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YOUR CLIMATE FOOTPRINT

A USER-CENTRED APPROACH TO DESIGN
FINANCE TECHNOLOGY SUPPORTING
SUSTANABLE BEHAVIOUR CHANGE

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Title page

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Abstract

Der er i dag et stort fokus på bæredygtighed i de danske medier, og det er velkendt, at det nationale såvel som det globale CO_2 forbrug skal nedsættes. Alligevel viser statistikken i en TNS Gallup undersøgelse foretaget for Konkurrence- og Forbrugerstyrelsen, at selvom 54% af deltagerne går efter specifikke etikker, som angiver bæredygtighed, så har 38% faktisk ikke foretaget et bæredygtigt køb af produkter eller dagligvarer i den sidste måned. Derudover præsenterer både Anthony Giddens (2009) samt Anja Kollmuss og Julian Agyeman (2002), at der findes et skel mellem forbrugernes holdning og adfærd, som indikerer, at den enkelte forbruger har svært ved at se, hvordan de *personligt* kan gøre en forskel.

Dette kandidatspeciale adresserer netop denne problemstilling, hvortil formålet er at skabe en digital løsning, som kan hjælpe og opfordre forbrugeren til en mere bæredygtig adfærd. Dette er gjort i samarbejde med Spar Nord A/S, hvor vores digitale løsning har til formål at blive integreret som en applikation i deres mobilbank.

For at tilgå den komplekse problemstilling, der ligger i at arbejde med bæredygtighed og adfærdsændring, er Design Thinking med dets brugercentreret perspektiv anvendt. At designe et digitalt produkt med det formål at opnå adfærdsændring, er ofte refereret til som Persuasive Technology, hvortil B.J. Fogg's Behaviour Model anvendes som et strategisk udgangspunkt for udarbejdelsen af vores applikation.

Med udgangspunkt i både litteratur og kvalitative interviews, er følgende emner undersøgt: Bæredygtighed, bankernes rolle inden for bæredygtighed, samt forbrugerne og deres bæredygtige adfærd.

Med formålet om at adressere det førnævnte skel samt at forstå brugernes motivation og evne inden for bæredygtig adfærd, blev et fokusgruppeinterview udført. Herigennem blev det klart at bæredygtighed indeholder stærk subjektivitet med flere forskellige fortolkninger, holdninger, dilemmaer og mistillid til de tilgængelige informationer. Derudover blev data fra de forskellige interviews analyseret via Empathy Mapping og Point-of-View teknikker. Det blev her klart at prototypen til vores applikationen skal udvikles med fokus på at *være tillidsfuld samt at skulle visualisere brugernes CO2-aftryk på en let forståelig måde, så der kan skabes en adfærdsændring uden en løftet pegefinger.*

Da kravspecifikationerne for den digitale applikation skulle udformes, blev potentielle brugere inddraget i en idegenerende online workshop. I workshoppen blev indsigt i og beslutninger om henholdsvis applikationens indhold og visuelle udtryk komponeret. Desuden blev der i workshoppen givet udtryk for vigtigheden af et simpelt design med et højt personaliseringsniveau, og en håndgribelig visualisering af brugerens CO2-aftryk; eksempelvis gennem en sammenligning mellem CO2 og hverdagsting, som gør det nemmere at forstå. Derudover kan tips og tricks skabe vigtige associationer til ændring af adfærd.

Følgelig er det vigtigt, at applikationen er tilpasset bankens kontekst og, at banken forbliver neutral uden at tage parti ved blandt andet ikke at anbefale specifikke produkter eller butikker. Det er desuden vigtigt at applikationen fokuserer på den positive adfærd brugeren udfører og ikke adressere en negativ adfærd.

Disse indsigter har ledt til udviklingen af en prototype, som visuelt repræsenterer alle kravspecifikationer, resultaterne fra workshoppen og tillært viden gennem specialearbejdet. Kompleksiteten i det undersøgte emne gør det svært at konkludere, hvorvidt applikationen vil opnå den ønskede intention i praksis, da den overordet konklusion i dette projekt er følgende:

Vi kan kun designe for at opfordre en bestemt adfærd. Om dette er tilfældet, og om vores digitale produkt egentlig bliver brugt i forhold til vores intention, kan vi ikke vide med sikkerhed. Men vi kan observere brugen af vores applikation, når denne er implementeret, og dermed indsamle ny viden om dennes brug til fremtidige iterationer.

Preface

This thesis is the final paper of the Master's degree in information technology (Information Studies) at the Faculty of Humanities, Aalborg University. The thesis is performed by Sissel Graakjær Bøgh Pedersen and Mia Pagh Jensen in the spring of 2020. Due to the unusual circumstances caused by the coronavirus (COVID-19), this thesis has been subject to various restrictions. These circumstances have caused changes in both the applied methods and work strategies as the university has prohibited physical meetings, including meetings with our supervisor and meetings within the group. The university has been closed with no access, including the libraries. This means that all collaboration between Mia and Sissel has been performed online during the majority of the period. Furthermore, numerous parts of society have been shut down and several companies have closed down, which has had consequences for our cooperation with Spar Nord.

How all this has affected the thesis will be addressed throughout the project.

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1. Introduction

In today's world we are facing major environmental challenges that calls for our attention. Before the coronavirus started dominating the news streams, it was hard to avoid picking up on both extensive issues and new solutions related to our global resources. By now, most Danes have heard of the term "sustainability" and it is no longer surprising that the Earth's resources are limited. Still, the international research organisation, Global Footprint Network, have pointed out that we used 1.75 times the sustainable limit of resources in 2019 on a global scale ("Past Earth Overshoot Days", 2020). Moreover, if the whole world consumed as we do in Denmark, we would use more than 4 times the resources that our world can renew in one year ("Country Overshoot Days 2020", 2020). But, even though, both of us have experienced a positive, yet serious, discourse in the media exposing us to the environmental challenges, it seems like people still struggle to see what difference they can make on a personal level. Changing this attitude is exactly what drives this thesis.

Aligned with the Global Footprint Network, Ida Nilstad Pettersen & Casper Boks (2008) present the current consumption patterns of this industrialised world as being *not sustainable* (Pettersen & Boks, 2008). They highlight that "[…] it is widely acknowledged that for many durable consumer products, the user phase accounts for the largest environmental impacts." (Pettersen & Boks, 2008, p. 107). This implies the energy to produce and run the product, accessories for the product, repair etc. (Pettersen & Boks, 2008). A common measurement for environmental impact is CO_2 emission, and in Danish households the average CO_2 emission is higher than in most other European countries (Ivanova et al., 2017). According to the Danish think tank, Concito, only 20% of the consumer's CO_2 emission comes from the consumer's direct energy consumption, like fuel, heating, and electricity, whereas, indirect energy consumption makes up for the remaining 80% of the consumer behaviour. These 80% come from everything related to producing and distributing the goods and services that we acquire (Chrintz, 2010). How, and to what degree, goods and services impact the environment is linked to high complexity and can be almost impossible to present.

However, all this indicate that the consumers do have a chance to make a difference, as consumers indirectly influence the CO_2 emission on many levels. This can be compared to

Yiannis Gabriel and Tim Lang's (2006) presentation of the consumer as someone *who vote in a market*. We believe that when you buy a product, you vote for its existence and for the companies' values, including sustainability and environmental values.

Therefore, we wish to: Make consumers aware that they *vote* with their money. We wish to help them understand their personal impact on the environment; and give them the power to take responsibility and change the statistics. In other words, we wish to design a digital solution that increase people's awareness, and thereby, their behaviour towards sustainability.

However, as implied, sustainability is associated with very high complexity. Changing consumer behaviour towards a more pro-environmental behaviour is even more complex – especially when applying the economic perception that money and consumption equals economic growth in the society, as well as individual wealth (Pettersen & Boks, 2008). The downside of applying the economic perception is that it is often simplified, whereas human patterns are not simple. Applying a human-centred approach, provides us with the opportunity to address a highly complex problem by being aware of both the psychological elements as well as the sociological factors that comes into play when we aim to change consumers' attitudes and behaviours. To this, the notion of Persuasive Technology will be taken into consideration through this study, as we wish to encourage and persuade the consumers – not force them.

1.1 Partnership with Spar Nord

In order to reach the consumers, we thought "what is the main thing most consumers have in common?", which is that they are bank customers. And, as the use of credit cards have increased in popularity, most transactions today run through a bank or a financial institution. In alignment with David Varga (2017), we believe that the banks have an essential role in society, and thereby, also a responsibility in the pursuit of a more sustainable world. Therefore, we reached out and established a collaboration with Spar Nord A/S, as case-partner for this project. Spar Nord describes themselves as "Denmark's most personal bank in a digital world" (Spar Nord, 2019). Being a bank in the digital world, also means that there is a need to provide the customers with a variety of digital services. To this, Spar Nord "[...]

seeks to combine personal advice supported by active involvement and service with up-to-date and innovative digital solutions." (Sparnord.com/om, 2020). Digital solutions and new technology in the banking industry is often referred to as *FinTech,* which stands for *financial technology*. The term FinTech will be addressed throughout the project, whereas our design of a digital solution will be categorized as a financial technology.

But why would Spar Nord be interested in changing consumers' behaviour in a sustainable direction? One of Spar Nord's main focus in their strategy for 2020-2022 is to be "a proper bank", which means that they want to take responsibility and put the customers' interests first. Being a proper bank also refers to taking responsibility for the bank's footprint on the climate and the environment (Spar Nord, 2019). Furthermore, Spar Nord has already taken the first step by introducing a car loan addressed towards the sustainability aware customer (Spar Nord, 2019).

The aim of this project - and the aim of our collaboration with Spar Nord - is, thus, to investigate how we can both persuade and support their customers to act and consume more sustainable through a digital solution. Because, being a "proper bank" requires taking responsibility – and to take part in the sustainable development. So, instead of encouraging their bank customers to just consume more, we are interested in how we can encourage bank customers to consume more sustainably through the development and implementation of a digital solution. This thesis operates on the conceptual level of a solution, which means that we will both exclude as well as include different methodological approaches while taking on the role as researchers.

To start off, we have created the following research question, which will be our focus throughout the upcoming phases:

How might we enhance consumers' pro-environmental behaviour by designing an integrated digital solution for mobile banking. And to what degree might the consumers be willing to adapt and adjust to sustainable behaviour?

1. Our Approach

In order to address the research question mentioned in the introduction above, we will begin this thesis by mapping out how we will approach the problem area, along with presenting our perspectives and beliefs as designers. This is based on the fact that in order to address our research question, we need to get familiar with topics like: Finance technology (FinTech), hereof mobile banking; the concept of sustainability; consumers; among attitude and behaviour change. As a digital designer, it is common having to work with topics of very little or no prior knowledge. Therefore, the approach and the explorative process become essential throughout the entire design process. To this, it is vital for us to present how the process will be carried out.

