involved in the process of user research.
- Lastly, the content of the tool needs to be correct in order to deliver an excellent user experience. The user always needs to be able to see where he is in the process, and what he should do next in a pragmatic way. Therefore, the steps of the process need to be extremely clear.

The requirements that were setup are validated in the co-design session. Although the perspectives of the different employees are different, they all meet the requirements. Therefore, the requirements are found valid.

3.5 The how and why of creating personas

In the co-design session was already mentioned that the goal of the project, the client, the budget, and the language of the client differ in each project. To find out what the similarities and the differences are that are important to include in the Tool, personas are created, and user profiling is applied for the UX Lab. The motivation of building user profiles is that users differ in their preferences, interests, background and goals. Discovering these differences is vital to providing users with personalized services (Schiaffino & Amandi, 2009).

Personas are very helpful to understand and define the users. They focus on the 'why of customer behavior, not the 'what'. A persona is a representation of an important group of users for who you would make different design decisions and is based on user research (Pul, 2018). If the users are not defined, everybody makes (different) assumptions about who they are. For this project personas are created to investigate in and define the different types of UX Lab clients.

The UX lab is a standalone product. So, the idea is that GriDD doesn't spend too much time on executing it. Everyone follows the same protocol, so it is not customized work. However, GriDD's customers are diverse. That is why there are often small adjustments in the approach. The wishes and needs of the customer are included in the approach. The personas help to identify the areas where the clients of GriDD differ, so you can offer a complete approach that takes those differences into account. By applying user profiling at the beginning of the project, you converge the approach of the project to suit the customer, but still maintain a standard approach.

The current personas of GriDD are made in 2017. Since then, they have not been updated, and not been consistently used in the design process. Recently, GriDD as a company shifted focus from CX (customer experience) to CD (customer dedication). However, the personas are not updated in relation to this shift.

Several clients were interviewed about the UX Lab. These interviews will help to update the GriDD personas. However, the number of interviewees was not sufficient to create personas solely based on these interviews. Therefore, the personas will be updated based on, the old personas, the interviews, and a conversation with Jeroen, the director of GriDD, who created the old personas. This will help to find patterns and group similar people together and prioritize the personas. Following the formula for creating personas (Goltz, 2014), I designed three personaswhich can be found in the next section.

Dirk - Product owner

Quote
Passion for results.

Personal Profile
Dirk is a 38 year old product owner, with experience in digital marketing. He works at a B2B organisation, leading the innovation of their digital products. Dirk is married to Maaike, and together they have two children aged 7 and 4. He lives in Rotterdam and travels 40 minutes to work every day.

Digital maturity of the person
Dirk is into technology. He knows all about the newest gadgets. He mainly uses the internet for LinkedIn and online purchases. The online world is woven into his offline life. However, Dirk will always put away his phone to have some family time.

Relation to business
Dirk leads several small teams, and has two managers above him. He interacts a lot with people in the same business category via LinkedIn. His organisation hires several companies to help out with their projects on specific parts. With most of these companies, Dirk's organisation has a permanent relationship.

Knowledge and proficiency
Dirk studied marketing and sales. Web experience and digital products are his speciality. He has extensive knowledge about the back-end of digital products. With this knowledge, Dirk wants to optimize the digital products of his organisation.

Specific goals/needs/attitude
I am guarding our digital products. The website needs to be in line with the brand. I am a professional and have great responsibilities. Therefore, I can not permit mistakes. What frustrates me is that we do not always have the budget to measure the impact of our work, and that we do not know an efficient way to do that. I feel like there is still room for optimizing our digital products, till perfect.

Photo

GriDD consultancy

Figure 26: This persona represents the larger companies that do have budget to invest in user research. They know it is important, but it is not the most important job on their list. User research must fit within their projects and match their way of working. Excellent results for an accessible price are what will convince them.

Sietse - CEO

Quote
Creating impact through IT.

Personal Profile
Sietse is 34 years old and started his own company a little less then two years ago. He owns a company that creates hardware and software for B2B and B2C clients. The projects that he works on are divers. Sietse has a girlfriend, with who he lives together, just outside a medium-sized city.

Digital maturity of the person
Sietse is interested in technologies. He uses activity trackers to keep up with his sport scheme. However he can also be sceptical towards new technologies. Sietse does use social media, but is not that active. He rather reads the newspaper every morning during breakfast.

Relation to business
Sietse manages a team of 7 people. Due to his former work experience, he built up several relationships that can be useful for his company today. He tries to keep his ears open, when talking to new people. He now mostly runs single projects, but he would like to build stronger relationships.

Knowledge and proficiency
Sietse studied industrial design engineering in Eindhoven, and specialized in human technologies. He uses his broad knowledge to run his company on every aspect.

Specific goals/needs/attitude
Sietse wants to make others enthusiastic about what he is doing and tries to convince others of the importance of his work. He is frustrated by technologies that are too complex. Sietse wants to make complex technologies simple. He creates ever changing solutions for that. The variety and challenges in his work drive him. Sietse does always want to learn new things and wants to collaborate in projects. He however feels that he does not always have time for that, since he needs to arrange so much other businesses.

Photo

GriDD consultancy

Figure 27: This persona represents a small or medium sized enterprise that does have basic knowledge about UX. They know user research is important, but do not have the resources or budget to do extensive research. They are convinced by a low price, and a short lead time, in combination with results that are clear, which will make their product visibly better.

Frieke - social worker

Quote
Connecting people.

Personal Profile
Frieke is a social worker for a large municipality. She is 29 years old and lives alone in an apartment in the city where she works. Her role is to make connections, especially between less fortunate and vulnerable people.

Digital maturity of the person
Frieke is not that interested in new technologies. She owns a smartphone and a laptop for her work, but that is it. She is however active on social media. Her knowledge about digital products is extremely superficial.

Relation to business
Frieke works in a department with lots of other colleagues. She is quite social, and she is happy with her position. Frieke is not actively looking for new challenges. She works on projects that her manager gives orders for. For these projects, Frieke comes in contact with lots of inhabitants of the city.

Knowledge and proficiency
Frieke studied to become a pedagogical employee. She is analytic and a perfectionist. That, in combination with her social personality, and her hands-on mentality, makes Frieke good in what she does.

Specific goals/needs/attitude
Her goal is to connect groups of people, to create a united city. Frieke wants to pass on her hands-on mentality to others, to make something out of their live. Helping people is what lights her up. A roadblock in her work is the freedom how to do her work. Due to budget and administrative work.

Photo

GriDD consultancy

Figure 28: This persona represents a small or medium sized enterprise that does not have knowledge about UX. The whole process of user research needs to be understandable, and at their level. They also need to be enthusiastic about the process. They can be convinced by modern technologies and tools, in combination with an excellent customer experience.

3.6 Creating a demand space for the UX Lab

3.6.1 User types of the UX Lab

Personas helped to gain insight in the different profiles of the clients of GriDD. User profiles will support the tool for the UX Lab to adapt to the user (Brusilovsky and Millán, 2007). This way, the tool can provide personalized assistance to users (Maes, 1994). The type of clients that GriDD has, as is reflected in the personas, results in the following categories of users for the UX Lab.

The first category are the larger organizations, mainly B2B companies (Figure 26). They work on a project basis. Therefore, they often do not do user research and testing continuously. They rather do large projects every few years, wherein one part of their digital products is improved. User research is not a rhythm for these companies. This causes drastic changes in the digital projects after every project, while evolution often works better in B2B companies then revolution. The needs of the users only change little over time in B2B companies. In larger B2C companies, user research and testing are a rhythm, because their digital products are their core channels to the outside world. These companies often assign complete teams for user research and testing. Since digital products are not necessarily the core channels of B2B companies, they do not feel the need for continuous testing. They feel like they know the users, and in combination with limited sources, this causes that user research and testing is often not done.

The second category consists of SMEs (Small and medium sized enterprises) with a smaller budget (Figure 27). They are interested in user research and testing, and they know that a good UX is important. However, they do not have an extensive knowledge about it. For them it is nice that they can have an excellent result for a small price. User research must then be offered at a low level, in small steps. The employees need guidance in the process of developing a good UX.

The third category are the people that do not have knowledge about UX themselves, however they do want to create or improve digital products (Figure 28). This can be, for example, startups that want to make a website from scratch, but do not know where to start. There is often little budget, and user research is not on the priority list. These people need to be convinced to do user research, by offering it in an extremely easy and accessible way. It can also concern people within an organization who do not understand UX themselves, but who do have irritations about the website, or receive feedback from customers. They should be able to easily understand UX and identify challenges and opportunities and share them with colleagues who are in charge of the UX.

The last category concerns practitioners and freelancers. They are people with knowledge about UX, but they lack practical tools and methods. GriDD can support this by giving out licenses. The freelancers make their clients pay for it. GriDD will then receive a part of the revenue. This differs from other categories, in which a client hires GriDD, and GriDD is paid directly.

3.6.2 Mapping the clients for the UX Lab

The following differentiators were used for the personas:

- Company size
- Role
- Digital maturity (person)
- Digital maturity (environment/organization)
- Width of content area/interest
- Innovation
- Information consumption
- Budget
- Independence
- Experience
- Design sensitivity

To categorize clients, their needs, behavior, and preferences should be mapped. The demand

space for the clients of the UX Lab consists of two dimensions. Those dimensions are the user typologies and the context of their issue. The typologies of users are based on the personas that were developed earlier. The same person might have different needs on different occasions. A client can have different needs when developing a digital platform for a new product compared to evaluating the existing website. Therefore, different occasions are created. These are based on the interviews with clients and the old differentiators.

The different occasions are divided in:

- Budget
- Role of the client
- Company size
- Experience level with UX
- Digital maturity of the products
- Time available
- Company category

The different typologies are:

- Larger organizations
- Small and medium sized enterprises
- Game-changers
- Practitioners and freelancers

The demand space is the space wherein users have similar needs, differentiating from other demand spaces. The corresponding need is the low budget and the lower level of experience with UX that clients have. This can range from smaller to larger companies and from immature to mature digital products.

Based on this data, user profiling can be applied for the UX Lab, to eventually give guidelines for the design of the tool. Taking these corresponding needs and differences in account, helps to optimally customize the Tool, while it stays a standardized product.

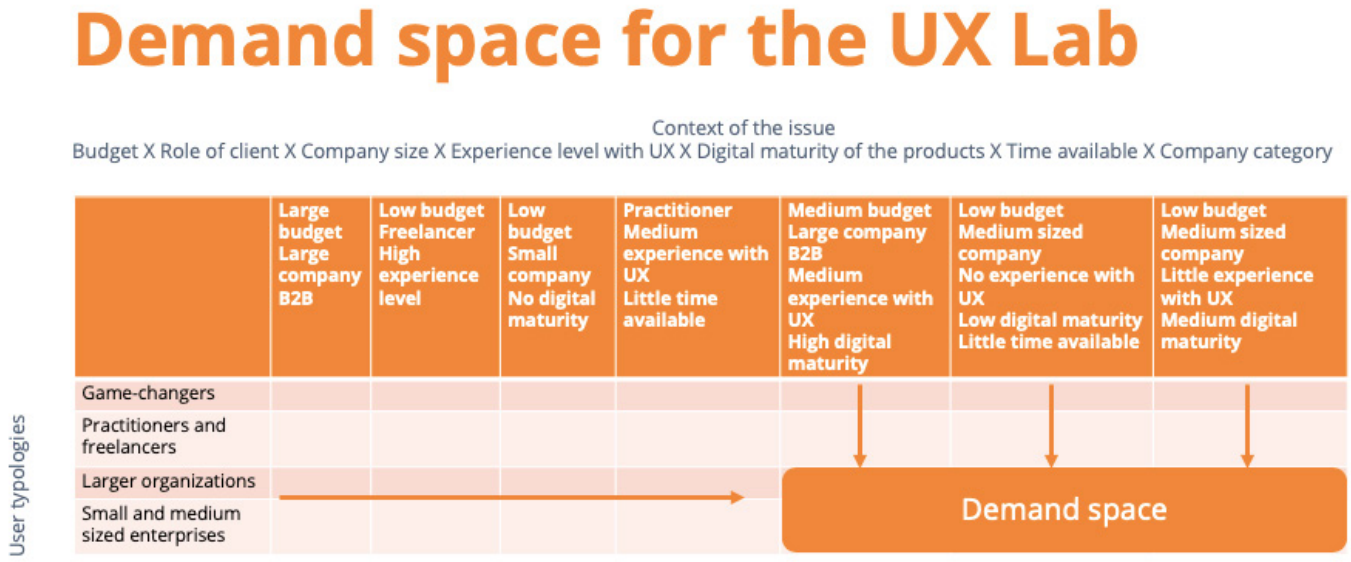


Figure 29: The demand space for the UX Lab

3.7 Profiling the clients of the UX Lab

In the demand space, the corresponding needs and the range of these needs were described. Two different user typologies arise from the demand space: larger organizations and small and medium sized enterprises. These typologies have three different contexts. The users in the demand space are profiled to explore the minor differences of the clients in this demand space. These differences match the most common contents of user profiles: the user's knowledge, background and skills; the user's goals; user behaviour; the user's interaction preferences; and the user's context (Schiaffino & Amandi, 2009). The explicit differences were found in the budget, the level of experience with user experience, the size of the company, and the maturity of the digital product. For all these categories is determined how to customize the Tool in such a way that it matches the different clients, while it stays a standardized product. By investigating in these differences, guidelines are made for the design of the tool. The next steps will be to think about the design and the functions of the Tool in an iterative process.

3.7.1 Clients with a lower budget

The clients of the UX Lab generally have a lower budget. The lower budget can have different reasons. Either the company is small, or user research is not considered important (due to lack of knowledge). The budget of the clients influences the package of the UX Lab they will buy. This has an influence on the depth of the analysis of the results. Analysing the results is customized work and therefore takes time. Because of this, the price will be higher when a client wants a more extensive analysis.

3.7.2 Clients with a lower level of experience with UX

Creating personas helps to understand the type of persons that will work with the UX Lab, and their needs. The level of experience with UX, for clients of the UX Lab, is generally lower. However, the connection that these clients have with UX still differs. To discover the minor differences in needs of clients with a lower level of experience with UX, personas are made. At the end of this Chapter, guidelines for the Tool will be given, based on these personas.

3.7.3 Size of the company

The size of the company varies a lot for clients of GriDD. The size of the company often correlates with the budget of the client and the experience level with UX of the company. Most important, the language of the company differs. Larger and smaller organisations have diverse interests. Ideally, the UX Lab would take the differences in the language of the companies into account.

3.7.4 Maturity of the digital product

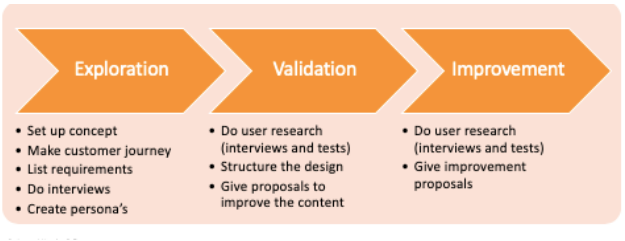


Figure 30: The types of projects including user research

As described in Chapter 2, there are three different phases in a (client) project where user research can be valuable. Exploration validation and improvement. Clients approach GriDD with a question or problem that always fits in one of these phases. The approach and methods that are used, vary between these phases. Therefore, a distinction can be made in the type of project based on the phase that the client is in with his or her (digital) product. By profiling in this way, the UX Lab can be customized for different clients, without extra work. It stays a product. Not customized work.

3.8 Guidelines for the tool based on user profiling and personas

- The corresponding needs and the range of the needs from clients of the UX Lab are the budget, the level of experience with UX, the size of the company and the maturity of the digital product. Therefore, the Tool should take these differences into account.
- The budget of the clients influences the package of the UX Lab they will buy. This has an influence on the depth of the analysis of the results. Analysing the results is customized work and therefore takes time. Because of this, the price will be higher when a client wants a more extensive analysis.
- The maturity of the digital product influences the type of project that will be executed with the UX Lab. The maturity of the digital product says something about in which phase the client is: exploration, validation, or improvement. Depending on the phase, a different research setup is required.
- The results should be excellent and pragmatic. The client needs to feel like they can do something with it now, and in the future. This applies to the quick insights, but also to the complete analysis. Therefore, the results should be visual and structured.
- The customer experience must be excellent. While navigating through the tool, the client the overall connection with the organisation should be positive.

3.9 Taking user profiling into account in the design of the tool

Clients can choose from three different UX Lab packages, varying in price, ranging from about €2000 to €4500. The size of the company often correlates with the budget of the client and the experience level with UX of the company. Clients with a lower budget can choose for the budget package, while clients with a higher budget can choose the enterprise package. The difference is in the analysis of the results. Quick insights are delivered when choosing for the budget package, while a presentation of the results, coaching, and a check-in session, is offered in the enterprise package. This choice is recorded when starting the project. It thus influences the analysis phase.

The goal of the project also differs per client. The goal of the project influences the type of user research that is suitable for the project. The goal of the project is influenced by the maturity of the digital product of the client. The maturity of the digital product says something about in which phase the client is: exploration, validation, or improvement. Depending on the phase, a different research setup is required.

The client and the language of the client also influence the way that the UX Lab is performed. The language of clients depends on the size of the company and their experience with user experience. Larger companies often do not see user research as the most important job on their list. Therefore, the tool should fit into their projects. Smaller companies have a less predetermined way of working. For them it is important that the tool offers guidance for now and the future.

When a client is not experienced with UX, he will probably need lots of guidance and context in the project to stay involved. The UX Lab specialist should communicate in a clear accessible way, so that the client will understand him. For example, e-mails and protocols should be extremely clear. When a client is experienced with UX, he will need less context and more in-depth information about the research. Excellent results in a clear overview is of great importance.

Chapter 04

04 | Developing the prototype

[This chapter works out the roadmap of the tool to clarify its process. This will be followed by going through the stages of engineering and designing a user interface.]

4.1 Working out the roadmap of the tool

A roadmap of the Tool is developed to help specify what the needs of GriDD are, what the needs of clients are, and what are the touchpoints with the Tool. The roadmap will be based on information from the interviews and co-design session. This will also clarify which functionalities belong to the Tool. Questions to keep in mind are:

- Why should this tool exist?
- What does it need to work?
- Which functions does it have?
- Which steps do the functions have?

When the answers to these questions are clearer, prototyping is used to develop the front-end of the Tool and set up a user test.

4.1.2 Visual of the roadmap for the tool

This roadmap as can be seen in figure 31 is developed to map out the steps of the UX Lab. Thereunder the needs and worries of clients are explained per step. These needs and worries are retracted from the different interviews. This way touchpoints are identified, to find out where support from the tool is essential. The upper row shows the functionalities of the tool that could support the touchpoints.

4.2 Functions of the tool

hier paragrafen van maken

To develop the tool, a top down approach is used. Working from the overarching question 'why should the tool exist' towards the concrete functions of the tool. This way is determined which functions are actually important. This helps to make quick decisions, and thus scope the project, which is important when time is limited. This is the first step towards developing the first prototype.

The goal of the tool is to guide the user throughout the user research, by visualizing and structuring the steps of the process. The tool should include all the steps per phase and the corresponding documents that are needed. The overarching reason to productize the UX lab is to log knowledge, make user research cost less time, thus less money, and to attract new clients.

Therefore the tool needs at least an interface, a protocol of all steps and the corresponding documents, multiple people being able to use it at the same time, a dashboard to see, save, and share the results, and references to other GriDD products/services.

Functions of the tool are to scan clients, upload, save, and download documents, build a research plan, support user research, and show results.

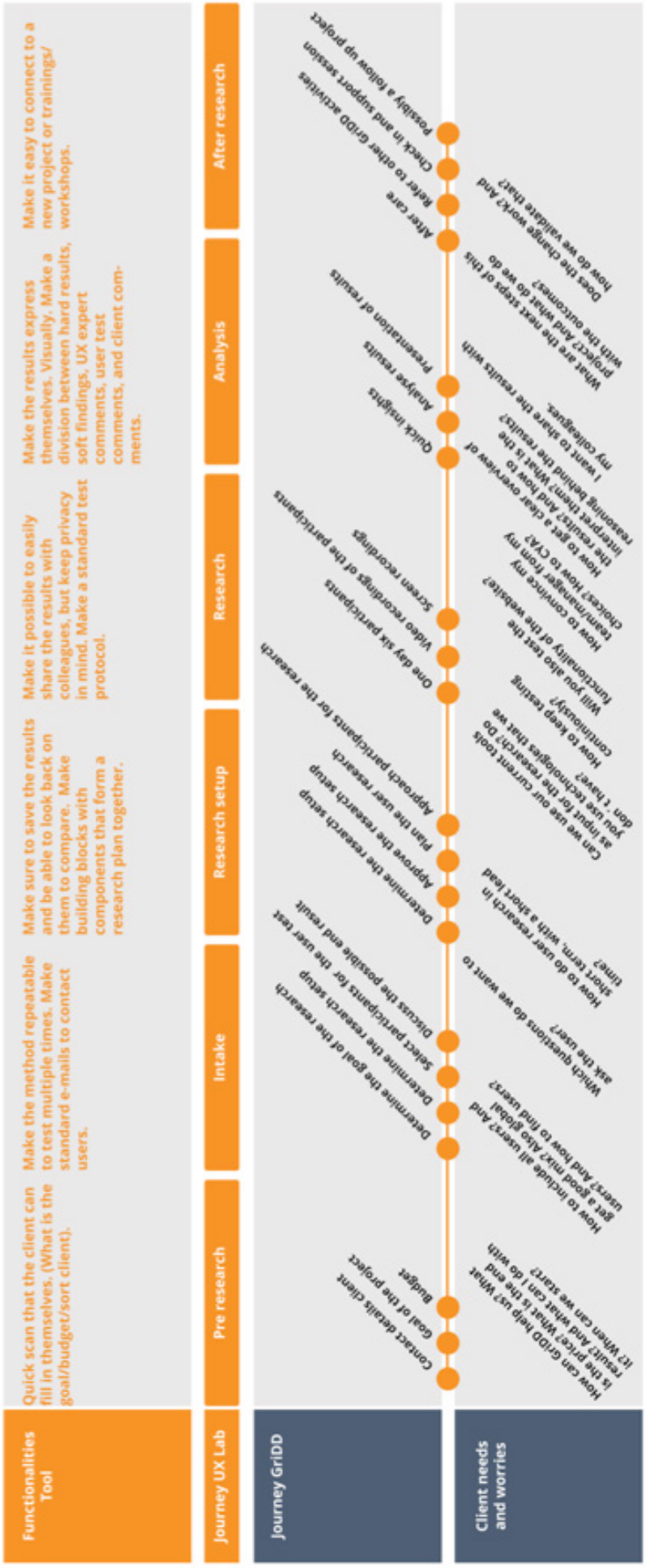


Figure 31: The roadmap that maps out the steps of the UX Lab.

4.3 The process of user research in the tool

To create a prototype for the tool of the UX Lab. It is important to work out the content, which is, the process of user research. To work out the roadmap of the tool for the UX Lab, first the phases are defined. This will help to clarify which screens contain which information, where this information comes from and what the next steps are.

4.3.1 Pre research

The goal of this phase is to convince the client to buy the UX Lab. The pre research phase is contact point zero. This is the first moment the client comes into contact with GriDD (in combination with the UX Lab). The client is looking for information about the UX Lab, and when interested, wants to know more, or wants to contact GriDD for an intake. A quick scan, to test the user experience of your digital platform, can help as a means of sales for the UX Lab. This ensures that the client is involved with the user experience of their digital product from the beginning. It should be clear for the client at this point how the UX Lab can help to tackle their issues. Clients can hire the UX Lab in different contexts. The client might have no history with GriDD and discovers the UX Lab via social media on the website. The client could have a history with GriDD and is offered to use the UX Lab in one of their projects. Or the client does have a history with GriDD and is interested in the UX Lab as a separate project. It is important to keep these contexts in mind when talking to clients. When the client is determined to purchase the UX Lab, he and the UX researcher will go through contact details of clients, the global goal of the project, and their budget. Based on the budget, a certain package is chosen for the UX Lab. Based on the goal, the UX Lab specialist chooses an approach.

4.3.2 Intake

The client has chosen from three different UX Lab packages. These packages are budget, standard, and premium. The variation between these packages is in the extensiveness of the analysis of the results. Also, the type of project is chosen. These types are exploration, validation, or innovation. The type of project will influence the research setup.

- In an exploratory project there is usually a new product or service to be developed, it is important to understand what the user needs. To map this out, remote interviews can be conducted.
- During a validation project, a concept has already been drawn up and validation can take place by means of a usage test with a (simple) prototype or the first sketches of the concept. This helps to detect and adjust errors and / or incorrect assumptions at an early stage, which is usually easier to fix than in a final version of the product.
- An innovation project usually involves looking at an existing product and looking for opportunities for improvement. Users may be asked to use the product during a usage test to perform tasks and thus see where improvement is possible.

The goal of this phase is to clarify the goals and wishes of the client. These are discussed with an expert. Also, is discussed which (minor) changes in approach are needed. A global research setup is created, and possible participants for the research are selected. Lastly, the possible end result is discussed. Helpful for this is the intake template that GriDD already developed, which consists of questions to go through in the intake.

4.3.3 Research setup

The goal of this phase is to finalize the research setup. Based on the intake, the UX specialist makes a proposal for the research and how to carry it out. First the main objective of the research is determined, and then is considered which themes are important in this respect. The themes are

converted into measurable criteria and on the basis of this questions and user tasks are drawn up. The tasks are drawn up based on the intended process, previous user research output, a top task analysis, an interview, or surveys. Directly thereafter, the expected outcome and action-oriented insights from tasks are defined (GriDD, 2020).

Based on the type of project (exploration, validation, innovation) default settings for the components of the research setup are set. Although the UX specialist can remove or add certain components based on his expertise or based on the wishes from the client.

After the research setup is made, the UX Lab specialist and the client can start planning. Generally, one day is reserved for tests with users. Participants can be selected based on the target group that was discussed in the intake. The UX Lab specialist and the client are both responsible for recruiting respondents. Helpful for this phase would be a template to log information about the research setup and the respondents.

For GriDD, it is important not to start with a blanc page. Not reinventing the wheel. Therefore, it is useful to have a default plan for the research setup. A protocol. The protocol consists of:

4.3.4 Research

The goal of this phase is to do user research to eventually meet the goal of the project. Research data is gathered through user research. In the research setup is determined which type of user research will be performed. All the user research methods have their own steps and templates. Thus, the protocol depends on the type of research that will be performed. In the templates, the UX specialist can save the results of the user research. The tool should provide a place to upload the templates, videos, and comments of the user research in a clear visual way.

The protocol consists of:

- Introduction
- Explanation of the test
- Explain that you will test the product, not the user
- Ask participants to be honest and sincere
- Ask participants to speak out loud
- Questions and tasks
- Closing
- Assess the usage test
- Explain what will happen with the results

Make sure to take notes during the test and when reviewing the recording. After each session, make a list of the most important usability problems that the participant encountered. It is important to focus on where the participant got stuck and not to do what the participant says (GriDD, 2020).

Possibly, the clients want to watch along with the user research. For the clients, it is important to see with their own eyes, how their users react to their product. This makes them optimally involved with the user experience of their product. Besides, it could be useful for them to share the results of the usage test with colleagues, as a way of justifying their (design) choices.

4.3.5 Analysis

The goal of this phase is to analyse the results of the user research in order to provide the client with pragmatic recommendations for now and the future. Since the client needs to be able to place the UX Lab project in the bigger picture. This means that they want to know what to do with the results. Depending on the chosen package, the extensiveness of the analysis varies with three categories:

- Quick insights: Document with the results of the user test
- Analysis of the results: Document with the results of the user test and analysis

- Presentation results: Document with the results of the user test and analysis, and a presentation of the results and analysis.

Make sure to take notes during the test and when viewing the recording. After each session, make a list of the most important usability issues that the participant encountered. Focus especially on the most important problems and come up with solutions for them (GriDD, 2020).
Clients need a clear visual overview of the results. The results need to be presented in a pragmatic way. This can be done via a report and/or a presentation. The report is structured as follows. It starts with giving a management summary in which the context, the goal, and the conclusion of the user research is explained in short. In the introduction is explained in more detail how the user tests were executed. The results are elaborated theme. The answers are prioritized, based on how often something is said. A conclusion can be drawn from these prioritized answers.

4.3.6 After research

After the UX Lab is executed, the client will have the results analysed in a report. When the client takes an enterprise package of the UX Lab, he will also receive coaching, and a check-in and support. The goal here is to offer an excellent customer experience, hoping that the client wants to do follow-up activities.

An after-care e-mail can be sent to the client including information about the place to find the results, contact details from the UX Lab specialist so that the client can ask questions, and information about the check-in and support afterwards. Important is to create a safe place to save all the results in a clear and visual way.

First a prototype is created, *'which enables to measure the product's efficiency prior to proceeding with functionality issues and finalization of the project.'* (UI Designer n.d.) To see whether or not to proceed with finalizing the project, a business plan is made.

4.4 Stages of engineering and design of user interfaces

For the design of the tool, the stages of engineering and design of user interfaces is followed. Following these steps will ensure that the user interface will meet the highest usability standards and satisfy the specified user and organizational requirements. The stages of engineering and design of user interfaces can be found below (Sergeev, 2010).

1. Identification of users and contexts
2. Structural navigational design of interface
3. Compositional design of interface
4. Visual design of interface
5. Design of the product's prototype
6. Usability testing of prototype
7. UI specification

4.5 Identification of users and contexts: Usability analysis

This step describes the usability analysis, outlining potential user capabilities of the product vs. the initial business and functional requirements and limitations.

4.5.1 Identification of ways of the product's application

The goal of the UX Lab tool is to guide the user throughout the user research, by visualizing and structuring the steps of the process. The UX Lab as eventual product has two applications. Firstly, the tool will be used by employees of GriDD to execute user research for their clients. Secondly, partners of GriDD can use the UX Lab tool to execute user research for their clients. These partners need to follow a training in order to get a (one year) licence to use the UX Lab.