We will in this section, present:

- The Design Thinking process, and the applied user-centred design mindset
- The strategy applied in order to design for behaviour change
- The Design Thinking phases covered in this thesis

The aim of this section is, thereby, to give the reader an expectation of the structure and frame of this thesis, as well as an understanding of how the different approaches and strategies will affect the research and design process.

2.1 Design thinking and the user-centred mindset

The Design Thinking process will function as a framework for this thesis, where the human- and user-centred approach is the mindset we apply when addressing and working with the different phases in the process. The structure, and thereby the frame, of this project will be based on the Design Thinking process, as presented by the Hasso Plattner Institute of Design, Stanford University (2010): *Empathize, Define, Ideate, Prototype, and Test*. However, as we will present later, we have modified the process to suit the scope of this thesis. The phases we cover is presented in section 2.2. In this section, we present the idea of Design Thinking and its human-centred nature, along with the reason for us to apply this process and mindset.

According to Tim Brown (2010), CEO of the design company IDEO, the *Design Thinking* term emerged in 2001, when IDEO got asked to solve problems that was not traditional design problems. IDEO called these new processes "design with a small d", which later became "design thinking" (Brown & Wyatt, 2010). Design thinking has become very popular within all kinds of businesses as it has proven to be a great way to address highly complex problems, and thereby drive innovation (Plattner, Meinel & Leifer, 2016).

Complex problems are, in the world of design, often referred to as *wicked problems* (Rittel & Webber, 1973). Wicked problems are problems which are hard to define, with no indication on when the problem has been solved, and with many possible solutions depending on the problem solver's worldview (Buchanan, 1992). What we are trying to address in this project can be categorized as a *wicked problem,* because the problem itself can be labelled as both a social problem and a complex problem, which includes many different factors such as human behaviour, technical possibilities, attitudes etc. As the founders of the term *wicked problems*, Horst Rittel and Melvin Webber state: "problems of social policy [...] are "wicked" problems, whereas science has developed to deal with "tame" problems." (Rittel & Webber, 1973, p. 155). The two professors continue stating: "it makes no sense to talk about "optimal solutions" to social problems" (Rittel & Webber, 1973, p. 155). So, if there are no optimal solution to the problem we are dealing with, we can only trust the process and the methods and theories that we apply. In other words, the solution will be shaped by the choices we, as researchers, make: The methods we choose, our worldviews, and our beliefs as designers. The fact that we need to trust the process means that we must approach it with an explorative mindset, as we aim to explore the field of interest and, through this, design a solution for the identified problem.

Going through every phase of the Design Thinking process provides us with a frame to navigate within, and a system to address a problem of high complexity in a more structured way.

As we include the Design Thinking process as a framework, we can shape the thesis by the approach and methods, we apply during the design process, which ultimately affects how the phases are carried out. To this, we adopt a user-centred approach as the purpose of using the Design Thinking process is basically to take a human point of view (Brown & Wyatt, 2010). This means that a human-centred approach is used to take a high emphasis on getting to understand people in order to solve a problem for them (Brown & Katz, 2009). According to

IDEO, human-centred design provides a creative approach to solving the problem that emerges and exists within the Design Thinking process. Furthermore, IDEO explains that "Successful innovations rely on some element of human-centered design research while balancing other elements" (IDEO, 2020). These other elements contain: "feasibility, viability and desirability which can be used to consider the real needs and desires of people" (IDEO, 2020). According to Kristann Orton (2017), these three elements can also function as three essential criteria your design or solution must contain. For the design to contain "desirability" it must be something the future users genuinely need, whereas a "feasible solution" is based on the strength and possible operational capabilities (Orton, 2017). To this, we are interested in understanding the technical possibilities within the field of FinTech and the digital operation that Spar Nord can provide. Therefore, we have conducted an interview with Kim Østergaard, who is the chief of digital development and innovation in Spar Nord. In this interview we have asked him about the implementation process and technical capacity that Spar Nord can provide for implementing and developing our digital solution. How the insight gained from Kim will influence this project will be elaborated later in this project in section 3.2 and 6. Lastly, the element of *viability* refers to the degree in which the solution can contribute to long-term growth or profit (Orton, 2017). By considering these three elements, the Design Thinking approach helps us addressing and balancing both the human aspect as well as the business aspects. Because, as we seek to not only design a solution, but to be sure that it is actually possible to implement our solution in reality, we value taking the business aspects into our considerations as well (feasibility and viability). However, most importantly, we aim to design products that people actually want (desirability) by applying our user-centred approach.

In relation to FinTech, the Design Thinking approach has also been mentioned to be highly valuable. Varga (2017), which is a researcher with expertise in FinTech and innovation, states: "Design thinking is creating a competitive advantage for FinTech by generating the rapid, user-centred prototyping of new services that are simultaneously viable, desirable and feasible." (Varga, 2017, p. 243). So, even though one might associate FinTech with designs that only focus on financial matters, the emphasis on users and human behaviour is important for the solution to be successful.

Human-centred design mindset

When clarifying the approach and mindset in a project and design process, the landscape of human-centred design, illustrated by Elizabeth Sanders and Pieter Jan Stappers (2008), can be useful in order to reflect upon both our mindset and approach. Furthermore, it can affect the methods and techniques which are appropriate for this particular study. In the design landscape (see figure 1), we place ourselves to be mainly research led (see black circle), as we include the users as *subjects*, which fits well with our user and human-centred approach.
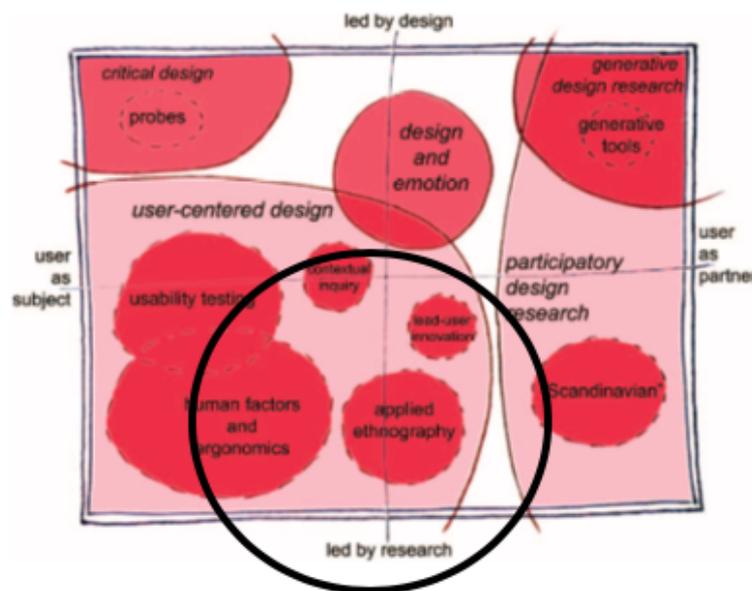
Figure 1: Our position in the landscape of human-centred design (Sanders & Stappers, 2008, p. 6).

However, during the process we might move around in the landscape. As an example, we are very inspired by the participatory mindset, nevertheless, many of the participatory design tools and techniques are challenging, as it requires that we, as the designers, involve user as co-designer throughout every step and phase of this process. Therefore, we might move slightly towards the right were *users are seen as partners*, when conducting the ideation workshop in section 5.1. The participants in our workshop will be perceived as co-designers when it comes to making design choices and choices regarding the content of the solution. But, as we do not characterize us as completely participatory, our main placement will be in the area of user-centred design (see figure 1).

2.2 Designing for behaviour change

In the design community, it is widely known that design can drive changes in people's behaviour both positively and negatively (Niedderer et al., 2014) - also in the field of sustainability (Rodriguez & Boks, 2005). Even though design has long been known to be able to have impact on behaviour, it is only recently Design for Behaviour Change (DfBC) has been recognised formally (Niedderer et al., 2014). Where the Design Thinking process and the user-centred design approach focus on designing a solution that centres around the users, the field of DfBC aims to design a product where the fundamental purpose is to change the behaviour or attitudes of the users.

Even though designs can have an impact on behaviour – it is important to state, that the *purpose* of changing the behaviour of the users, does not necessarily lead into a change. For, there is no "recipe" on how to successfully build behaviour changing products (Niedderer et al., 2014). Nevertheless, there are different approaches and strategies in the field of DfBC, where the outline is that "At the most elementary level DfBC attempts to understand people, why they behave the way they do [...]" (Niedderer et al., 2014. p. 621).

So, in order for us to design a digital solution that can have an impact on, or change, the behaviour of the users, we need to get a good understanding of the people whose behaviour we want to change. In our case: the *consumers.* Again, referring to a user-centred approach. To this, the understand phase of the Design Thinking process is useful, as the aim of this phase is to understand and emphasize with the users. Understanding both the users and the context, to where the design will be implemented within, are always important – but when we also apply the principles of DfBC, we are able to align our research and data gathering to the purpose: To understand the users, as well as understanding what *triggers* them and what *motivates* them. Moreover, as we aim to build a digital solution that can persuade the users to change behaviour, our main goal is to achieve a long-term effect – as we wish to achieve ongoing recurrent sustainable consumer behaviour. According to Johannes Daae, PhD in Design for Sustainable Behaviour, and Casper Boks, professor in design: "It is crucial to have insight in users and their context when designing products to create behaviour change." (Daae & Boks, 2015, p. 680).

This way, including the field of DfBC matches Design Thinking and the user-centred design approach as well as providing us with additional knowledge and tactics that are useful when designing a solution with the aim of changing sustainable attitude and encouraging pro-environmental behaviour.

The strategies for behaviour change differ whereas some are more focused on the cognitive parts of behaviour, while others focus on the contextual side (Niedderer et al., 2014). In an article by Niedderer et al. (2014), the different DfBC strategies are mapped according to the degree in which they focus on cognition vs context. As we wish to encourage and persuade the consumers – not forcing them, we will use the concept of *Persuasive Technology* by B.J. Fogg (2003), as a strategy within DfBC, to design a digital solution with the purpose of changing what they think as well as what they do. In the above-mentioned map, the Persuasive Technology and persuasive strategies are described as strongly targeting the cognitive aspects instead of the context.

This means that by applying the concept of Persuasive Technology, our strategy will mainly be focused on changing behaviour on *the cognitive level,* as we have limited influence on shaping the context/environment as well as the society that surrounds the consumer. Furthermore, the strategy of persuasive design contributes with the focus on how technology and interactive computer systems can be designed with the purpose of changing the user's attitudes and behaviours (Fogg, 2003).