4.5.2 Identification of the general target audience's attributes

The target audience in this case can have two different meanings: The UX Lab specialist who uses the tool, and the client who buys the tool. The client can watch along in the client view of the tool. Their gain is a short lead time and clear results. They are paying; thus, it is important to take their attributes into account to.

The UX Lab specialist is either an employee of GriDD or one of their partners. These persons have experience with doing user research.

There are three types of clients who can buy the UX Lab. Either a larger company that does have budget to do user research, however user research is not their priority. A small or medium sized enterprise that does how knowledge about user research, however they do not have the resources or budget to do extensive research. Or A small or medium sized company that does not have knowledge about user research.

4.5.3 Identification of usability goals of the target audience

For the UX lab specialist it is important that they do not want to reinvent the wheel every time they do user research. Therefore, a standardized method is needed. A standard method is objective and can be certified. However, the standardized method needs room to customize for different clients. The UX Lab specialist need guidance in the process of user research. They should not have to think about which steps they need to do and how. This should become clear in a natural way through the tool. This is needed to achieve a short lead time, with clear results.

The different clients are convinced of the UX Lab in different ways:

- Excellent results for an accessible price are what will convince them.
- A low price, and a short lead time, in combination with results that are clear, which will make their product visibly better.
- The whole process of user research needs to be understandable, and at their level. Larger and smaller organisations have diverse interests. Ideally, the UX Lab would take the differences in the language of the companies into account.

4.5.4 Identification of users' roles vs. goals, ranking of goals' importance for users

These are the goals that the UX Lab specialist wants to reach with the tools, ranked on importance.

- Doing user research in a correct way without investing a lot of time
- Have a clear overview of the results
- Upload, save, and download documents
- Scan clients
- Build a research plan without investing a lot of time
- Be interactive with clients without investing a lot of time

For the clients the following goals are important, ranked on importance.

- Doing user research in a short amount of time
- Having clear pragmatic results
- Being involved in the user research
- Understanding user research

4.5.5 Identification of functionality options necessary for meeting the target audience's goals and objectives; ranking of functionality attributes dependant on how well they help to reach goals

- Support user research
- Show results
- Upload, save, and download documents
- Be interactive
- Scan clients

- Build research plan

4.5.6 Comparative analysis of functionality and content vs. competitor's products

The UX Lab tool offers consistent context and guidance in the process for user research. Thereby it involves the client. The difference with existing tools is that existing tools often have a specific application, for example, one type of user research. Other tools are not as holistic and only take into account the research itself instead of the whole process and the steps thereafter.

4.5.7 Consideration of business and functionality-related limitations

The limitations for the tool depend on the knowledge and resources available. GriDD does not have the knowledge to develop the tool on the back end themselves. However, TRIMM is able to develop the tool as desired. Depending on the budget, the tool can be developed as desired. Thereby, we want to make the tool part of the GriDD website. A separate environment that users need to log on to. The website is created in WordPress. Therefore, the functionalities of the tool are restricted to the limitations of WordPress.

4.5.8 Choice of the optimal product's interfaces enabling to reach the key business goals of the project

The more interactive the tool should be, the harder and more expensive it will be to develop. For the prototype an ideal design will be made. In this design The tool will be interactive in such a way that different persons can work on it at the same time; The tool will be connected to a drive, to download, upload, and save documents; The user will be able to make choices that influence the next steps in your process. These are functionalities that are important to create an excellent customer experience. However, when the budget does not allow it, some of these functionalities will be left out in the design. Without these functionalities, the tool will still work, but not with the most excellent customer experience.

4.6 Structural navigational design of interface

This step describes the UI-structure outlining. The pattern of the tool's interface and the path the user follows.

4.6.1 Designing scenarios outlining the "user-product" interaction in order to reach the goals

Figure 32 describes the user-product interaction of the tool for the UX Lab.

The UX Lab specialist has a client for the UX Lab. The UX Lab specialist opens the UX Lab tool via the website and creates a new UX Lab project for the client. In this environment, he can execute user research, while the client can watch along in the client view.

The client has approached GriDD or one of their partners to help them with user research. They agreed on a project and have chosen to work with the UX Lab. The client will soon receive login data to watch along with the UX Lab expert.

The first step is to do an intake. Luckily the UX Lab specialist finds tips for the intake in the tool. Now he knows how to approach the client in a correct way. An example e-mail and a quick template make sure that the UX Lab specialist does not need to invest much time in writing an invitation for the intake. Just copy, fill out, and send the mail. When an appointment is made, the UX Lab specialist downloads the intake template directly from the tool. It contains questions to ask during the intake, and fields to fill out the answers. The UX Lab specialist uploads the answers to the tool and sees that the first phase of user research is completed!

The client is approached by the UX Lab specialist to plan an intake. He received the log in data for the UX Lab tool. The tool shows the confirmation of the intake date. The intake took place at the office of the client. Afterwards, the client opens the tool to look back on what was discussed in the intake. He sees the notification that he already needs to orient on participants for the user research.

After the intake took place, the UX Lab specialist choses which type of user research fits the project best. The tool gives some suggestions for the components that the UX Lab specialist can use. Each component has its own instructions. The tool helps the user step by step to set up a research plan, including a protocol. The UX Lab specialist wants to approach possible participants and plan the user tests. The tool offers email templates and a planning assistant. The tool remembers the UX Lab specialist in time to do his tasks.

The client sees that the UX Lab specialist is working on the research setup. When the UX Lab specialist has finished the research plan, the client receives a notification from the tool. He downloads the document and reads it through. It looks good! He lets the UX Lab specialist know via the tool. The client already found participants for the user tests. He uploads their data to the tool so that the UX Lab specialist can start planning the user tests.

On the user test page, the UX Lab specialist finds a video with recommendations about how the user test should be executed. It was informative to watch. All the tips are now fresh in his memory. The UX Lab specialist uses email templates to invite the participants for the user test. The UX Lab tool notifies the UX Lab specialist to prepare the user tests in time. The UX Lab specialist follows the protocol for the user test that was created in the setup phase. The UX Lab specialist downloads the user test template from the tool. It contains the questions that were created in the setup phase. He can fill the template out with the answers of the users. Eventually he uploads the results to the tool, which helps him to organize the files correctly.

The client receives an invitation to attend the user tests. He is available that day in the afternoon and updates the UX Lab specialist via the tool. In the tool, the client is able to see who is interviewed and what questions will be asked.

The UX Lab specialist now needs to analyse the results for the client. The tool guides him in how to do this. By using the protocol of the tool, analysing the results does not cost much time. The results are pragmatic and offer guidance for now and the future. A template for a clear report is present in the tool. It can be filled out by the UX Lab specialist. The tool helps to analyse the results in such a way that a presentation can be derived from the results. The tool offers tips, tricks, and templates for the presentation of the results.

After the user tests are executed the client can look at the notes that were made during the tests. In the tool, he can exactly follow the progress that the UX Lab specialist is making with the analysis.

On the last page the results of the project are presented in a clear visual way. The most important conclusions or guidelines are listed on top of the page. Also, the more extensive report can be found here. The UX Lab specialist can upload snippets of the videos of the user tests. The UX Lab specialist receives tips about next steps to take, like rounding off the project and initiating other GriDD activities. Also, for coaching and a check-in session when the client requested this.

The client receives a notification that the results are analysed. He goes to the result page and directly find a clear overview with the most important results. He is showing it to his direct colleagues. Scrolling down, he finds videos of the user tests. The client plays the videos and they really impress him and his colleagues. The comments on the videos are so clear. The client makes an appointment with the UX Lab specialist to give a presentation of the results. In the tool, he finds all the steps to prepare it. After the presentation, the client receives an email from the UX Lab specialist, about the rounding off of the project. He might be interested in a workshop form GriDD and is directly able to contact the UX Lab specialist.

Figure 32: The user product interaction of the UX Lab tool

4.6.2 Development of the information architecture and structure and navigation interface design providing optimal functionality, content and user interaction scenarios

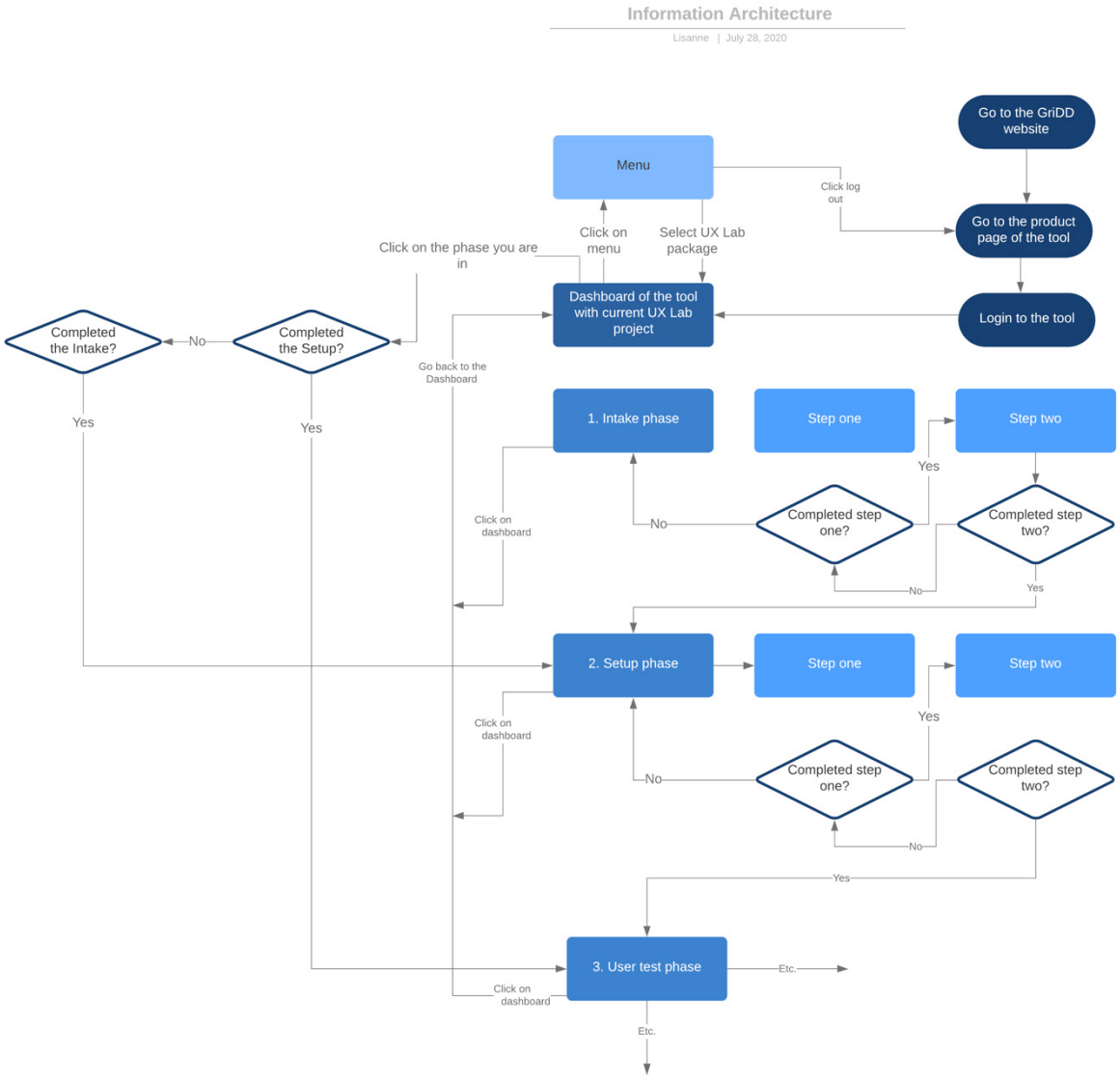


Figure 33: information architecture of the tool for the ux lab

4.7 Compositional design of the interface

This step describes the UI-design featuring a catalogue of the key screen interface forms and requirements to location, priority, form and content of information, graphical and functional elements.

4.7.1 Layout design of the structure's pages, which are to feature on a screen

1. Intake
    a. Goals and end result
        i. What do we want to learn?
        ii. Wat will we do with the results?
    b. Target groups
        i. Which target groups do we need to achieve these goals?
        ii. Which target groups do we want to exclude from this research?
        iii. Are there specific businesses that we need to take into account?
    c. Stakeholders
        i. Who are (also internally) involved in this project?
        ii. What are subjects for the Kick-off?
    d. Available information
        i. Which information and tools are already available?
            1. Any other businesses?
        ii. Next steps
            1. Plan the Kick-off session
            2. Make a list with possible participants

2. Setup methods and process
    a. Kick-off
        i. Planning
        ii. End result
        iii. Participants for the user tests
    b. Coaching session
        i. Introduction to user research
        ii. Research methods
        iii. Setup main and sub questions
        iv. Define target groups and select respondents
    c. Setup methods and process
        i. Customize method and process where needed
        ii. Invite participants
            1. First contact with participants. Invitation from the client.
            2. GriDD proposes a date and gives more information
            3. Plan appointment
            4. Aftercare e-mail

3. Research and support
    a. Research and support
        i. Joint preparation for the interviews/user tests
            1. Guidelines
            2. Note taking
            3. Recordings
        ii. Interviews (divide)
        iii. Joint (short) session to discuss the first impressions

4. Analysis and results
    a. Analysis results
        i. Coaching session analysis results
            1. Do's and don't
            2. Process results efficiently
            3. Get started
        ii. Further analysis of results
        iii. Go through final results and recommendations

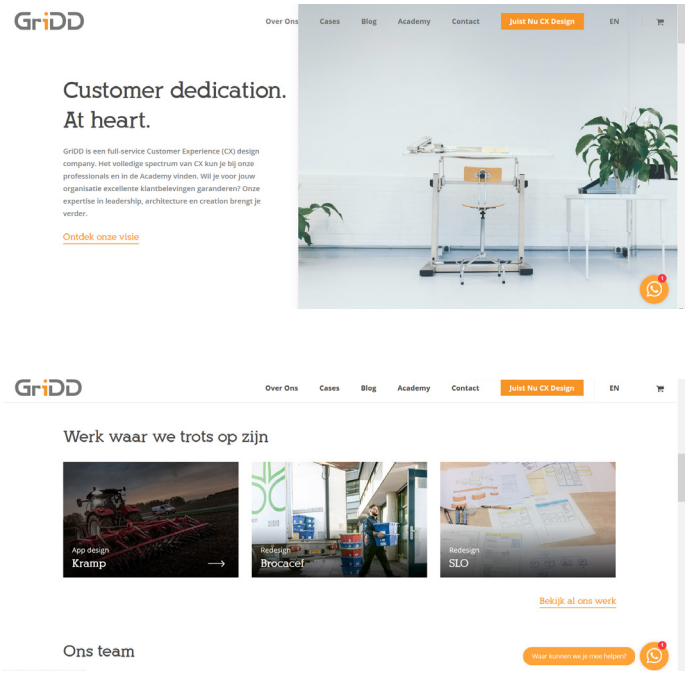
5. Results and check-in and support
    a. Check-in and support
        i. After X weeks (determine together)
        ii. Discuss what is done with the results
        iii. Thresholds or other points of attention
        iv. Next steps

4.8 Visual design of the interface

This step describes the GUI-design outlining visual standards of information, graphic and functional interface elements.