Persuasive technologies appeared in the early 1970's and during the 90's the use of Persuasive Technology emerged by the popularity of the internet and is now used in domains such as e-commerce, educational systems, health care and environmental preservation (Fogg, 2003). When computer technologies and persuasion overlap, Fogg (2003) presents this as "Captology". It is according to Fogg (2003), in the appearance of *captology,* people's' behaviour can change, as the digital solution is *intentionally* created with the purpose of changing people's behaviour (Fogg, 2003). Consequently, in order for a technology to be persuasive, both the research, design and analyses must be carried out with the intention and purpose in mind.

In the next section, we will present the included phases of the Design Thinking process, with the purpose of providing a clear structure for this project.

2.3 The Design Thinking phases applied

As presented earlier, the Design Thinking process described by Hasso Plattner Institute of Design consists of five phases. However, as presented previously, we will modify the process to suit our focus.

Presented in our introduction, this thesis operates on a conceptual level with an emphasis on, what Sanders and Stappers (2008) refer to as, the *fuzzy front end* of the design process. The front end is named fuzzy because working within this state of the design process is known to be chaotic and ambiguity, as illustrated in figure 2 (Sanders & Stappers, 2008).
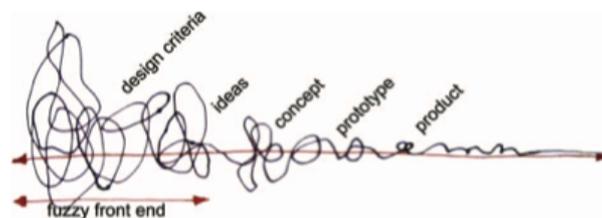
Figure 2: The fuzzy front end of design (Sanders & Stappers, 2008).

As Sanders and Stappers (2008) describe: "Considerations of many natures come together in this increasingly critical phase, e.g. understanding of users and contexts of use, exploration and selection of technological opportunities such as new materials and information technologies, etc." (Sanders & Stappers, 2008, p. 7). Because we have chosen to emphasize on understanding the field we are working in, we share the viewpoint of the fuzzy front end phase as being *critical* (see figure 2). This means that we will have an intensive focus on the fuzzy front end – prioritising to *understand* the users, the context and the exploration of the technical possibilities that can address our research question. For this reason, we value concentrating on the first four phases of the Design Thinking process, excluding the fifth phase (test). By excluding the test phase from this project, we do not suggest that testing the design is less important than the other phases. It is merely a decision based on, what our aim of the project is. Our aim is to focus on being primarily researchers and to uncover how a digital solution might be used as a means to encourage pro-environmental behaviour amongst consumers. We also aim to present a low-fidelity prototype that visualizes our

findings through our methodological process, and to reflect upon testing and evaluation this prototype in a future iteration.

Moreover, as we consider it relevant to not only emphasize with the users – but to investigate the context and field in which we will be working, we have chosen to re-name the first phase as "Understand" to cover the broader field of interest. This means our process includes the following four phases: Understand, Define, Ideate, and Prototype, (see figure 3).
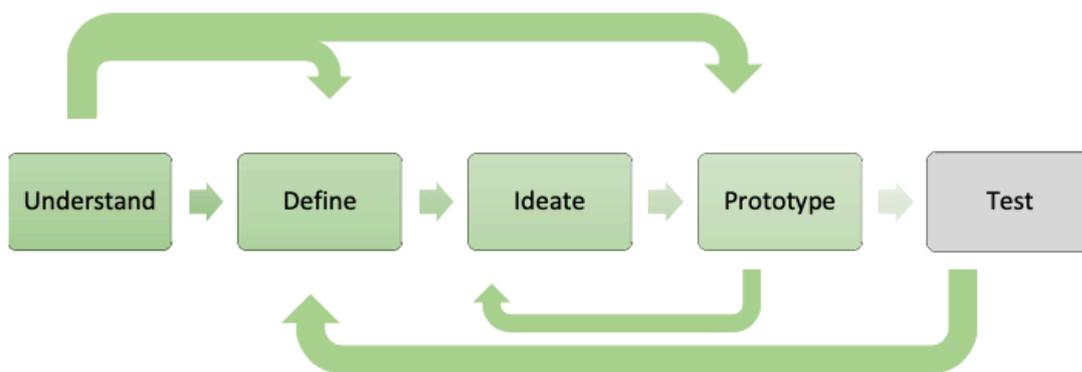
Figure 3: Illustration of the Design Thinking process and the iterative workflow ("test" marked in grey, as it is not part of the scope of this project) inspired by Siang & Interaction Design Foundation, 2019.

The arrows on our process-illustration in figure 3 is a visualisation of the fact that even though the process might seem linear, the Design Thinking process as well as our own process for the study, is far from linear. According to the Hasso Plattner Institute of Design (2010) "iteration is fundamental of good design", and iterations should happen throughout the process as well as in each phase. This also means that even though we follow this structure in the project, the different sections have not necessarily been completed in chronological order. Sections have been revisited during the process as we have gained new knowledge and discovered new questions to explore. As mentioned before, the Design Thinking approach is a framework, a process, and not a method in itself. This implies, that each phase needs to include different relevant methods in order to gain knowledge and to reach the goal of each phase. In the following sections, we will present each phase as well as the purpose and methods applied in these.

The Understand phase

The reason why we have renamed to "understand" instead of "emphasize", is because we wish to include more than empathizing with the users. We wish to gain knowledge about both the users, the field of interest and the context. According to the Hasso Plattner Institute of Design "The Empathize mode is the work you do to understand people, within the context of your design challenge." (Hasso Plattner Institute of Design, 2010). The understand phase is a central part of the fuzzy front end presented earlier. As we are not yet familiar with areas like the bank industry (the business of Spar Nord), FinTech and the concept of sustainability, we find it important to get a better understanding of these areas before we can start addressing the users. This means that this phase will include getting to know and understand the general context we are designing within, along with empathizing with the users and understanding the context. This phase is furthermore the "centerpiece of a human-centered design process." (Hasso Plattner Institute of Design, 2010), which means that it is not about the designer and the designers' thoughts and opinions; it is about the users - the people who are going to use the solution. This phase will, therefore, include the following sections:
Data collection and research principles, Understanding the bank industry and the concept of sustainability, and lastly *Understanding consumers and pro-environmental behaviour change*. Methods used in this phase include academic literature research, semi-structured interview, and a focus group interview including generative techniques. When the data is gathered, and we have gain knowledge about the field of interest, we will move on to the next phase: the define phase.

The Define phase

"The Define mode of the design process is all about bringing clarity and focus to the design space." (Hasso Plattner Institute of Design, 2010). This phase is where we will process, analyse and synthesize the information from the understand phase and identify patterns. The goal of this phase is to "craft a meaningful and actionable problem statement." (Hasso Plattner Institute of Design, 2010). This is also the phase where we make sense of the knowledge, we have gained in the previous phase. Our main task in this phase is to highlight the complexity and the dilemmas discovered in our data. Therefore, it is important that we stick to our mind-

sets and approaches, so we can frame the challenges and deal with these dilemmas and the complexity in the ideate phase – without losing focus.

This phase include an empathy map, which is used to visualise and process the data in order to get familiar with the data and our findings, as well as gaining an overview of how our future user – the sustainable consumer – thinks, feels, does, and says.

Furthermore, we will use techniques like Point-of-View template and "How might we"-questions in order to translate the data from the empathy map into the final problem statement. This problem statement will then be addressed in the ongoing phases of idea generation and shaping the solution (prototype).

The Ideate phase

Ideate is the phase where it is time to start generating ideas. It is "a process of "going wide" in terms of concepts and outcomes." (Hasso Plattner Institute of Design, 2010). In other words, this is a diverging phase were the aim is to come up with as many possible solutions to the challenges, stated in the define phase, as possible. "It's not about coming up with the 'right' idea, it's about generating the broadest range of possibilities." (Hasso Plattner Institute of Design, 2010).

This phase contains an online workshop where we include users as co-designers, taking a more participatory approach by involving the users in idea generation and design decisions. This workshop will lead to the requirements of the solution, which will be presented in section 5.2).

The Prototype phase

Prototyping is a tool to rapidly create a solution, something tangible, to show users in order to get feedback, it supports communication with both users and co-designers (Hasso Plattner Institute of Design, 2010). "A prototype can be anything that a user can interact with" (Hasso Plattner Institute of Design, 2010). This can be post-it notes, role-play, storyboards, or more refined prototypes, whereas we will be focusing on developing a digital prototype the reflects the actual size and lay-out of our solution. Developing prototypes can also be a way to ideate and problem-solve because of the nature of thinking while building (Hasso Plattner Institute of Design, 2010). In the prototyping phase, we converge and realize the design choices and

requirement specification from section 5.2 in our prototype. Although testing and evaluation is not part of the scope for this project, we will aim to develop a prototype which is usable enough to be tested, refined, and validated in later iteration.

As mentioned earlier, the test phase would be relevant to conduct in a later iteration as the testing phase is key in order to get valuable feedback from the users. According to the d.school process guide (2010), the test phase is an opportunity to emphasize with the users again (see figure 3 for illustration of process), from a new standing point, as problems have been framed and new insights have been discovered during the four previous phases. Furthermore, when approaching users, it is important to not only ask them if the solution is good or not, but to ask them why (Hasso Plattner Institute of Design, 2010).

Moreover, excluding the test phase is based on the fact that we, as the researchers, need to be aware of both the resources and the timeframe of this project. Especially, when the areas we are working with can be categorized as both chaotic and ambiguity (see figure 2).

2. Understand

As mentioned, the first step in the Design Thinking process is to "understand" both the context we design within and the future users.

Therefore, this phase presents:

- Our data collection and the research principles we follow
- Exploration and understanding of the banking industry and the concept of sustainability – hereunder, semi-structured interview with our case partner, Spar Nord
- Exploration and understanding of consumers and pro-environmental behaviour, including a focus group interview

The combination of both literature research and semi-structured interview provide us with a wider knowledge, as we are able to gain data directly from an expert within the field of banking and FinTech. The focus group interview helps us empathising with the users. Additional literature allows us to search and conduct research that covers a greater scope, and where we, as researchers, define what literature is relevant for us to work within this area.

3.1 Data collection and research principles

When working human-centred, we are interested in knowledge and insights about the lives, needs and behaviour of the users, which means that the data collection in this project can be categorized as qualitative data (Bryman, 2016f). Conducting qualitative data means that the data and knowledge, we gather, are flexible and contains deep and elaborating responses, which according to Alan Bryman (2016) is the nature of qualitative research (Bryman, 2016d). The qualitative researcher often concerns about words and meaning instead of numbers or variables (Bryman, 2016d). This could in most cases imply that the researchers find themselves in the context where their study lies and physically find themselves near the respondents – especially if the method of observation is included in the data collection process. This can, additionally, be compared to how we have decided to focus on the first four phases of the Design Thinking process, as we are concerned with the meaning and gaining a deep qualitative understanding of the field, we are working within. When working user- and

human-centred, the researcher is interested in how users are interacting with the design (Daae & Boks, 2015). Therefore, it was our intention to conduct either a workshop or a focus group interview, with physical interaction and involvement of the participants in order to observe and gain the best possible knowledge about the users' behaviour, attitudes and patterns. When conducting workshops as a data gathering technique in the design process, the researcher will be able to include the participants – not only as subjects, but as co-designers. During this thesis, we include both a focus group interview and an ideation workshop, involving the users on two different levels: as subject in a focus group interview and as partner in the workshop and thereby, embracing a more participatory approach (Sanders & Stappers, 2008). Different from the intended, both of these are conducted online instead of physical.

According to Johannes Daae & Casper Boks (2015) user-centred researchers can apply methods that allow them to either *communicate* with the users or *investigate* what users actually do. Methods such as observation, workshops, user-testing and ethnography often "[…] allows access to information that the user may be unaware of, but is not suitable for investigating factors that exist in the mind of the user." (Daae & Boks, 2015, p.684). Whereas methods such as interviews, focus groups and surveys are helpful when investigating subjective attitudes and internal factors (Daae & Boks, 2015). As we are not able to be physically present when collecting data, we are not able to apply methods that allows us to observe the behaviour and interaction between the users in a specific context. Therefore, we have chosen to apply methods for *communicating* with the users – as we have chosen to apply both the methods of semi-structured interview as well as focus group interview, and later an ideation workshop. These methods will be carried out online using an online video communication tool, which allows us to interact through real-time. To this, Bryman (2016) presents the possibility to conduct both synchronous and asynchronous online focus groups (Bryman, 2016g). In this study, we have chosen to conduct synchronous online focus groups, as we were interested in interacting with the users. Furthermore, Bryman (2016) argues that the online focus group provides the opportunity to use "a captive population" of people who already know each other and who are already communicating with each other. But, as we have chosen to include a group of participants that are not equally skilled in using online tools or know each other, we have chosen to include four participants in our focus group in order

to make sure that we are able to facilitate the focus group. The reason for this is that we want to gain knowledge from an ordinary bank customer – who has an interest in sustainability but might not be the most skilled when it comes to digital solutions and technologies.

According to Daae & Boks (2015) the methods for communicating with the users are provided by the users, and is therefore not observable: "[…] it is necessary to be aware that the information is subjective and may be affected by factors such as social desirability and prestige response bias." (Daae & Boks, 2015, p. 683). To this, it is our responsibility to establish a professional and safe space whereas no answer is right or wrong. This is especially one of the issues that we have addressed when planning the data collection, as we need to make sure that the used methods and techniques are carried out successfully regardless of whether it is face-to-face and online. To this, we will address Preece, Rogers & Sharp's (2015) *five key issues* as a way of addressing these challenges when planning the different data gathering sessions.

Planning the data collection; Five key issues

According to Preece, Rogers & Sharp (2015) every research and data collection must be carefully planned and conducted in a manner that takes the research question and problem formulation into consideration through the entire process. In order to make sure that our data sessions are successful, Preece, Rogers & Sharp (2015) present the five key issues which require attention when planning and conducting data gathering sessions. As we have not yet defined our problem statement, we will address the five key issues: *setting goals, identifying participants, relationship with participants, triangulation,* and *pilot studies* (Preece, Rogers & Sharp, 2015a). When addressing these five issues, we will include relevant subjects such as ethical considerations, sampling and population. These is used to address the five issues thoughtfully and with the aim of ensuring that the data can be used in order to provide a stable and accurate set of requirements for the design. These five key issues will be applied throughout the understand phase but also considered when designing our workshop in section 5.1.

1. **Key Issue: Setting goals**

Setting specific goals for the data collection allows the researcher to ensure that the preparation of interview guides and questionnaires includes relevant questions and topics. According to Preece, Rogers & Sharp (2015) "The goals that are set will influence the nature of the data gathering sessions, the data gathering techniques to be used, and also the analysis to be." (Preece et al. 2015a, p. 179).

We would state that the overall goal of our data collection in this understand phase is: To gain an understanding of the users (the consumers) in order to ensure that we target the end-users and develop the right solution for them (Hasso Plattner Institute of Design, 2010). We want to include the users as much as possible when gathering data in order to ensure that the requirements are not just desirable but also feasible (cf. section 2.1). With this, we do not underestimate the importance of maintaining our user-centred approach, but state that in order to design a successful solution, we need to gain knowledge about the field of interest from the literature and explore the business perspective.

We wish to gain insight into our users' attitudes and behaviour as well as to explore our research question, as we want to investigate how we might enhance consumers' pro-environmental behaviour by designing an integrated digital solution for mobile banking. As well as the degree consumers might be willing to adapt and adjust to a pro-environmental behaviour.

2. **Key Issue: Identifying participants**

In connection to our goal setting, it is essential to define the participants in our data collection. According to Preece, Rogers & Sharp (2015) the goal setting process often indicates which kind of people the researcher wants to gather data and knowledge from. In some cases, the target group, the researcher wants to collect data from, is clear and in other cases the population of the study must be chosen through different sampling techniques (Preece et al., 2015a).

In our case, we have identified our ideal participants for our interviews to be: 1. *consumers*, or more specific, *banking customers* with an interest in sustainable consumptions; 2. an

industry expert from Spar Nord (Kim Østergaard). We separate between these two types of respondents, as the main part of our dataset will be gathered from the banking customers which is also our *users,* whereas, the expert-oriented data collection is used as supplementary knowledge. This knowledge will be used as a means to understand the industrial field of banking, Spar Nord as a business, in order to understand the technical limitations to our requirements.

As for the sampling of participants, our original agreement with Ole Madsen, who is our contact person from Spar Nord, was that he would gather a group of their customers, who have already engaged in their green car loan mentioned in section 1.1. This way, the sampling could be categorized as *Snowball Sampling.* According to Bryman (2016) the Snowball sampling technique occurs when the researcher contacts one – or more – relevant participants, whereas these participants then suggest others (Bryman, 2016e). This sampling is especially recommended when probability sampling is not possible, or when the group of respondents is difficult to reach (Bryman, 2016e). However, as this was not possible for us due to the lockdown of Spar Nord's offices, we needed to sample the participants in another way. Therefore, we decided to apply the *Convenience sampling* technique. The convenience sampling is "one that is simply available to the researcher by virtue of its accessibility." (Bryman, 2016b, p. 187). The disadvantage of this sampling is that the respondents that are accessible for the researcher might not represent the population or target group for the study (Bryman, 2016b). To this, our four participants are chosen with great care, as each of them represent a role from "the ordinary family" which is Spar Nord's target group (see appendix 5). For example, our participants consist of two students who lives in different places, whereas one of them owns a house and a car, the other one rents an apartment - their attitudes towards pro-environmental behaviour as well as their consumption patterns are completely different. The last two participants represent both a new-mom and a mom with grown up sons, who has moved away from home several years ago. In addition to being in two different phases in life, these two participants also represent how the age and generation of the users can influence to what degree they are skilled in using digital solutions and mobile applications.

3. Key issue: Relationship with participants

As both the goals and participants in the data collection are identified, Preece, Rogers & Sharp (2015) highlight the importance of maintaining a professional and clear relationship between

the researcher and the respondents. Furthermore, they state the importance of informed consent form, as the informed consent can be used in order to establish the relationship as professional (Preece et al., 2015a). But what happens when the researcher does not include an informed consent? And how can this affect the relationship?

The *"lack of informed consent"* is a principle presented by Bryman (2016) as one of four ethical principles. To this, Bryman (2016) states that the respondents must be given as much information as possible in order to create a trustworthy and professional relationship (Bryman, 2016a). If a study is conducted without informing the participants, it can be categorized as a *covert research* which often includes both ethical and legal issues (Bryman, 2016a). Besides the ethical principle lack of informed consent, Bryman (2016) presents other ethical principles such as *invasion of privacy* and *deception* and argues that if the researcher does not include an informed consent, it may affect the other ethical principles as well. This is based on the assumption that the informed consent ensures that the study and data collection is based on "[…] a detailed understanding of what the research participant's involvement is likely to entail, he or she in a sense of acknowledges that the right to privacy has been surrendered for that limited domain." (Bryman 2016a, p. 131). Therefore, it is important for us, as researchers, to create and delegate an informed consent to the respondents before collecting data from them. The informed consents for both Kim Østergaard and for our participants in the online focus group can be seen in appendix 1 and 7.

By including informed consents, the researcher can, according to Preece, Rogers & Sharp (2015), achieve a clear relationship as it is a way to set the tone and reassure the respondents that their data will not be used for other purposes. Furthermore, when the data is collected through an online media, it is important that we, as both the researchers and facilitators of the focus group interview, articulate the structure and process of the interviews in a clear and professional way. By setting the tone and facilitating the structure, we argue that we will automatically establish a clear relationship between us as the facilitators, and them as participants. How we have facilitated the focus group and taken online challenges into consideration will be elaborated in section 3.3.

4.   Key Issue: Triangulation

The fourth key issue is triangulation which refers to different perspectives we, as researchers, can apply when investigating a phenomenon (Preece et al., 2015a).

To this, Preece, Rogers & Sharp (2015) have already defined four different types of triangulation which is:

1. When the data is gathered from "[…] different sources at different times, in different places, or from different people." (Preece et al. 2015a, p. 182). This is called *triangulation of data.*

2. When different researchers have been used to collect and interpret data to the same study. This is called *investigator triangulation* (Preece et al., 2015a).

3. Triangulation of different theories which refers to the use of, or combination of different theories and theoretical frameworks (Preece et al., 2015a).

4. The last type of triangulation is the *methodological triangulation* where the researcher applies different types of data gathering methods and techniques. (Preece et al., 2015a).

Addressing this key issue allows us to define exactly what kind of data gathering techniques as well as which perspectives we are applying when investigating the phenomenon of consumer behaviour, consumption and sustainability. Firstly, we state that we are applying the *triangulation of data* as well as the *methodological triangulation*.

Applying the *triangulation of data* is based on the fact that we have gathered data from different sources at different times, as we have both interviewed Kim Østergaard from Spar Nord (see section 3.2) and gathered data from future users (see section 3.3). When collecting the data, we both conducted semi-structured interview as well as an online focus group, which refers to the *methodological triangulation.*

5.   Key issue: Pilot Studies

The fifth and last key issue we are going to address is the issues regarding pilot studies. A pilot study of the data gathering is described as "[…] a small trial of the main study." (Preece et al. 2015a, p. 182). The purpose of conducting a pilot study is to validate the planned data gathering methods, questions and techniques. By referring to the pilot study, it is important to state that this has nothing to do with the test phase in the Design Thinking process. It only concerns whether we have chosen to test the questions from our interview guide, before

conducting the actual data gathering session. This issue will not be addressed with the same attention as the other key issues, as we will not be conducting a pilot study of our methods or interview guides in this understand phase.