4.8.1 Designing of creative visual elements of the interface to meet the brand-book standards and the corporate identity

In the feedback came forward that the graphical style of the tool is important. The tool will be part of the GriDD website. It will be a separated part that the specific users need to log on to. Thus, the style of the UX Lab tool, should match the style of the GriDD website. Therefore, a style analysis is done. From the style analysis, a number of design guidelines for the tool can be derived, that will be used for the next iteration.



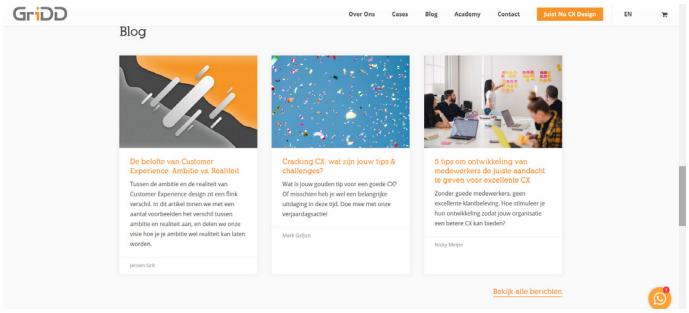


Figure 34: The website of GriDD

For the column structure you can see that GriDD uses either 2 columns (image and text) or 3 columns. The font used for the headings is Alexandria and the font used for the text blocks is OpenSans. Text that includes a link is colored orange. When rolling over, the text will become dark grey. Important buttons are colored in the GriDD orange. Buttons slightly move, and change color when rolling over them. The text is colored in GriDD dark grey. The background is white. Images zoom in when rolling over, and are clickable. The logo is placed on top left, always. At the top of the page, you can always find the navigation bar.

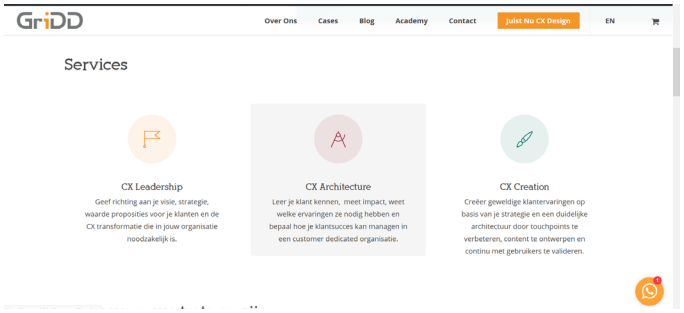
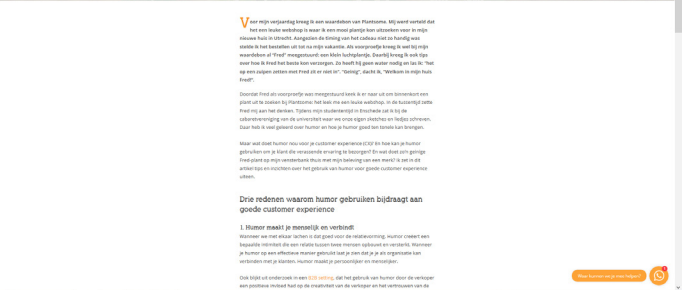


Figure 35: icons on the GriDD website

Self-made icons are either GriDD orange, red, or green circles, with icons on it. The fill of the circles has a lower opacity. The rollover for these elements is GriDD light grey.



Drie redenen waarom humor gebruiken bijdraagt aan goede customer experience

1. Humor maakt je menselijk en verbindt

Figure 36: blogpost on the website

Text in blog posts always start with an orange larger letter. The text is OpenSans and the headings are Alexandria.

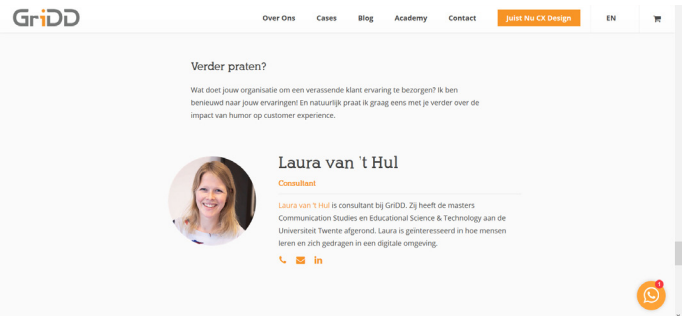


Figure 37: contact section on the website

The end of each page contains a contact person with a photo and information about that person. The user also has the possibility to contact the person directly via phone, e-mail or social media.

4.9 Design of the product's prototype

Step one to four of the stages of engineering and design of user interfaces were described in this chapter. In the next chapter step five to seven will be elaborated upon. It will begin to describe the design of the product's prototype, which fully reflects features and usability of the future product (in terms of user interface). Since the prototype fully imitates the future product, a full scale investigation and evaluation of the products usability can be made.

Chapter 05

05 | Validation of the Tool

[This chapter will further elaborate on the conduction of user tests and the analysis of the results to eventually provide recommendations for the final design. It elaborates on the product's final design, which fully reflects features and usability of the future product (in terms of the user interface). The structural, compositional, and visual design are shown. Also, the technical specification will be discussed.]

Within this Master thesis, I worked on a tool for the UX Lab of GriDD to facilitate efficient and accessible user research. Employees of GriDD will use the tool to execute user research. The prototype for this tool is under development. Therefore, there might be opportunities for improvement. I invited 4 employees of GriDD to do a user test with the prototype of the tool. On this basis, recommendations for the accessibility, usability, content and design of the tool will be identified.

5.1 Usability testing of the prototype

5.1.1 Recruitment of respondents

Possible participants for the user test are Nicky, Patrick, Mark, and Jeroen. They were involved in the interviews and the co-design session. Also, they are involved in user research projects at GriDD.

Who I want to exclude form this research, are persons who are not at all involved in user research. Because, people who will receive a license to use the tool, most often already have some experience with user research. Thereby, GriDD will coach the licensees so that they know how to do user research.

The participants for the user test are described in figure 38.

#	Name	Role/specialism
1	Jeroen Grit	Managing partner
2	Patrick Kerling	UX specialist
3	Mark Geljon	Founding partner
4	Fleur Elise Muller	Marketing and Academy

Figure 38: contact section on the website

5.1.2 Research setup and conduction

The following aspects were tested during the user tests:

- User needs: Mapping what people want and expect from the tool.
- User interaction: Finding out how people interact with the tool and what goes right and wrong.
- User experience: Find out how people experience the tool when using it.
- Content: Determining whether the content within the tool is clear and sufficient for the user.
- (Work) process: Finding out how the user envisions the process, what can be improved and how the tool can facilitate this.

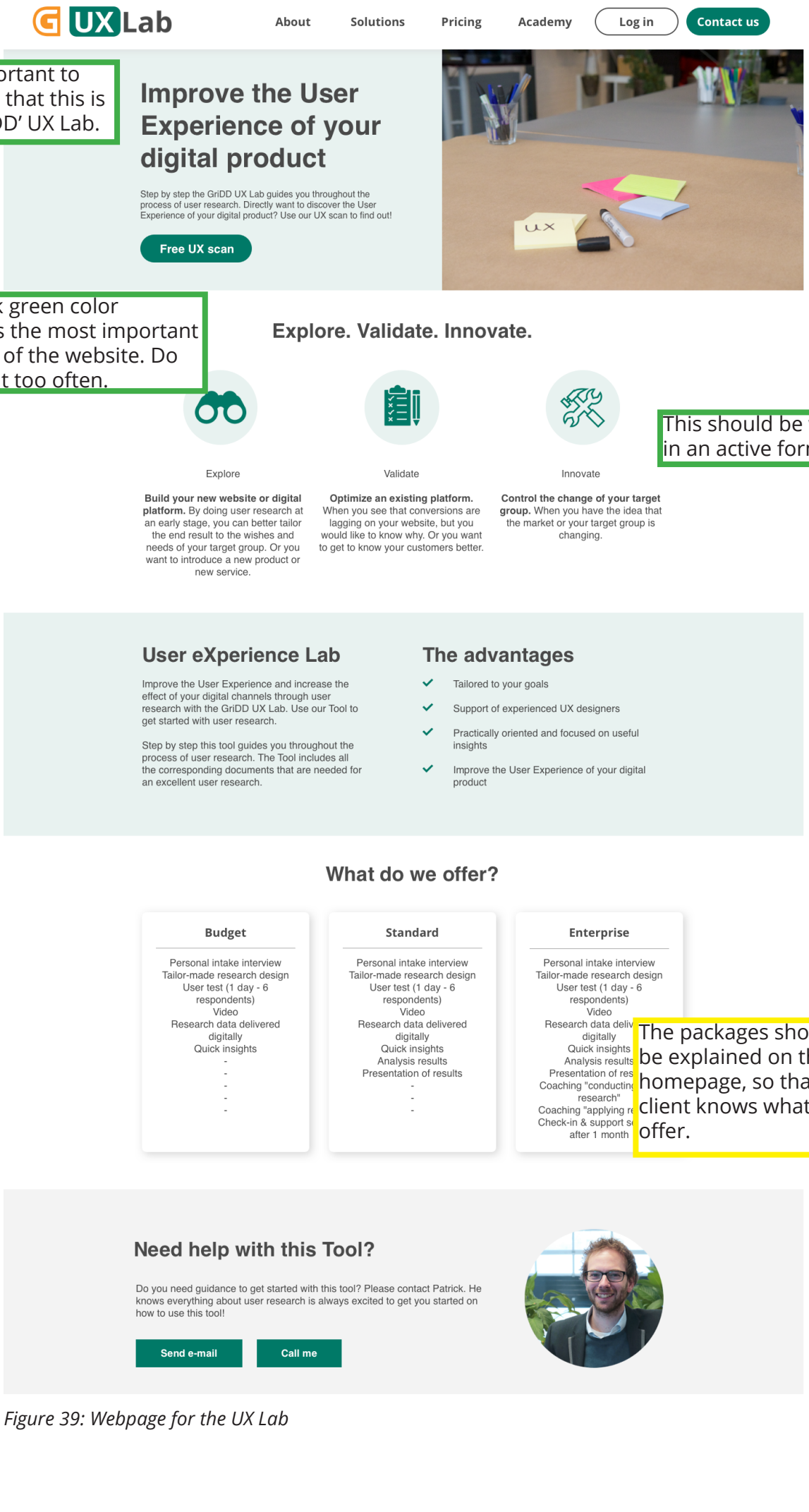
For the complete overview of the questions of the user test, please see the Appendix.

5.1.3 Analysis of the user tests

The problems that are identified during the test, are described in the following figures. Recommendations are based on the observations and comments of the users. The problems are classified as follows (this is visible in the figures by the colors of the frames):

- Red: Important. problems that block the user from executing their tasks.
- Yellow: Annoying. Problems that slow down or frustrate the user.
- Green: Recommendation. Not a big obstacle but will improve the overall user experience.
- Blue: Finding. Findings do not need to be a problem, but it is good to know.

Based on this, proposals for improvement and recommendations will be made with which the user-friendliness of the tool can be increased.



It is important to mention that this is the 'GriDD' UX Lab.

The dark green color indicates the most important sections of the website. Do not use it too often.

This should be written in an active form.

The packages should be explained on the homepage, so that the client knows what we offer.