In the next section, we will move on and present our understanding of the term sustainability and the bank industry.

3.2 Understanding sustainability and the financial institutions

In this section, we first present the study behind our understanding of the concept of sustainability. Secondly, we present our researched knowledge about the financial institutions and their role in sustainable development. Lastly, we present the interview with our case partner, Spar Nord, among the key learnings regarding the development and implementation of our solution into their mobile bank.

Defining sustainability

When referring to the concept of sustainability, elements such as economics, behaviour, responsibility and consumption are often included. This is based on the fact that according to Pettersen & Boks (2008) the concept of sustainability is founded in three pillars; *economic viability, environmental responsibility* and *social responsibility.* Both economic and social elements are required in order to initiate sustainable development (Pettersen & Boks, 2008). In addition, it is not just the production of products nor the purchasing of product that causes a negative effect on the environment, as Pettersen & Brooks states that "[…] the user phase accounts for the largest environmental impacts." (Pettersen & Boks, 2008, p. 108). This means that the consumer behaviour and patterns have a direct impact on environmental problems - as well as the society (Pettersen & Boks, 2008). As the consumerism keeps evolving as a central part of society, which means that the patterns arise from a series of complex factors and a variety of conditions that needs to be addressed before a pro-environmental behaviour is achieved (Pettersen & Boks, 2008).

The United Nations have established 17 different sustainable development goals. All of these goals address several global challenges such as poverty, inequality, climate change, justice,

environmental issues, and peace (un.org, 2020). Every goal is interconnected and share sustainability as a common term and goal (un.org, 2020). When the term sustainability is used in relation to United Nations' 17 sustainable development goals, the term "sustainability" does not only refer to the climate, inequality or environment, but includes the importance of money – as the financial growth can be used as a tool for promoting sustainability in the world (United Nations; Knowledge platform, n.d.). The 17 goals are illustrated in figure 4 below and all include a call-to-action need in order to reach the objectives such as: no poverty, zero hunger, clean water, affordable and clean energy, sustainable cities and communities, and climate actions (United Nations; Knowledge platform, n.d.).

Figure 4: UN's illustration of the Sustainable Development Goals from (United Nations; Knowledge platform n.d.).

Especially goal number 12: "Responsible consumption and production" and goal number 13: "Climate change" are relevant in this project as these goals revolves on the emission of greenhouse. Whereas the sub-objective to goal 13 is to "Improve education, knowledge, and the human and institutional capacity to counter, adapt, mitigate damage and early warning of climate change." (Verdensmaalene.dk, 2016). Furthermore, the goal of sustainable consumption and responsible production (goal 12), focuses on promoting energy and resource efficiency, which requires sustainable infrastructure and a change in the material consumption of natural resources (un.org, 2020). According to Anthony Giddens (2009), one of the main issues when referring to sustainability and sustainable changes is the people is not "geared up" to understand the sustainable threats we face. Furthermore, Giddens (2009)

argue that "For most people there is a gulf between the familiar preoccupations of everyday life and an abstract, even apocalyptic, future of climate." (Giddens, 2009, p. 2). With this statement, he refers to the fact that even though most people have heard the phrase "climate change", the concept of climate change seems abstract and distance for most and "[…] there is a long way to go before rhetoric becomes reality." (Giddens, 2009, p. 4). Especially this gap between awareness and real changes is one of the problems we wish to address with our study and digital solution.

Financial institutions and their role in sustainable development
The financial institutions are often categorized as intermediaries between the consumers who borrow money and the customers who save money, as well as facilitating investments (Varga, 2017). According to Varga (2017), the banks and financial institutions have an essential role in the society, as they both offer financial services to the corporate marked as well as to the individual consumer. To this, the demands of the costumer, as well as the cultural beliefs, influence how the financial organisations conduct their strategies (Varga, 2017). Meeting the demands of the customers is also something Spar Nord is working on in their annual report for 2019, as their goals for 2020-2022 are to offer their customers a broad portfolio of services and focus on being a "personal and digital bank".

As mentioned earlier, their 2020-22 vision is not just to be a bank that handles their customers' money and investments, but to be "Denmark's most personal bank" and a "proper bank" (Spar Nord, 2019). To this Spar Nord has already implemented a new car loan where they offer to compensate their customers' driving behaviour with 150 percent by supporting CO2-reduction measures through the entire time-period that their customers get their car financed by them (Sparnord.dk/BæredygtigBil, 2019). To this Spar Nord states on their website that "We know that it does not save the climate, but it is a small step in a greener direction." (Sparnord.dk/BæredygtigBil, 2019).

According to Jakob Martini (2019), a working group under the trade association Finance Denmark has announced that the climate impact of bank customers will be used in order to determine how attractive loans they can get. Furthermore, the article "Banker klar til klimakamp: Grønne kunder har udsigt til billigere lån" by Martini (2019) states that the banks

and financial institutions possess a central role which means they have the possibility to accelerate the green transition. By this, it is clear that it is not only Spar Nord who is working on becoming more responsible in regard to the environment and the climate.

The bank Nordea's environmental approach also includes concerns on how the global and environmental challenges can affect the global economy. They are working on identifying climate change-related risks, as well as working on how developing new climate-friendly products for their customers (Nordea.com, 2020). To this the use of FinTech has become popular as a means to achieve one or more of the United Nations Sustainable Development Goals, presented above. For example, Nordea offers their customers the opportunity to see their personal CO2-footprint when using one of Nordea's digital solutions (Paulsen, 2019). Aligned with Nordea's environmental approach, they want to offer interested customers insight about their consumption's impact on the environment, and how to reduce or compensate their CO2-footprint (Paulsen, 2019). In order to provide their customers with the CO2-footprint calculations, they use the Ålands Index which is developed by Ålandsbanken in Finland. The Index provides an approximately calculation of the CO2 impact, the customers' purchases of goods and products have on the environment (see figure 5 below) (Paulsen, 2019).

Figure 5: Nordea's app using the Ålands Index (Nordea.dk, 2020).

However, it is not only Nordea and Ålandsbanken who offer customers, or users, the opportunity to get an overview of their consumption's CO2-footprint. Other application providers have also developed different kinds of applications for smartphones that allows the users to gain insight on how their consumption affects the environment. In figure 6 below, screenshots of other providers such as, an a application called EcoTrack (EcoTrack.me, 2017) and a Swedish start-up Svalna (Aksel, 2020) offer their users different kinds of visualization of their CO2-footprint.

Figure 6: Apps visualizing personal CO2; EcoTrack (EcoTrack.me, 2017) and Svalna (Aksel, 2020).

So, using FinTech as a way of visualizing peoples CO2-footprint is already a service, several IT- and FinTech providers are working on. Especially, Nordea's use of Ålands Index (see figure 5) has inspired us during the development of our prototype, as we will include this application, among others, in our ideation workshop in section 5.1.

When focusing on sustainability and sustainable behaviour, it does not only involve actions such as cutting back on the amount of plastic and paper or using public transport. It involves the need to actively choose sustainable and ethical brands (FinTech Futures, 2019). According to the article *Three key steps that can put banks ahead in the sustainability revolution* by FinTech Futures (2019) "There are three key steps in which brands can achieve this[1], including adopting sustainable technology, processes and products which can deliver a substantial reduction of carbon footprint." The three steps are: 1. Move away from paper; 2. Use sustainable material and partner with green suppliers; 3. Provide customers with insight about their carbon footprint (FinTech Futures, 2019).

Adopting sustainable technologies can have a positive impact on these three steps. Processes and procedures that new finance technologies provide, reduces the need for printed documents as they offer digital alternatives to paper – helping the financial institution to move away from paper (FinTech Futures, 2019). Adopting new finance technology solutions is also a way of tracking different organizations' carbon-footprint as well as encouraging sustainable investments and sustainable behaviour by showing the users how their investments are affecting the climate and environment (Schacht, 2018).

These kinds of finance technology solutions lie in the relationship between politics, economics, social behaviour and other elements that creates a functional system whereas the carbon-footprint is being reduced instead of increased (Varga, 2017). According to Varga (2017) the banks and financial institutions have both a direct and an indirect impact on the sustainable development. The direct impact includes elements such as their use of paper, energy and waste management in their buildings and offices (Varga, 2017). To this Spar Nord's new car loan can be categorized as an indirect impact, as it is the customers that must choose this car loan before it can make an impact on the environment. According to Kim Østergaard, Spar Nord is always working on providing their customers with extra services – especially digital services – but it requires a large amount of resources, which requires a collaboration with suppliers (See appendix 3). When Spar Nord establishes a collaboration with a new supplier, they need to go through a severe supplier-approval where the focus is on compliance, IT-security and the user experience that they can provide their customers. In the

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[1] This; sustainable awareness and pro-environmental behaviour.

following section, we will present a further elaboration of the knowledge gained from our interview with Kim Østergaard, as Spar Nord's core-banking and mobile bank application depends on BEC. BEC is an IT partner for several financial institutions and organizations in Denmark's financial sector (BEC.dk, n.d.). So, when the process of developing and implementing new digital services in Spar Nord's digital platforms needs the involvement and approval of both Spar Nord and BEC – how can we as researcher argue that a new digital solution is worth their time and resources?

According to Varga (2017) the primary pursuit in regard to implementing new initiatives, in a business perspective, are to gain a long-term profitability for their company (Varga, 2017). When companies implement sustainable initiatives, their innovation and growth also become sustainable as their main goals in these initiatives is not just to gain financial profit, but to focus on social and environmental services (Varga, 2017). This shift does not just affect the industry or other businesses, but their customers as well. According to Denmark's chairman of finance and director of Nykredit, Michael Rasmussen, the financial institutes and banks play an essential role in the society as they have the possibility to channel the money in a direction which boosts the green transition (Martini, 2019). Furthermore, Rasmussen argues that it is up to the individual institutes to decide whether the "green customers" can borrow money cheaper than others, as long as we make sure that we do not support initiatives that is not financially sustainable in the pursuit of the green transition (Martini, 2019). But what are the business aspects and the processes when implementing new digital products in Spar Nord's net banking or mobile banking? And what does innovative and sustainable digital solutions in the field of banking and FinTech require? This is some of the areas, we wanted to investigate through our interview with Kim Østergaard, which will be presented in the next section.