Figure 39: Webpage for the UX Lab

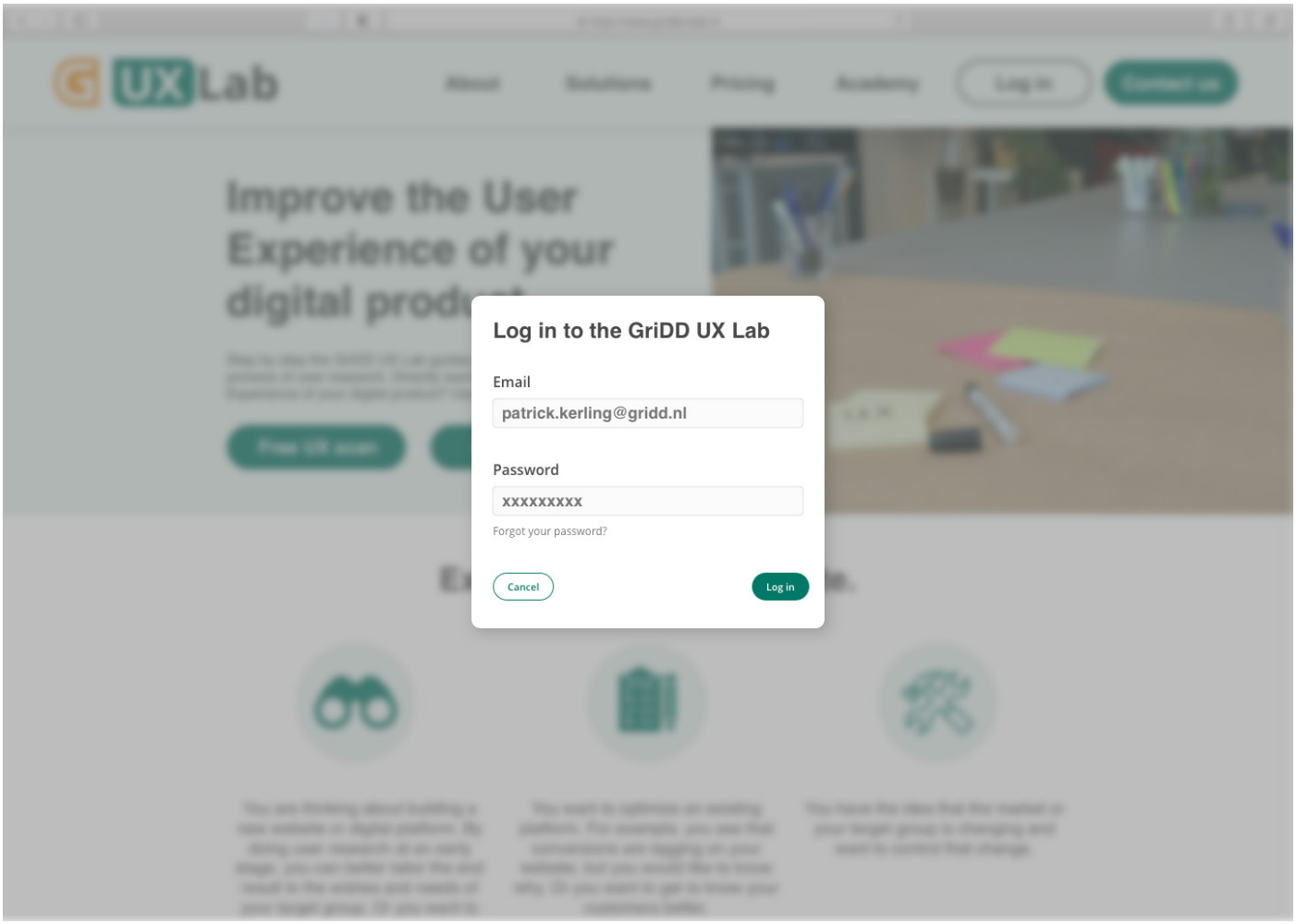


Figure 40 (above): Login for the UX Lab

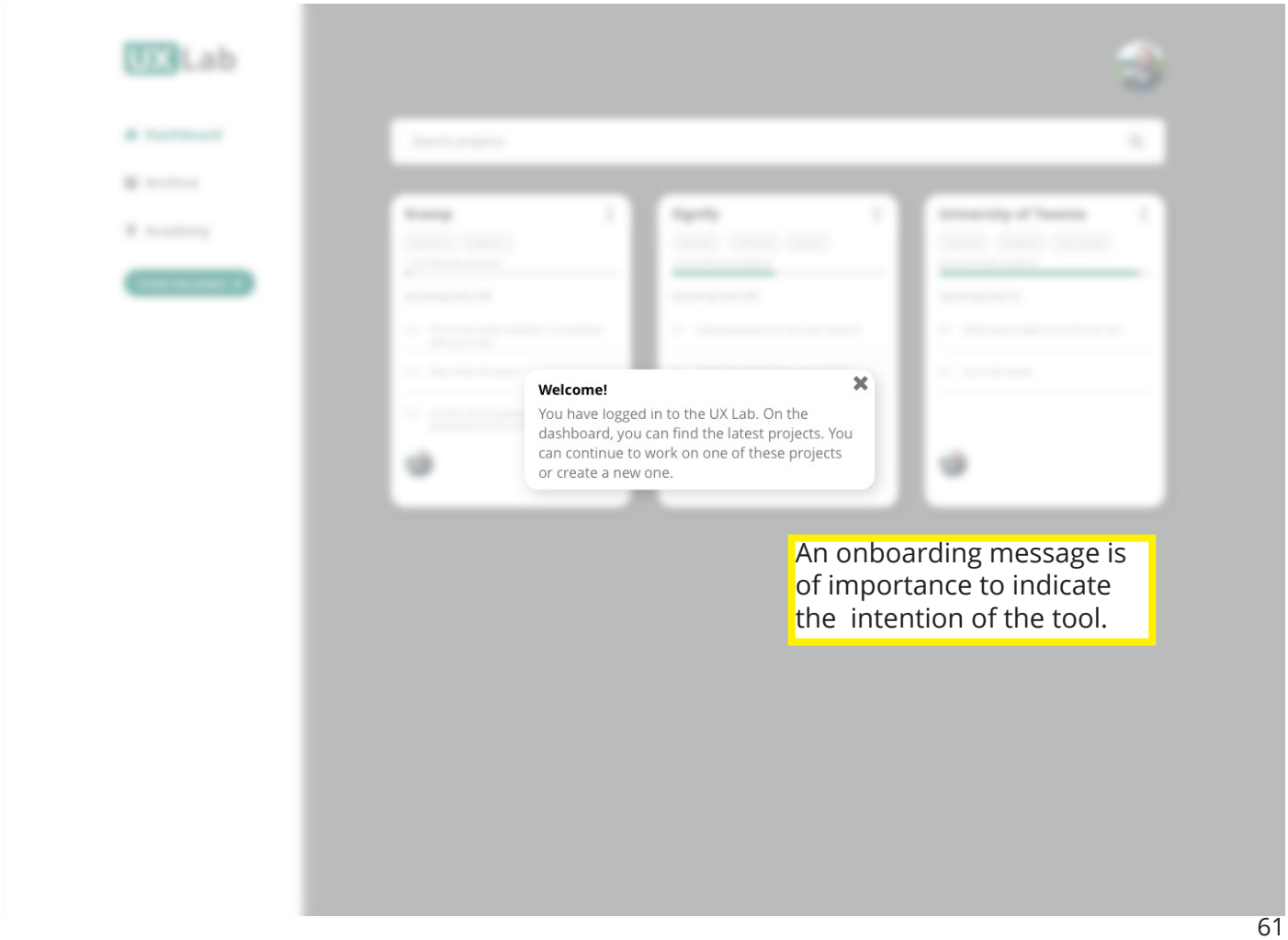


Figure 41 (below): Welcome to the UX Lab

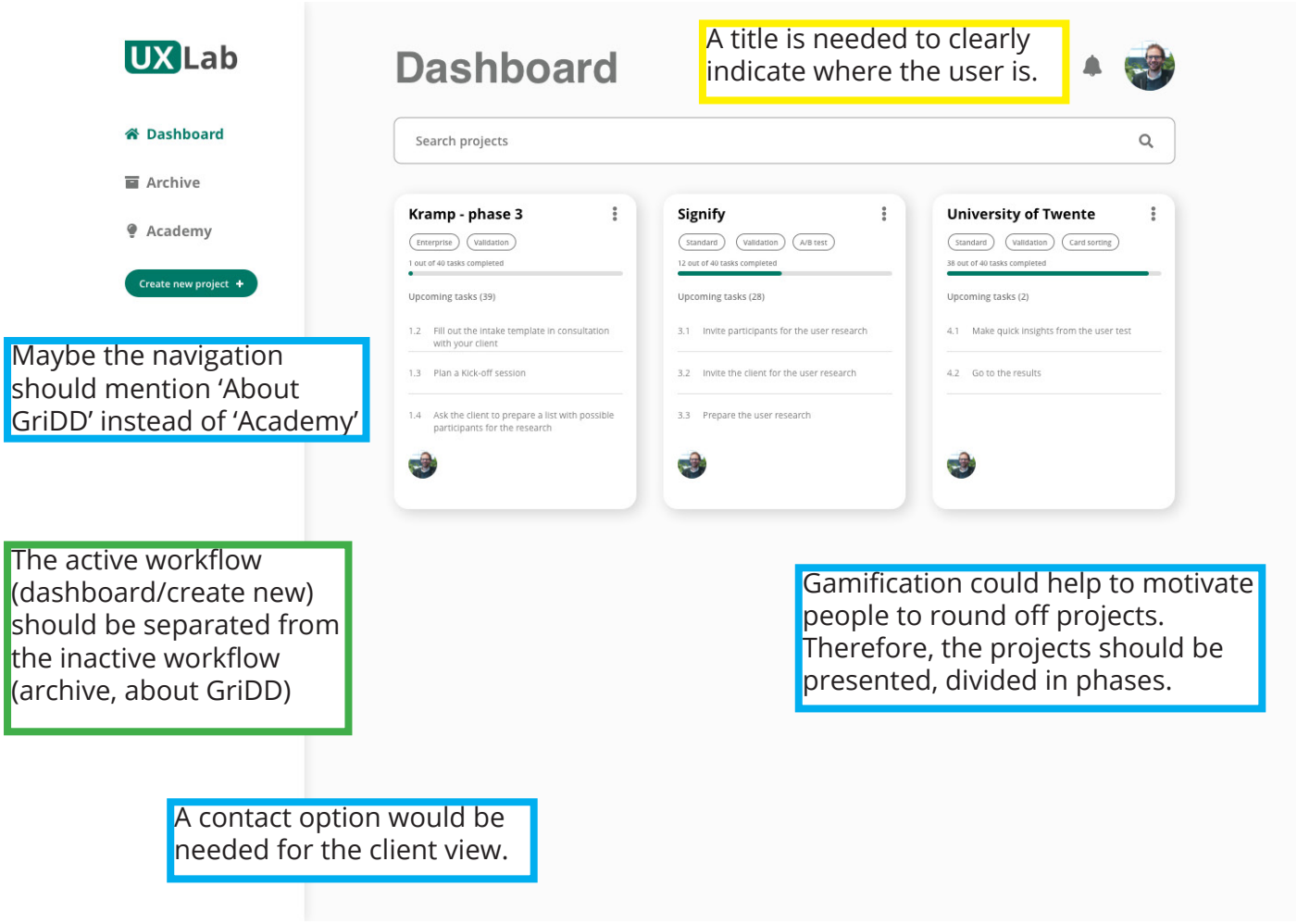


Figure 42 (above): Dashboard of the UX Lab

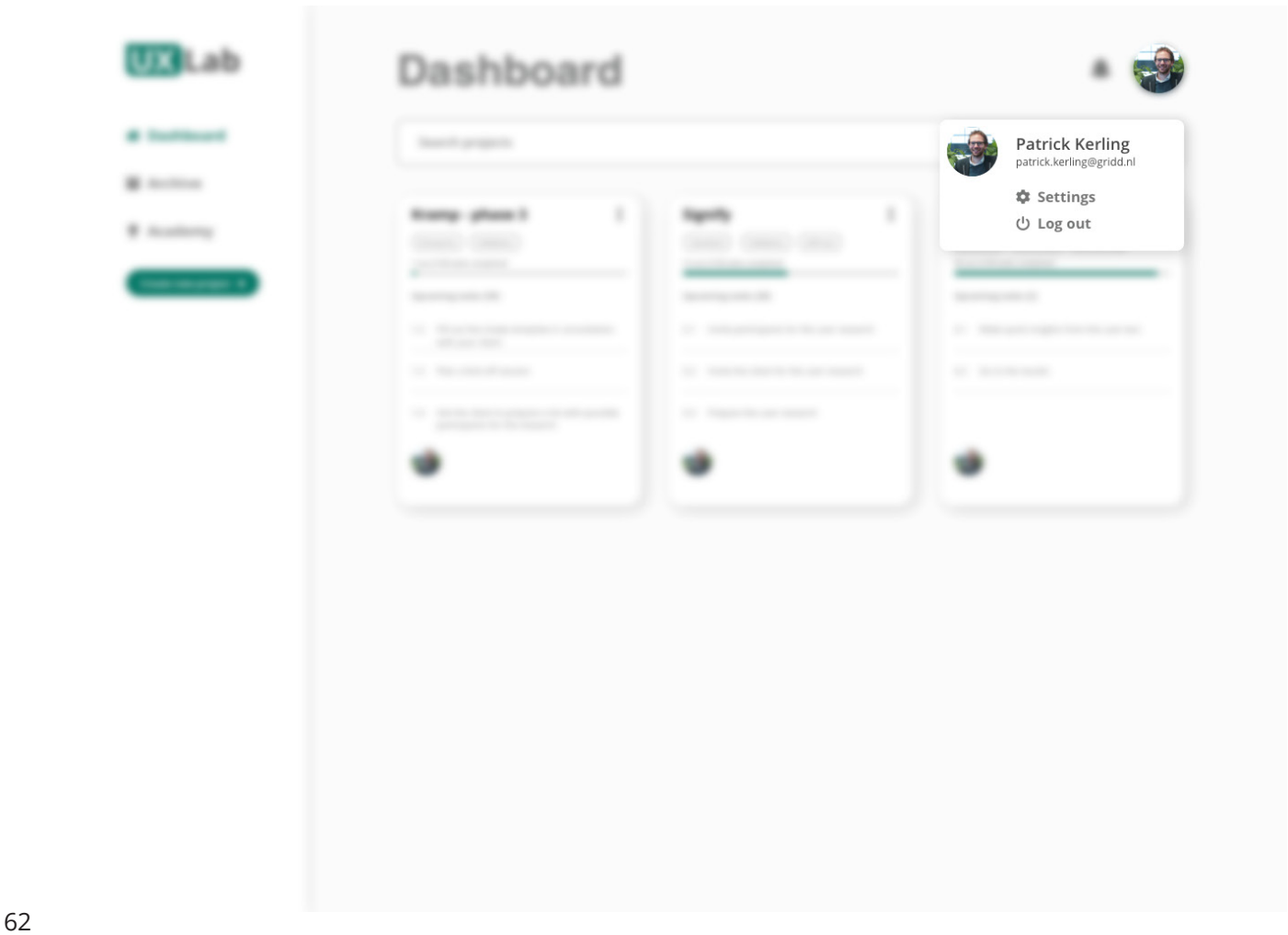


Figure 43 (below): Profile of the UX Lab

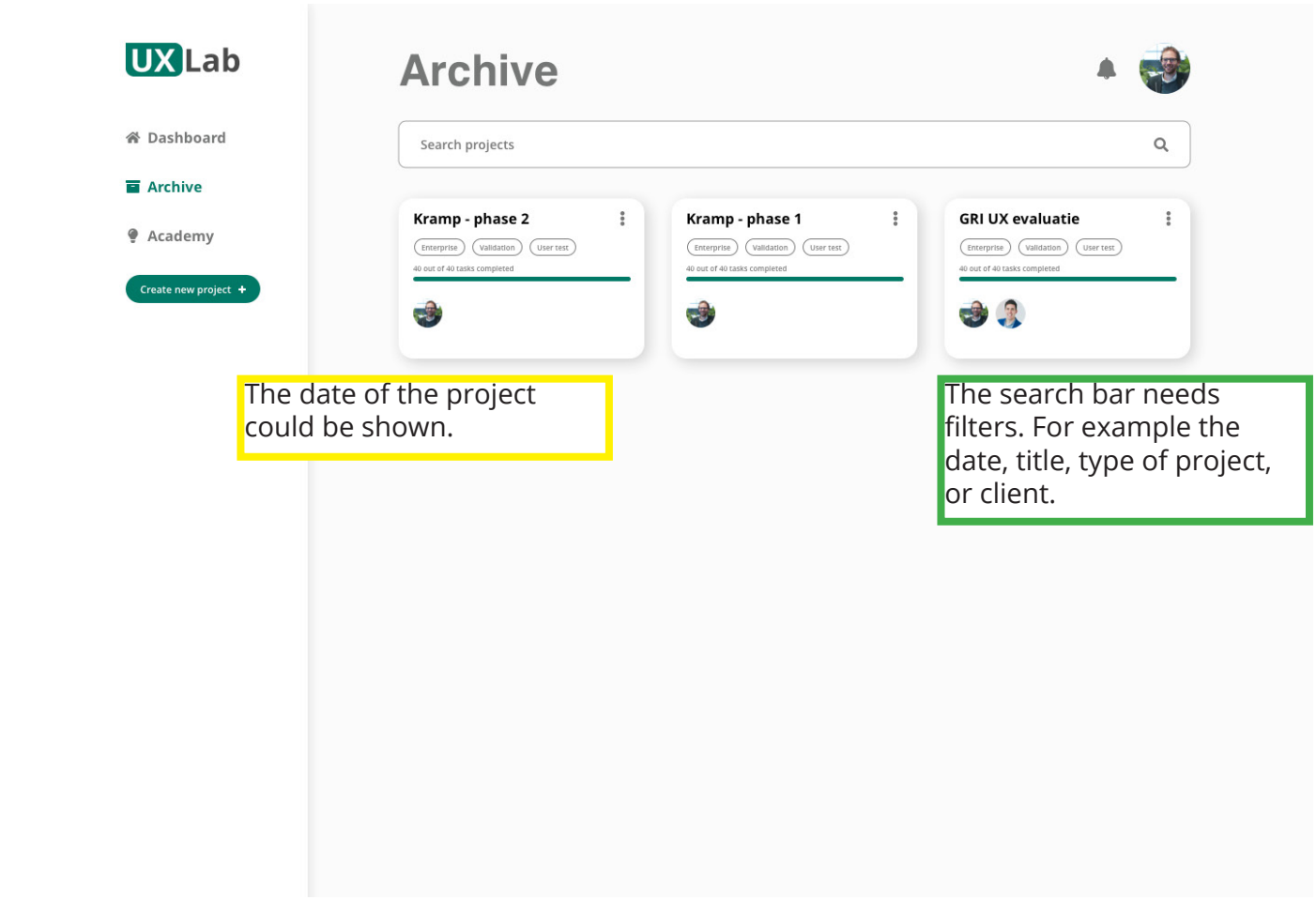


Figure 44 (above): Archive of the UX Lab

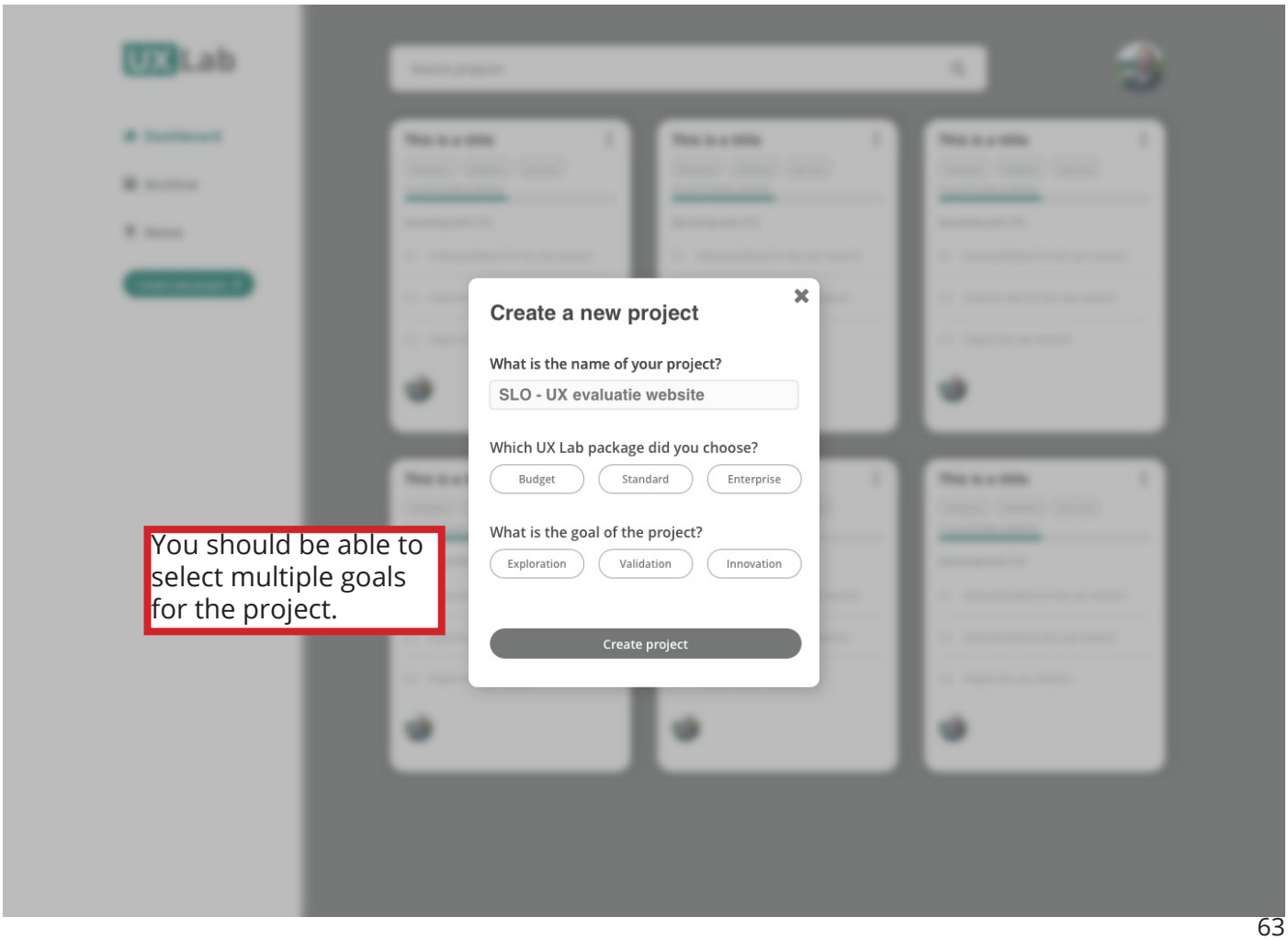


Figure 45 (below): Create a new project

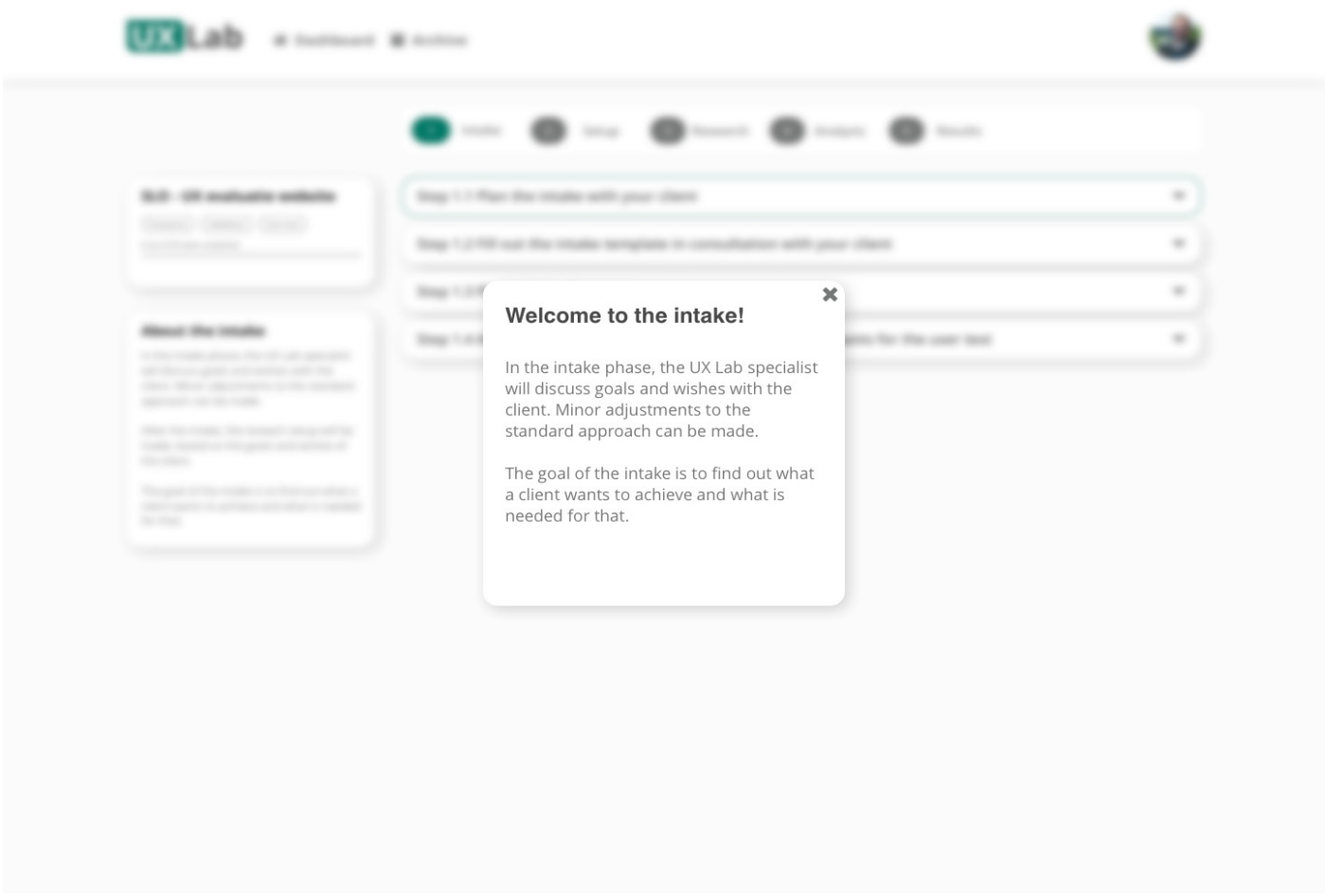
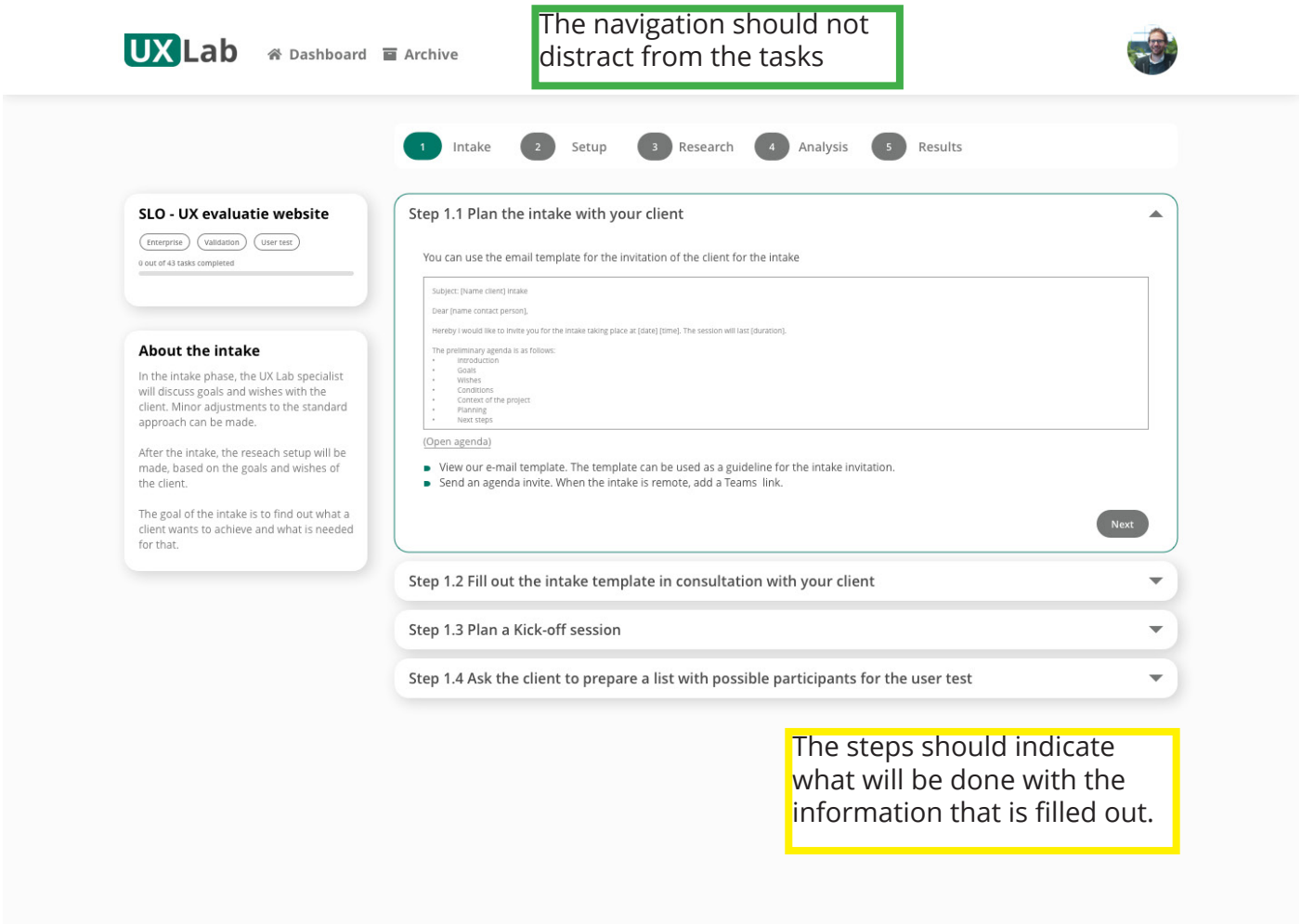