Interview with Kim Østergaard from Spar Nord

Our collaboration with Spar Nord is based on the notion of knowledge-sharing. Including the business perspective from Spar Nord has supported our understand phase, as we have gained knowledge and insight relevant for understanding the field of interest. To articulate the partnership explicit: We create and design a concept and they (Spar Nord) contribute with

relevant knowledge. So, when we expressed our need of business related and technical knowledge to our contact, the Communication Director in Spar Nord, Ole Madsen, scheduled a meeting with Kim Østergaard, Head of digital business development and innovation. Prior to this meeting, we prepared an interview-guide with a series of open-ended questions, which can be seen in appendix 2. Creating an interview-guide with open-ended questions provide the researchers with replies that is based on the respondents' points of view and in their own term (Bryman, 2016c). Furthermore, open-ended questions often provide unusual responses, as the researcher cannot know what kind of answer he or she will receive (Bryman, 2016c). The fact that we, as researchers, cannot know what kind of answers we will get to our open-ended questions, can also mean that the conversation cannot be completely structured, which is why we applied the method of semi-structured interview for this meeting. Semi-structured interview combines characters from both structured- as well as unstructured interviews (Preece et al., 2015a). The open-ended question often provides unusual responses, as it allows us to follow an interview-guide, and at the same time, deviate from the questions if elaboration is needed. This was also the case during the interview, as the questions from the interview guide was not asked in the same order as they are written in the interview-guide (see appendix 2 & 3). For example, we did not need to ask all the prepared questions regarding MCC (Merchant Category Codes) and third-party collaboration, as Kim Østergaard had already answered these through his answers to other previous questions.

Therefore, the interview-guide functioned as a checklist in order for us to make sure we addressed the topics and issues that are relevant for our study.

Furthermore, Bryman (2016) refers to interviews as something that traditionally takes place face-to-face, but as described earlier, this was not possible due to the unforeseen circumstances of COVID-19. Therefore, the interview with Kim Østergaard was conducted by the use of Google Hangouts, which provided us with the possibility to interact through real-time video. Google Hangouts was chosen because of our familiarity with the tool, and because of its intuitive interface and easy-to-access nature. A tool we assessed would make both ourselves and the interviewee comfortable, as it provides functions such as video, messages, and voice-call. Specifically making people feel comfortable through technology has been discussed and addressed to have both advantages and disadvantages (Lo Iacono, Symonds & Brown, 2016). In our case, we did not experience any difference in this interview, possibly

because we already had established relationship by email, as highlighted by Sally Seitz: "Emailing several times before Skyping might also strengthen rapport" (Seitz, 2016, p. 233). Neither did we experience any technical issues during the interview.

Key learnings from the interview

Instead of focusing on finance technology and the concept of sustainability, it became clear that the processes of developing new digital services in Spar Nord can be more complex than first anticipated. Implementing a new application (API) in Spar Nord's netbank or mobile bank requires a complicated procedure because, as Kim Østergaard states in the interview; "It is generally about getting multiple systems to talk to each other" (See appendix 3).

The fact that Spar Nord uses BEC as their IT-supplier can create problems in regard to feasibility (cf. section 2.1), as we aim to include the business values and regulation into our considerations for future implementation. In addition, several of the regulations in the banking industry are high-level directives as they come from the EU, which according to Kim Østergaard is a sign that there is a tendency to democratise banking industry through pay directives, such as the EU's PSD2, making it easier for new actors to enter the financial industry.

It varies from bank to bank in which degree data can be extracted from transactions, as the banks use different systems and IT-suppliers. Right now, the only data Spar Nord can retrieve from a transaction is the store where the purchase is made, the amount of DKK used on the purchase and the consumption date (See appendix 3). Kim Østergaard states that they do not use all the available data or exploits the degree of details, which is possible to extract from a transaction, as they have not implemented the use of Merchant Category Code (MCC). According to Kim Østergaard these codes "[…] can display metadata by transaction so that they have a search functionality where you can search "expenses - last week - In London", because they have a location at the store, so they can give you an overview of what expenses you have had and where you have had them." (see appendix 3).

It is important to state that the knowledge gained from this interview is indeed relevant for our understanding – but will only function as complementary knowledge and our focus will

be on designing the concept. Our main objective is, and will be all the way through this study, to design a concept that is based on relevant data from the future users and relevant theories on topics, for example Persuasive Technology, designing user-friendly interfaces and design for behaviour change.

With this in mind, the focus will hereafter be on the consumers in the attempt of understanding and emphasising with the future users of our digital solution.

3.3 Understanding consumers and pro-environmental behaviour change

In order to understand the future users, we need to understand consumers, their environmental attitude and behaviour, along with the context they act within. Therefore, in this section we cover who our target group is, our definition and understanding of consumers and what drives consumption, along with what it requires to change the target group's behaviour in a pro-environmental direction.

Specifically, this section will cover terms such as consumer vs. sustainable consumer, sustainable consumption, what pro-environmental behaviour is, and how money can be turned into both personal symbolism and personal value. Lastly, we present our performed focus group interview, including the key learnings. The focus group interview also works to link the different areas we work within.

The target group – and how to persuade them to change their behaviour

As addressed in the five key issues in section 3.1, we lean against Spar Nord's main target group, which according to our contact in Spar Nord, Ole Madsen, is "The ordinary family" (appendix 5). However, aligned with the social scientist B.J. Fogg (2009), we seek to narrow our target group to people with an existing eager to act more sustainable, as high motivation is a prerequisite to succeed with Persuasive Technology (Fogg, 2003; 2009). Furthermore, the application targets the customers, who are able to use Spar Nord's application.

According to TNS Gallup (Konkurrence- og forbrugsstyrelsen, 2013), the majority of people in Denmark wish to consume more sustainably but at the same time their behaviour does not follow this statistic. According to a survey conducted by TNS Gallup for the Danish Competition- and Consumer agency more than half, 54 percent, go for specific labels that indicate special considerations when purchasing, but at the same time 38 percent have not purchased sustainable groceries or products in the last month (Konkurrence- og forbrugsstyrelsen, 2013). For this group, 52% indicate that they need better information in order to be able to base their choices on fact, before they buy sustainable groceries and products (Konkurrence- og forbrugsstyrelsen, 2013). To this, we apply a critical mindset, as we do not believe that by providing more information, the attitudes and behaviour will automatically change. This is based on the assumption that in order to persuade the target group to change their behaviour this must firstly be a "voluntary change", and secondly, we do not believe that information will automatically change behaviour. We need to trigger our target group, in order for them to perform the desired behaviour (Fogg, 2003; 2009). This can be compared with the fact that persuasion has a direct relation to learning. According to Sandra Burri Gram-Hansen and Thomas Ryberg (2015), the concept of persuasion is linked with not only behaviour change – but attitude change as well (Burri Gram-Hansen & Ryberg, 2015). If we are going to reach pro-environmental behaviour through our digital solution, we must be prepared to provide knowledge and thereby "teach" the users – in order to have the chance to change their attitudes. Because, "Whilst behaviour in general may be influenced by a number of different things […], "being persuaded" calls for a deeper understanding of the given situation and an active decision to change behaviour – based on attitude change." (Burri Gram-Hansen & Ryberg 2015, p. 186). To this, we must emphasize on the word "may", as information *may* influence behaviour change. Because, even though new knowledge is presented as the main lead to attitude change the change is not automatically given. According to Burri Gram-Hansen and Rygberg (2015), the change in attitude is the first step and can ultimately lead to a "sustainable behaviour change" (Burri Gram-Hansen & Ryberg, 2015). Even though Burri Gram-Hansen and Ryberg (2015) refer to the behaviour change as "sustainable behaviour change", this does not relate to how the term sustainability is used in section 3.2, but to the fact that the process of learning as well as the process of persuasion is not just about changing attitudes and behaviours here and now – but about becoming someone new in a sustainable and lasting way (Burri Gram-Hansen & Ryberg, 2015). This can

also be compared with the thought that "educating people about environmental issues would automatically result in more pro-environmental behaviour" (Kollmuss & Agyeman, 2002, p. 241). As it can be seen in figure 7, this thought, and mindset has been the foundation for building the classical models to understand pro-environmental behaviour where education would lead to change in attitude and thereby change in behaviour:

Figure 7: Classical model on behaviour change (Kollmuss & Agyeman, 2002, p. 241)

Though, this seems to be what people, in the before mentioned Gallup survey, might expect, Kollmuss and Agyeman (2002) argue that the relationship between attitude and behaviour is not that simple, at least not when it comes to pro-environmental behaviour.

In their article "Mind the Gap", Anja Kollmuss and Julian Agyeman (2002) highlight some reasons, from various researches, on why people's attitude towards the environment does not always correspond with their behaviour. One explanation they present is that "Direct experiences have a stronger influence on people's behaviour than indirect experiences" (Kollmuss & Agyeman, 2002, p. 242). An example of this could be that learning about environmental issues like plastic in the oceans is not as effective as experiencing a turtle wrapped in plastic. To this, we will investigate if the lack of instant or visual results also have a negative impact on our target groups motivation for behaviour change.

Another explanation could be that "Social norms, cultural traditions, and family customs influence and shape people's attitudes" (Kollmuss & Agyeman, 2002, p. 242). What others think matters, and if others' attitude is less pro-environmental, the behaviour is less likely to occur despite the person's own positive attitude. In our design, we will take this into consideration and aim to close the gaps between learning, attitude and behaviour. This gap can also be compared to Anthony Gidden's (2009) *"The Politics of Climate Change"* presentation of a gulf between people's everyday life and the climate change as an abstract

and intangible phenomenon (Giddens, 2009). It is, according to Giddens (2009), not only the given information or the learning that can lead to behaviour change – but the intention of changing behaviour must be clear. According to Fogg (1998), this is particularly important when a specific piece of technology or product are created with the intent to affect and change either the attitudes or the behaviour (Fogg, 1998). The technology becomes a tool or a medium to persuade and affect the attitudes or the behaviour of the users, which means that in order for the tool to work, it is necessary that the users know it is developed with a specific intent (Fogg, 1998). But, if we are to develop a digital persuasive product that triggers pro-environmental behaviour and include intentionality, we must know who the future users are as well as what triggers them to consume in a different way.

So, what actually characterizes a consumer and for what reasons do they consume?

The term "consumers" refers to a simple logic which is "the right to choose" (Gabriel & Lang, 2006). By this statement, we must acknowledge the fact that "consumers" are the definition of a wide segment, as it only takes the exchange of money for an item or a product in order to consume. In addition, Gabriel and Lang (2006) introduce "the unmanageable consumer", where they refer to the fact that a consumer is easy to manipulate, weak and dependent. *Making choices* represent how the consumers are "[…] exercising freedom."(Gabriel & Lang, 2006, p. 2). This can be compared to the fact that persuasion must entail voluntary change and must not be based on deception or force (Fogg, 2003; 2009). The users of Persuasive Technology must only change behaviour if this change is voluntary and based on the freedom to choose – and thereby to change. But what motivates the consumers to consume?