Figure 46 (above): Preview of the intake

Figure 47 (below): The intake phase



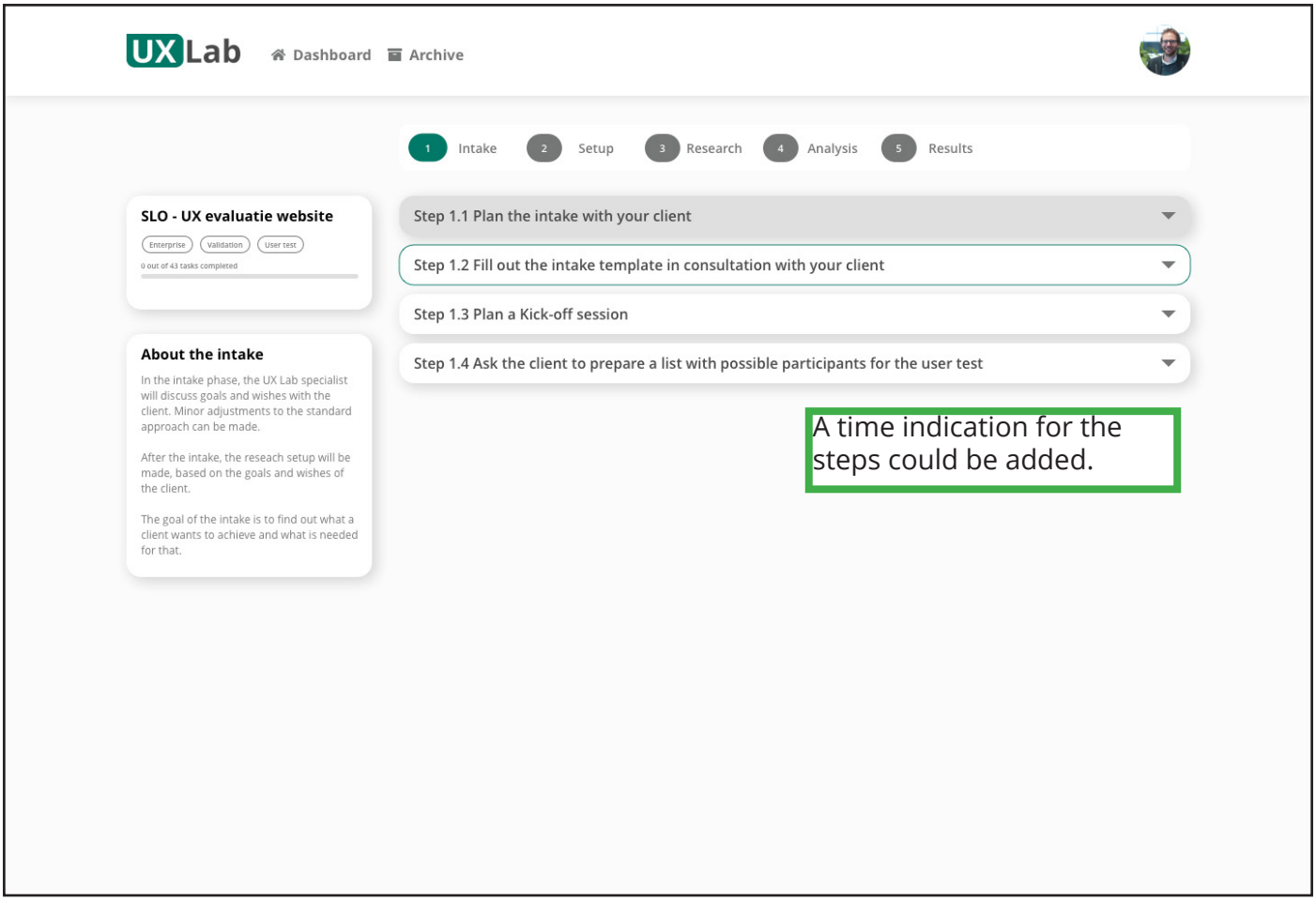


Figure 48 (above): One step of the intake completed

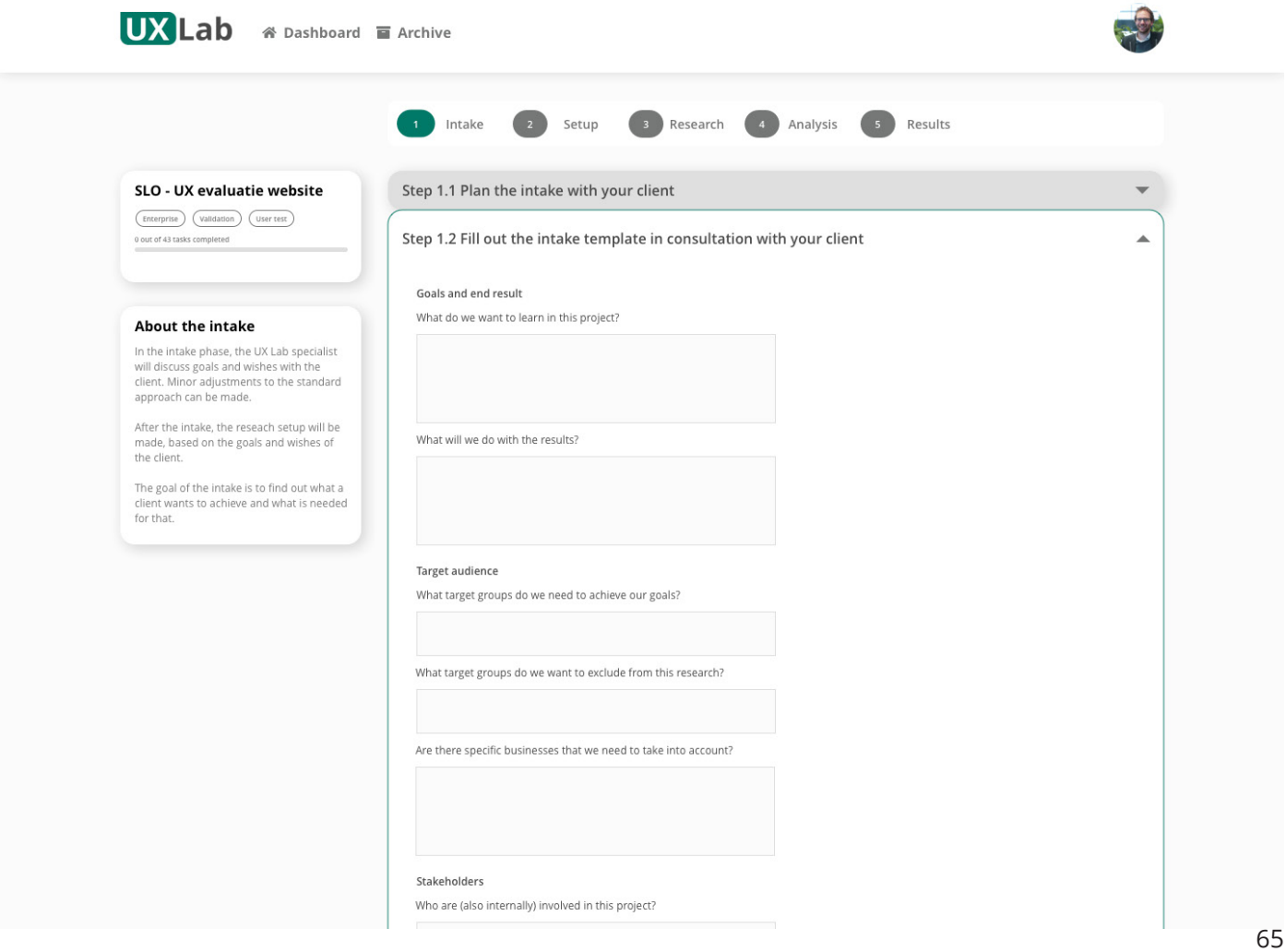


Figure 49 (below): Step two of the intake

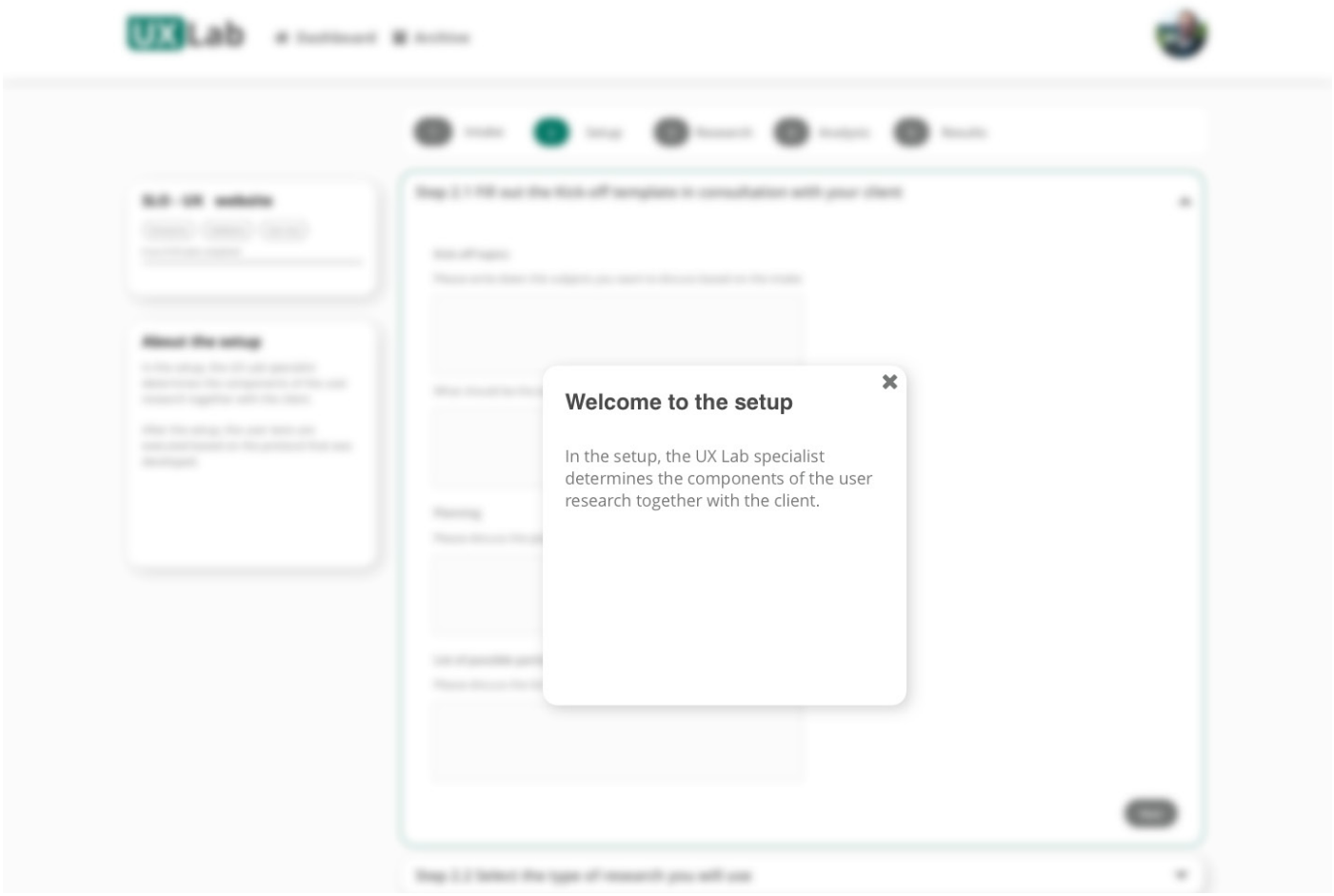
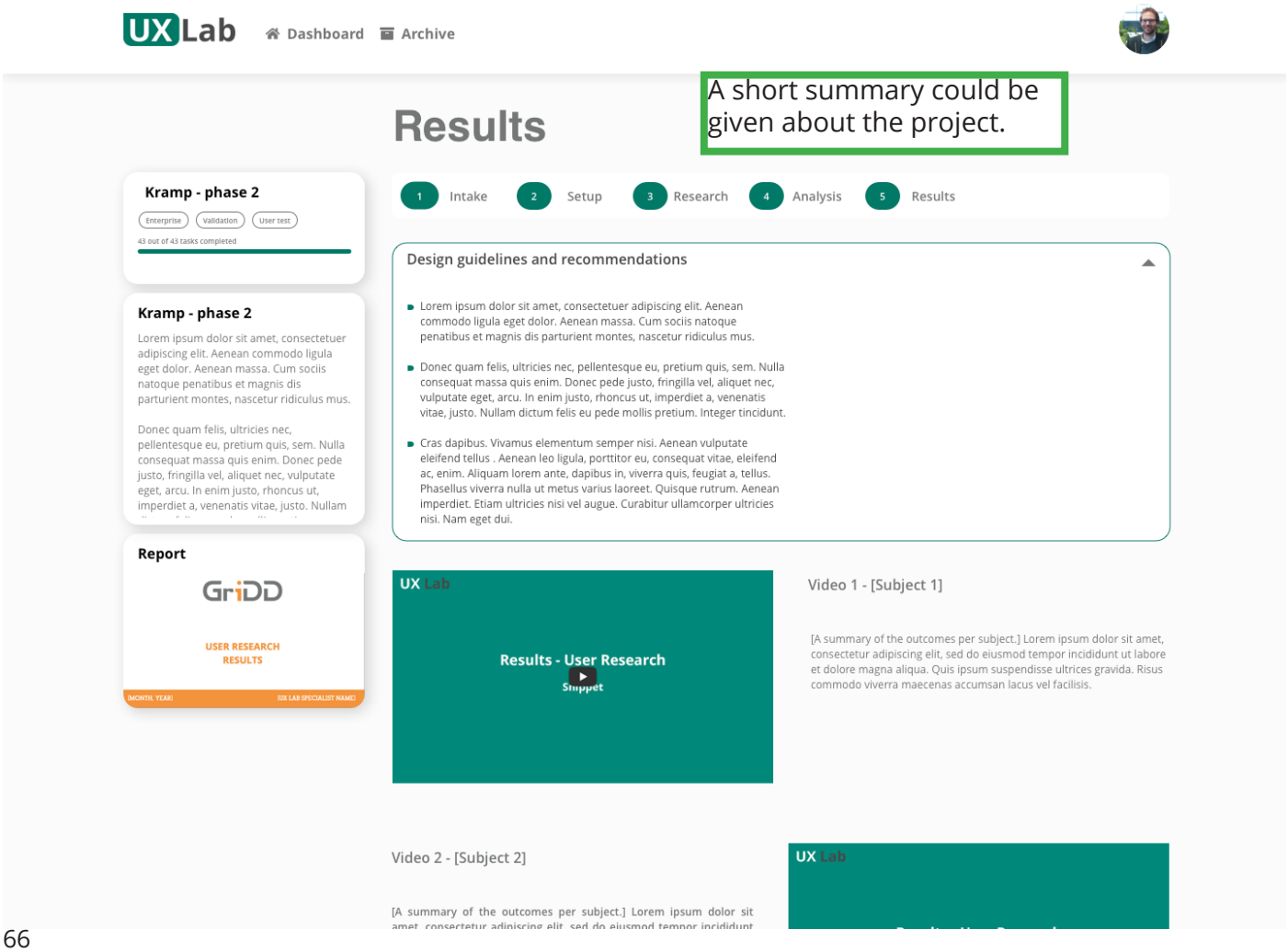


Figure 50 (above): Preview of the setup

Figure 51 (below): Results of the project



5.2. Recommendations for the tool

To improve the usability of the tool for the UX Lab, the following is recommended:

- The goal of the project influences the choice for the type of user research. According to the participants, projects can have multiple goals. Therefore, it is recommended that the user must be able to select more than one goal out of exploration, validation, and innovation.
- Instead of mentioning 'academy' in the navigation, an 'about' section would fit better. This section should tell more about how, why, and who created the UX Lab, and refer to GriDD activities.
- The navigation should be divided in an 'active' part and an 'inactive' part. Therefore the 'dashboard' and 'create new project' should be shown in the upper part of the navigation, and the 'archive', 'about', 'settings', and 'logout', should be shown in the lower part of the navigation. This helps the user to focus.
- Gamification could be applied in the dashboard. Showing on the dashboard in which phase the projects are, could motivate users to want to bring the project to the next phase.
- The projects should have a date. Either the date that the project is created or the data that it is finished. This will help to search for projects.
- The search bar should work with filters. Possible filters are the date, name, type of project, and the status of the project. This will help to search for projects in a more efficient way.
- Now it is unclear how long one step will take. Therefore, it seems that the steps take much time, wherefore users tend to drop out. A time indication should be given per step.
- The steps should better indicate what will be done with the input of the user. A message at the end of a phase could be given, indicating what will be done with the input of the user.

5.3 Technical specifications of the tool

The dashboard consists of multiple project cards. These project cards will appear on the dashboard when a new project is created. The project cards on the dashboard consist of multiple dependent interactive elements. First the tags. These are dependent on the package and goal that are selected when creating a new project, and on the type of research that is chosen in the setup phase. Secondly, the progress bar. This bar will update according to the steps that are rounded off in the project. Lastly, the upcoming tasks. These are also updated according to the steps that are rounded off. The three tasks that are upcoming, will be shown on the project card.

When all the steps of a project are completed, the project is rounded off and will shift from the dashboard to the archive.

The project itself works like a survey tool. When the user executed a step, he can click on next, and the next step appears. Steps that are rounded off, are colored grey, however, the user can look back on these steps. Steps that are active, have a green frame. When all the steps of a phase are completed, the user is able to go to the next phase. The phase that is active, has a green color.

5.4 Business plan for the tool

The UX Lab is developed to offer the existing services of GriDD in a new way. This ensures the fixation of knowledge in the company, and the attraction of a new target group. The difference between the UX Lab, and how user research is done currently, is that the method for the UX Lab is standardized, which causes the lower price, the quick lead time, and the short reports. Standardizing the method will help to compare projects and also to decrease subjectivity. A standardized method does not mean that no customization is possible. By having a standardized method, the UX Lab specialist has more time left for the things that are actually

important. They can really focus on the client.
The UX Lab consists of a protocol to do user research, that is captured in a digital tool. The UX Lab specialist uses the tool to execute the user research for the client. The client can watch along in the client view. The UX Lab specialist is either someone from GriDD or a partner that followed a training to become UX Lab specialist and got a (one year) license to use the tool. GriDD is making money by on the one hand, selling licenses to partners, and on the other hand selling UX Lab packages to clients. The packages of the UX Lab will cost around 2000 Euros to 4500 Euros.

The high-level business requirements for the tool are:

- The tool should have an accessible price for small and medium sized enterprises
- The tool consists of a standardized protocol, in which small adjustments can be made depending on the needs of the client
- The tool should take UX researchers and clients by the hand to conduct user research.
- The tool should bundle the (reasoning behind the) results of the user research and tests in a clear overview.

A prototype for the tool is first developed in Sketch. Based on this prototype became clear that the development of the tool probably has to be handed over to the digital agency: TRIMM. Together with TRIMM, we need to discuss what they need as input for the tool, and how the costs will be divided, considering that they (as a partner) also want to make use of the tool. To investigate whether or not to proceed with developing the tool for the UX Lab, or under which conditions, we need to calculate the costs and the profit that will be made. Developing costs are relatively low so far, since one graduation student is working on the tool for a monthly fee. Other employees of GriDD invest relatively little time in the development. What will cost money is the development of the back end by TRIMM, and the time that will be invested in the marketing and sales of the tool. Several clients are already interested in the concept of the UX Lab. Therefore, there is a business opportunity for it. The prototype now needs to be lifted to the next level. After that, user tests can be held to investigate in the user experience of the tool. This needs to be excellent in order for the tool to work.

5.5 Discussion

5.5.1 The extent to which the tool meets the requirements

The first requirement indicated that the tool should have an accessible price for small and medium sized enterprises. So far, the costs for the development of the tool are relatively low, since only one person has been working on it. For further development, the content of the tool should be further looked into, and the tool should be developed by an external party. The UX Lab will cost between 2000 and 4500 euros for clients. This is accessible pricewise when looking at other existing UX Labs. The costs for developing the tool, need to be earned back by doing projects with the UX Lab. This requirement is met when the costs of development are viable. This will depend on the number of projects that are expected to make use of the UX Lab and the maximum time over which GriDD wants to earn back the investment.

The second requirement indicated that the tool should consist of a standardized protocol, in which small adjustments can be made depending on the needs of the client. This is realized by profiling the clients for the UX Lab and offering different options in the tool based on the minor differences of these clients.

The third requirement indicated that the tool should take UX researchers and clients by the hand to conduct user research. This is done by dividing the process of user research in phases and steps.

The last requirement indicated that the tool should

bundle the (reasoning behind the) results of the user research and tests in a clear overview. This is done in the last phase: results, which can also be reviewed when a project is archived.

5.5.2 Reflection on academic findings

One of the most important findings of this research, is which methods are useful for the UX Lab. Each method investigates in a specific problem that a client can have with their digital product. This way, the UX Lab creates a starting point for a durable relationship between a client and GriDD, since the investment, and thus the risk is low for the client. However, the UX Lab is less suitable as a stand-alone project, without follow-up. Therefore, it is debatable whether the UX lab supports a small or medium sized enterprise with a small budget. Since the outcome of the UX Lab requires a follow up project to go into detail or to translate recommendations to improvements.

User profiling is applied in this project, and one of the differences found in the clients of the UX Lab is the maturity of the digital product. This influences the goal of the project: exploration, validation, or innovation. In the internal user tests, participants indicated that often multiple goals are applicable for one project currently. This might be a weak argument to be able to select multiple goals for one project in the UX Lab. To keep the UX lab efficient and accessible for smaller and medium sized enterprises, a different UX Lab project should be performed when the goal shifts. This prevents the project from becoming too expensive and lengthy.

Literature (Schiaffino & Amandi, 2009) described the most common contents of user profiles: the user's knowledge, background and skills; the user's goals; user behaviour; the user's interaction preferences; and the user's context. This matched the differences that were found in the demand space for the UX Lab. The differences between the clients for the UX Lab where listed since this influences the protocol for the user research (the type of research and the extensiveness). However, to improve the tool, differences between the users of the tool (the person that performs the user research) can be investigated in. Since the level of experience will certainly differ between the users.

5.6 Future research for the development of the tool

Since the UX Lab is created for GriDD, it should fit their portfolio. Currently, GriDD sells products in their academy. Their products consist mainly of trainings and workshops. However, they also offer a book, canvasses, and since recently, a UX scan. Logically would be if the UX Lab is offered via the academy.

Currently, the tool is developed for UX specialists to do user research. What could add value to the tool, is that clients could watch along with the user research. Therefore, a client view is needed. Involving the clients in such way in the process of user research is a unique selling point. The level of involvement of client is questioned. One idea is that a client could fill out the steps of this tool themselves, while the UX specialist of GriDD only reviews the input and is only involved at certain touchpoints, where the input from a UX specialist is needed.

Besides that, the tool can be used as an onboarding for new employees. It will guide them throughout the process of user research, without having to invest much time.

Also, the tool can be used as a training tool, to educate clients about user research. GriDD already offers a training about user research. However, the step from participating in a training, to doing a project with GriDD, is often quite big. The UX Lab could be a nice intermediate step between a training and a project, to build a stronger relationship between GriDD and their clients. In that way, sales leads are generated.

Conclusion

Conclusion

[This is the last chapter of the Master Thesis. It will give answers to the research questions that were setup in the beginning of this thesis. Thereby, it will answer to what extent the objectives are met. It ends with a personal reflection on what I learned in this project.]

Answers to the research questions

Main research question

Research question: How to create a (digital) tool for the UX lab of GriDD to facilitate efficient and accessible user research?

For the UX Lab of GriDD, mainly the guidance and training from a professional UX researcher is important. The tool for the UX Lab should support the UX researcher to do user research. This saves time, and therefore money, which is, among other things, why a tool for the UX Lab is of such value. Qualitative methods are seen as the core of the UX Lab. One thing that is extremely important, is to involve the UX researcher in the process. Secondly, involving clients in the process. Lastly, the content of the tool needs to be correct in order to deliver an excellent user experience.

Through interviews with employees and clients, and a co-design session, wishes and needs from the users are clarified. By developing a roadmap, the touchpoints of the tool in this process can be derived. This helps to define the concrete functions of the tool. By following the stages of engineering and designing user interfaces, the UI of the tool is developed.

The digital tool is tested with employees of GriDD. Through observations and comments of participants, recommendations are given for future development of the tool.

Sub-questions

(1) Research phase: What elements facilitate (efficient and accessible) user research for the UX Lab?

For the UX Lab of GriDD, mainly the guidance and training from a professional UX researcher is important. This is what adds value to the UX Lab. Everybody can do user research. However, not everybody knows how to do good user research, and how to interpret the results. The tool for the UX Lab should support the UX researcher to do user research. This saves time, and therefore money, which is, among other things, why a tool for the UX Lab is of such value.

Qualitative methods are seen as the core of the UX Lab. A combination of currently used qualitative methods and new methods is useful for the UX Lab. The following methods were found: card sorting, tree tests, top task analyses, focus groups, interviews, user tests, eye tracking, customer feedback, and concept testing.

The UX Lab should make user research more accessible. On one hand, by helping clients for a small budget, and on the other hand doing fast and efficient user research. One thing that is extremely important, is to involve the UX researcher in the process. Secondly, involving clients in the process. Lastly, the content of the tool needs to be correct in order to deliver an excellent user experience.

(1.1) Which (digital and physical) tools do already exist to execute user research?

What you get when you purchase UX Lab services, differs from company to company. Currently existing UX Labs often only offer a space to perform user research. Additional services can be offered. Think about fully equipped interview spaces and observation spaces. Extra services can be eye tracking devices, live stream technologies, and a host to welcome participants of the user test. Some UX Labs focus more on the research methods. Thereby, an enormous number of tools for doing user research are available. Almost all these tools are digital.

Many more tools exist for doing or supporting user research. Most of them are digital. This helps to easily and quickly save the results of the user test

and is also useful when participants of the user test are not able to meet in real life. Also popular, are applications that constantly monitor the digital products of clients without human interventions.

(1.2) What are current research methods used by GriDD to execute user research?

GriDD uses the following methods in user research: A/B testing, card sorting, online surveys, usability tests, interviews, focus groups, website analytics/ UX scan, top task analysis, tree test, and User journey/User flow.

(1.3) What (new) research methods can be used to facilitate (efficient and accessible) user research?

Qualitative methods are the core of the UX Lab since they do not need large sample sizes and are suited for validating designs. Some qualitative methods are not suited for the UX Lab, like ethnographic field studies, participatory design, and dairy/camera studies. New methods that can be used to facilitate user research are eye tracking, (un)moderated self-studies/customer feedback, and concept testing.

(1.4) What type of clients does GriDD have and what type of clients do they want to attract?

GriDD currently works mainly for larger B2B companies. The UX Lab should attract small and medium sized enterprises with a small budget. GriDD want to create three 'flavors' that will appeal to different target groups. For people without knowledge of UX, for freelancers or practitioners, so that they can use our tools and methods via a license, and an enterprise version, where GriDD executes the UX Lab for clients, however the clients can be involved.

(1.5) What is the goal of the tool for the UX Lab of GriDD?

The main goal of the UX Lab is to make user research more accessible. This means on one hand helping clients for a small budget, and on the other hand doing fast and efficient user research. Another goal of the UX Lab is to educate the clients, which helps them with capability building. Productizing the services of GriDD helps to offer existing services is a new way. Thus, the UX Lab helps GriDD to attract a new target group. By doing efficient and accessible user research, the UX Lab allows GriDD to do small projects with a big margin. Productizing services helps to create more rest and predictability in the work of GriDD. Lastly, since GriDD is mostly a knowledge-based company, logging knowledge will protect the existence of GriDD.

(1.6) What goals and needs do clients of the UX Lab have?

Clients want to be able to do smaller and larger projects with the UX Lab in a short amount of time. What attracts them is tools and services that they cannot offer themselves. Especially the recruitment of participants can be hard for clients. The tool should support this. It would be nice to take the UX Lab to the participants of the user research. Thereby, the tool also needs to fit within the current way of working of clients. It should be reusable for different projects, so that they are comparable. Lastly, it should be easy to share the results with team members.

(1.7) What is relevant for a tool that will facilitate user research?

From the co-design session, the following aspects were found important for the tool. One thing that is extremely important, is to involve the UX researcher in the process. Secondly, involving clients in the process. Lastly, the content of the tool needs to be correct in order to deliver an excellent user experience.

(2) Developing the tool: How can all relevant aspects of user research be covered in a (digital) tool?

To develop the tool, a top down approach is used. With information from literature, useful methods for the UX Lab are determined. Through interviews with employees and clients, and a co-design session, wishes and needs from the users are clarified. By developing a roadmap, the touchpoints of the tool in this process can be derived. This helps to define the concrete functions of the tool. By following the stages of engineering and designing user interfaces, the UI of the tool is developed.

(2.1) How to translate currently used and new user research methods to a (digital) tool?

A roadmap of the Tool is developed to help specify what the needs of GriDD are, what the needs of clients are, and what are the touchpoints with the Tool. The roadmap will be based on literature and information from the interviews and co-design session. To develop the tool, a top down approach is used. Working from the overarching question 'why should the tool exist' towards the concrete functions of the tool. This way is determined which functions are important. To create a prototype for the tool of the UX Lab, it is important to work out the content, which is, the process of user research. First the phases are defined. This will help to clarify which screens contain which information, where this information comes from, and what the next steps are. User profiling is applied to create a tool that considers the needs of every type of client. In the co-design session was found out that the steps of the user research and the explanation per step will not differ (much) per client. What is distinctive, is the budget, the goal of the project, the client, and the language of the client. These differentiators are taken into account for the design of the tool by applying profiling. The usability of the Tool should work perfectly, so it does exactly what the user needs. This can be tested with paper prototyping. Therefore, a digital 'paper' prototype is made.

(2.2) What is the potential added value of the UX Lab for the users?

The UX Lab is developed to offer the existing services of GriDD in a new way. This ensures the fixation of knowledge in the company, and the attraction of a new target group. Standardizing the method will help to compare projects and also to decrease subjectivity. By having a standardized method, the UX Lab specialist has more time left for the things that are important. They can really focus on the client.

(2.3) What is needed to standardize a (digital) user research tool for GriDD?

For the design of the tool, the stages of engineering and design of user interfaces is followed. Following these steps will ensure that the user interface will meet the highest usability standards and satisfy the specified user and organizational requirements. The stages of engineering and design of user interfaces can be found below (Sergeev, 2010).

(3) Validation of the tool: How to test the (digital) tool?

The digital tool is tested with employees of GriDD. These employees are involved in user research projects. The tool is tested based in different themes: user needs, user interaction, user experience, content, and (work) process. Through observations and comments of participants, recommendations are given for future development of the tool.

(3.1) How to measure the efficiency and accessibility of the (digital) tool?

The efficiency and accessibility of the tool is measured through user tests. The prototype is improved with recommendations from the user

tests. The user tests will help to validate the design. The themes that are used to test the efficiency and the accessibility of the tool are: user needs, user interaction, user experience, content, and the (work) process.

(3.2) Which elements are needed to perform a user test?

To setup a user test, one needs to determine what is the goal of the test, who is the target group, and who should be excluded from the research. Thereafter, respondents are recruited. A research setup is made with the help of the user research setup template from GriDD. Questions are classified per theme and possible answers are defined. It is a pragmatic template that requires the user to think about what to do with the outcome of the questions. The answers are analyzed per theme. The results are divided in: important, annoying, recommendations, and findings. It is important to come up with solutions for the most important problems. Recommendations are given for future development.

(3.3) How does the tool perform while executed by the users?

The user test did bring up one 'important' problem, which is the ability to select multiple goals for a project. This problem is easy to repair. No other 'important' problems occurred, that would stop the user from executing their tasks. 'Annoying' problems occurred that should be repaired in the short-term. These slow down or frustrate the user, but do not block the user from executing their tasks. Thereby, recommendations and findings were given in the user test, that could be implemented in the long-term.

(3.4) How does the tool fit in the portfolio of GriDD?

The UX Lab can be offered via the academy, in which GriDD also sells other products. The level of involvement of clients is still a point of discussion. Besides a tool for UX specialists to do user research, the UX Lab could also support trainings about user research, and onboard new employees.

What I learned

Understand the essence of UX design and user research.

The essence of UX design and user research is Customer Experience. Customer Dedication is the driving force behind customer experience. It means that an organisation builds deep empathetic relationships with customers on their terms and conditions. Based on where they are with their own personal rational, emotional, physical, and even cultural preferences. This helps to bridge the gap between striving for a good customer experience and realizing it (GriDD, 2020). Doing user research and involving the client as early as possible in the process, will help to create an excellent user experience, and thus to realize a good customer experience.

Create a valid tool to facilitate (efficient and accessible) user research.

This Master Thesis investigated in how to develop an efficient and accessible tool for the UX Lab of GriDD. The prototype of this tool is validated through a UX scan and the efficiency and accessibility are tested in the user tests. This resulted in recommendations for the tool. The usefulness of the tool is in recording the way of working for GriDD, and making a protocol for the process of user research.

Prepare, perform, and interpret an analysis of the complete tool.

This is done by user tests executed internally with the GriDD team. Recommendations are made to eliminate weak points and problem zones.

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