Socio-psychological research shows that there are many reasons to why we consume. People consume in order to achieve social status and to position themselves relatively to others, which also results in increased levels of consumption as people feel they need the same as others (Pettersen & Boks, 2008). In other words, consumers compare themselves to others. This also indicates that consumption and the need to consume can be related to well-being, stress, and anxiety (Pettersen & Boks, 2008). Consumption is according to Gabriel and Lang (2006) a way to seek identity, as consumption does not only represent what kind of items people buy – but becomes a way of portraying themselves both individually and collectively. Moreover, the consumers are described as both irrational as well as rational, incoherent as well as planned and organized which is based on the fact that consumption as a tendency is

based on social norms and the expectations (Gabriel & Lang, 2006). When studying consumers and consumer behaviour, the consumption can be viewed as the "consumers 'vote' in the marketplace […]" (Gabriel & Lang 2006, p. 14). To view consumption as a vote, is a perspective that we would like to include in this project – as we see the consumers' behaviour as a vote. When they vote, they do not only express their personal style, but their voting becomes a way to express their attitudes and beliefs. Another perspective on consuming "suggests that increased levels of economic consumption equal increased levels or welfare or well-being." wealth (Pettersen & Boks, 2008, p. 109).

We are raised in a reality where the discourse around consumption is positive and where it is believed that consumption bring welfare and well-being (Pettersen & Boks, 2008). However, this only accounts to a certain level, and in the developing countries, like Denmark, we surpassed this level decades ago (Pettersen & Boks, 2008). In a UK study by Jackson and Marks (1999), investigating consumption growth from 1954 to 1994, it was found that consumers are satisfying their non-material needs in a material way. Furthermore it was concluded that current consumption patterns are a threat to human welfare (Jackson & Marks, 1999). This indicate that today's consumption does not lead to either satisfaction or happiness the same way as before, yet we still expect consumption to have that effect.

So why do we consume, if it does not provide a sense of happiness or human welfare?
According to Pettersen & Boks (2008) individuals does not only consume for functional reasons. They consume for symbolic reasons, which means that purchasing a material object can in fact have symbolic meaning to the consumer. We do not just buy products, we buy products to fulfil "[…] needs, display identity, indicate social belonging, gather resources, differentiate socially or participate in social activates." (Pettersen & Boks, 2008, p. 111). More specific, Pettersen & Books (2008) argue that we use consumption to "[…] positioning us in the social space." (Pettersen & Boks, 2008, p. 11), which means that when consuming we compare ourselves to others and to the current trends in the society. Consumption can also function as a source of anxiety and stress (Pettersen & Boks, 2008).

To this, we must figure out what is valuable to the consumers and how we can trigger the consumers to turn their financial and symbolic consumption into a pro-environmental behaviour. This is some of the things that we want to investigate in the following section, as we will now present the online focus group.

Online focus group interview

The last method for collecting data, we will present in this phase is the online focus group interview. This interview is conducted with the aim of contributing to our understanding of the consumers; what motivates them, which issues they experiences in regard to sustainable behaviour and consumption as well as their attitudes.

Sampling the participants

As mentioned, when addressing the five key issues, our initial plan for our focus group interview were to sample the participants through a Snowball sampling technique, as we originally agreed with Ole Madsen from Spar Nord. However, due to the extra pressure on the direction of Spar Nord in this period, it has not been possible to include their customers at this stage of the project. Therefore, we would state that we applied the Convenience sampling technique (Bryman, 2016b), by including the respondents available for us – which meant that we had to reach out to our network to recruit participants.

Like the interview with Kim Østergaard from Spar Nord, this focus group interview had to be performed online. Nevertheless, one of the known advantages of having it as a real-time video call is that it becomes possible to include people from far away (Lo Iacono et al., 2016). We benefited from this, as we ended up having participants joining from various places, like Aarhus and Sønderborg. At the same time, these people could participate from their homes, in a comfortable environment and meanwhile take care of personal obligations (Lo Iacono et al., 2016). As an example, this meant that we could include a new mother, who would otherwise not be able to participate in the same way. Especially the newly established family is in our interest, as this is a group of people the banks are very interested in due to the changes in the family's economy. Bryman (2016) also highlights that "no-shows" are common when performing physical focus group interviews, but less likely when performing them

online (Bryman, 2016g). In addition, online focus groups provide the researcher with the possibility to carry out the session both synchronous and asynchronous (Morgan & Lobe, 2011). According to D.L. Morgan and B. Lobe (2011), there are both pros and cons with both of these types of focus groups, as the asynchronous often provides reflected answers whereas the synchronous focus groups provides spontaneous answers and allows interaction between the participants. Therefore, we decided to include both forms of the focus groups, because even though our focus group were carried out synchronously, we created an initial assignment for the participant to perform and deliver to us before the beginning of the session which means that this assignment were asynchronously performed (see assignment in appendix 8).

Regarding the optimal size of a focus group, there are many opinions. However, with online real-time (synchronous) focus groups it is suggested that "[…] the group should not be too large, because it can make it difficult for some people to participate." (Bryman, 2016g, p. 664). Moreover, larger groups can challenge the facilitator in moderating the participants and make it hard differentiating voices when transcribing (Bryman, 2016g). Aligned with these statements, we chose to include four participants in our focus group interview. As mentioned previously, these people were chosen to reflect our target group, hence they had an existing interest in sustainability and sustainable behaviour. Who our participants were, can be seen in more detail in appendix 9. In the next section, we will present the playbook, generative techniques and how we, as researchers, facilitated the session.

Strategies for planning and conducting the focus group interview.

As preparation to the focus group interview, we made a playbook which can be seen in appendix 6. The playbook worked as our interview guide, as well as our timesheet, and purpose guidance, supporting us in covering all our questions and topics within the timeframe, and keeping us focussed on our goal with each question.

The interview guide and playbook are, furthermore, made with the strategies of Persuasive Technology in mind. In the field of Persuasive Technology, Fogg (2009) has presented a model which can be used in order to understand human behaviour, because according to Fogg (2009) "[…] many attempts at persuasive design fail because people don't understand what factors lead to behaviour change." (B. J. Fogg, 2009, p. 1). The need for a better understanding

of how people behave as well as what motivates and triggers them creates a better possibility to persuade them to change their behaviour. This model is called *Fogg Behaviour Model* (FBM), and contains three factors which is: *motivation, ability,* and *triggers* (Fogg, 2009). According to Fogg (2009) "All three factors must be present at the same instant for the behaviour to occur." (B. J. Fogg, 2009, p. 1). Below, the model is visualized with two axes: the vertical axis represents the motivation, whereas the horizontal axis represents the ability (see figure 8).
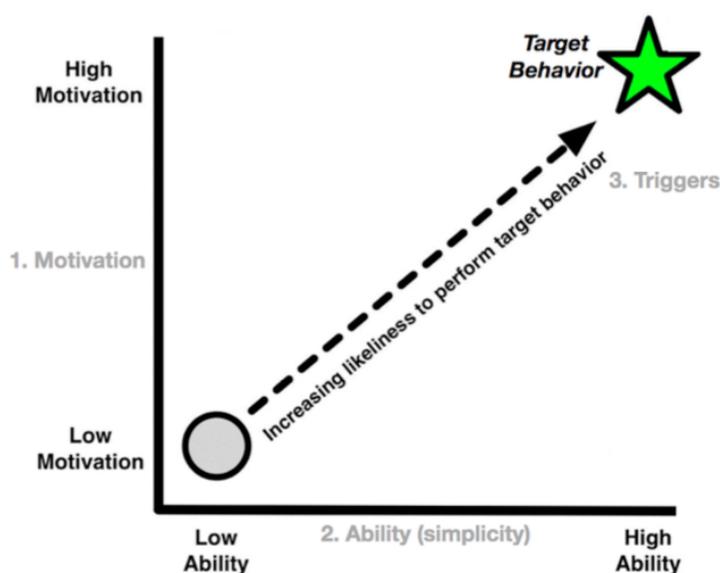

Figure 8: The Fogg Behavior Model (B. J. Fogg, 2009, p. 2).

So, even though our literature research from the understand phase has provided us knowledge about how information, learning and attitude change can lead to a change in behaviour, we must be aware of the three factors from the model. Basically, the use of the Fogg Behaviour Model provides us with an understanding that in order for us to successfully change the users' behaviour, they must have a high motivation as well as the ability to perform the behaviour. In our case, this matches our choice of target group, as we have chosen to focus on consumers who have an interest in sustainability and who are thereby motivated to become more sustainable. But what we also need to be aware of is the fact that the target group need to have the ability to perform the behaviour, as well as the ability to manage Spar Nord's mobile bank on their smartphone.

Moreover, the star in figure 8 represents the desired behaviour (Fogg, 2009). However, it is not enough that both a high motivation and ability is present – we need to provide an

"appropriate trigger" in order for the behaviour to happen. This is where our design plays its role, as we are responsible to provide this trigger – along with designing our solution to support the users' motivation and ability. According to Fogg (2009) the trigger can come in many variables and many different forms, whereas our trigger comes in the form of an application. Furthermore, the appearance of the trigger needs to come at the right time. To this Fogg (2009) argues that the user first "[…] notice the trigger. Second, we associate the trigger with a target behaviour. Third, the trigger happens when we are both motivated and able to perform the behavior." (B. J. Fogg, 2009, p. 3). In addition, the trigger needs to be timed according to *the opportune moment to persuade*, which according to Fogg (2009) is when a person is both motivated and has the ability to perform the behaviour and thereby is above what he calls the *behaviour activation threshold.*

But how do we know when the opportune moment is? And how can we make sure that the users are both motivated and have the ability to perform a pro-environmental behaviour? Is it possible to investigate when the opportune moment is? This is some of the reflections we will address in the discussion in section 7. Instead, we will now use the focus group to discover what their abilities are, what motivate the users, along with what hinders their ability and motivation. To this, the first task we gave the participants was created with the aim of discovering their associations to sustainability, as well as what they associate with their banks. Additionally, we wanted to gain knowledge about their abilities (see appendix 8).

One day prior to the interview, we sent out the assignment for the participants to finish before our meeting. As mentioned before, Bryman (2016) argues how informed consent form can help establish the relationship between the researcher and the participants. This is also the case, as emailing with participants beforehand can help establishing relationships (Seitz, 2016). The assignment can, furthermore, be categorized as a generative technique. According to Sanders & Stappers (2012), it can be difficult to trigger the participants to reflect upon a specific topic, as well as turning the participants thoughts into actions and words. Therefore, they present a series of generative techniques to employ when learning about people (Sanders & Stappers, 2012). When including generative techniques in the data gathering session, the researcher employs physical or material tools; for example, an assignment. The

main purpose of including generative techniques is to gain knowledge about what the participants think, know and feel – rather than what they say during the session.

To this, we could have included what Sander and Stappers (2012) refer to as *trigger-sets,* which often consists of different visual elements with the aim of activating memories, reflections, thoughts, attitudes or associations (Sanders & Stappers, 2012). Instead of including visual elements, the first task in the assignment was for the participants to find three to five pictures that illustrate their understanding of the term "sustainability" (see appendix 8). This way, we did not provide them with options, but they had to reflect upon the term and find pictures that expressed their understanding.

The second, and last task in the assignment was a small survey regarding how they view, and what they associate with their bank as well as which financial platform they use the most (see appendix 8). This task was created with the purpose of discovering their ability, as this factor must be present in order for our persuasive design to be successful. Furthermore, we wanted to gain insight in how they "use" their bank: If they mostly use the traditional net bank on their computer, or if they use the mobile banking application that most banks offer their customers?

Therefore, we made a survey where one of the questions was presented like this:

1. Hvis vi siger "bank" hvad tænker du så? (sæt max 3 krydser)

… betaling af regninger

… betalingsservice

… E-Boks

… lån

… pension

… investering

… personlig rådgivning

… overblik over økonomi

… overblik over forbrug

… personlig tracking af udgifter

… selvbetjening

… budgettering

Figure 9: Initial survey for the focus group participants (See appendix 8)

As figure 9 illustrates, this question was presented with several choices and the participants' task were to mark three of the above choices in regard to what they associate with the term "bank". We then asked the participants how many times per week they use net bank (on the computer) as well as how many times they use mobile bank (on their smartphone) (See appendix 8). It became clear that every participant primarily uses their mobile bank application on their smartphones and thereby, our assumption is that each participant have the ability required in order to use our digital solution.

According to Sanders and Stappers (2012), it can often be challenging for the participants to explain with words what they actually think. So, the fact that we provided them with the opportunity to reflect upon their own understanding of sustainability and their behaviour, we were able to trigger these reflections as well as introducing the participant to the subjects and issues the focus group addressed.

As preparation to the focus group interview, we had various technical considerations. We discussed whether we could make it more interactive and visual during the one-hour interview, for instance with brainstorming exercises. We wanted the focus group to include generative techniques in addition to the initial assignments and thereby give the participants an opportunity to communicate visually by providing them with digital boards for the brainstorm exercises (Sanders, 2006). However, it was important for us not to overwhelm the participants with various tools, as we also had less technology savvy participants to accommodate. This meant that we intentionally excluded tools demanding signup. Like the interview with Kim Østergaard, we chose Google Hangouts as the media for conducting the session. Besides that, we researched different tools such as mind maps and online collaboration boards with digital post-it options, but as they demand participants to sign up, we ended up including the open tool "Padlet.com" for the brainstorming exercises (see figure 10).
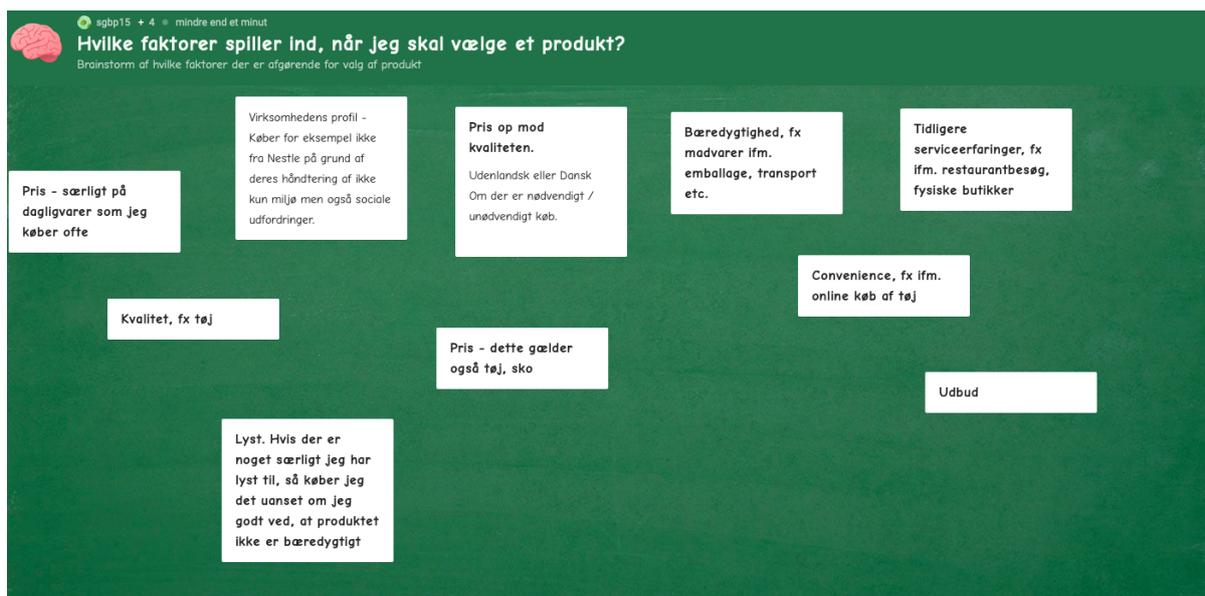
Figure 10: Brainstorm from focus group interview using Padlet.com (See appendix 11 for full size picture).

Padlet provides the users with functions such as establishing templates, invite other users to collaboration and custom-made boards (Padlet.com, 2020). The brainstorm illustrated in figure 10 only contains answers directly from the participants, as we only prepared the link and the digital billboard. We did not have an influence on what the participants wrote and the posted answers on Padlet were anonymous.

We conducted the focus group interview aligned with the recommendations by Bryman (2016), as we began the focus group interview with an introduction. Here we introduced ourselves and the participants, the agenda, and the goal of the research, along with highlighting that only one person should speak at a time. During this introduction, we also introduced our roles, as Mia functioned as the primary facilitator of the session, whereas Sissel functioned as the secondary facilitator and observer. According to Bente Hakier (2015), the facilitator needs to be able to promote communication and interaction between the participants, as well as managing the social dynamics in the group. The facilitator is first and foremost responsible to enable the social interaction in the focus group (Halkier, 2015).

Before the interview, we had received the participants' consent of being audio recorded. The informed consent can be seen in appendix 7. As our playbook (see appendix 6) contained a strict, yet flexible, time sheet and we covered all questions within the timeframe. We did not experience any technical issues. However, we did find it a bit challenging to get a smooth

discussion going, perhaps because of technical limitations to maintaining a good flow, or because of insecurities when taking turn. Furthermore, we experienced that it can be hard to assess when someone is done talking or answering a question, as there can be a few seconds delay in the connection. To this, it was our experience that reading each other's body language and creating a natural interaction between the participants is simpler in a physical face-to-face session.

Key learnings from the focus group interview

Below, we have highlighted key findings withdrawn from the focus group interview. The focus group interview has been transcribed which can be seen in appendix 9.

First and foremost, it became clear that our participants experience several dilemmas and trade-offs when trying to act sustainable. These dilemmas do not only concern what they buy, but also how they purchase.

During the focus group interview, it became clear that our participants have different views on sustainability, and that a sustainable consumer can have many faces (see figure 11).
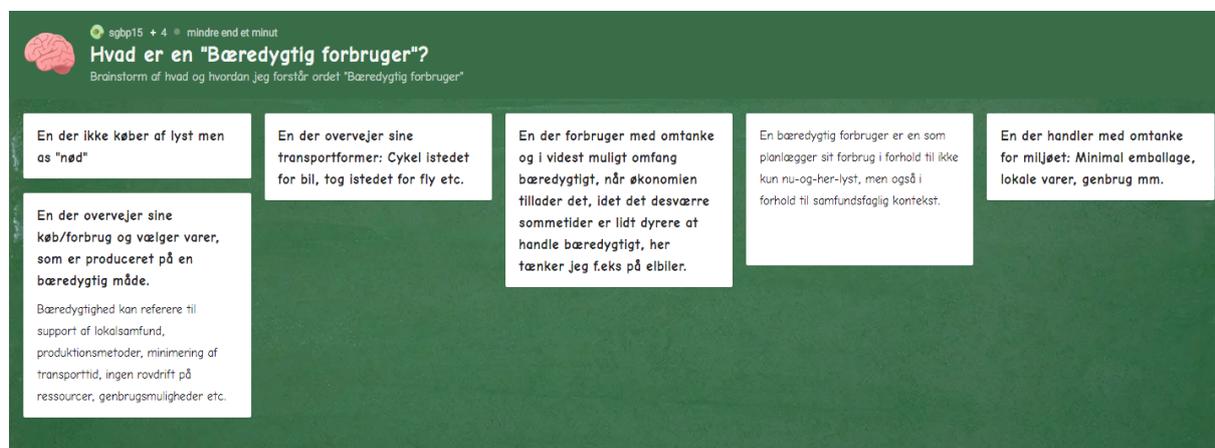
Figure 11: Brainstorm by participants "what is a sustainable consumer?" (See appendix 10 for full size).

All of our participants stated that they actively think about sustainability when they consume, by choosing organic, fairtrade or considering what product is most sustainable. Nevertheless, the participants clearly communicated how often they meet dilemmas when considering sustainability. For example, they highlighted; organic vs Danish/local vs fairtrade; organic vs less packaging; price vs organic vs local; personal time vs. sustainable behaviour.

Three out of four participants had at some point made use of CO_2 compensation. These dilemmas will be one of our main focuses from the data, when designing the solution – as we see these dilemmas as highly relevant, and as a sign that information and knowledge are needed. Furthermore, we would categorize the trade-off that several of the participants have mentioned numerous times, as a problem because it acknowledges that sustainability is not just about *what* you buy – but *how* you buy it.

As we asked how our participants have been changing previous behaviour/habits both generally and in terms of sustainability, we got some valuable insights: None of our participants had used digital solutions to support their behaviour change (besides from a digital scale to show improvement), however, some of the participants highlighted, that making the behaviour easy to perform has an effect. As an example, it was explained how one of the participants always has shopping bags in both the car and in her personal bag. In that way, she could make sure to always have a shopping bag with her and avoid buying a new, expensive plastic bag.

Being able to see results, was also emphasised as important, as not seeing results was a huge barrier for especially one of our participants. Because, not being able to see or know what impact one's behaviour has on the environment, often resulted in the attitude: "what does it matter?". The lack of results can challenge the participants motivation, which is an issue we need to be aware of as the motivation must be present according to our use of Fogg's (2009) behaviour model.

Besides not being able to see one's negative impact on the environment, the participants were often frustrated, as "it is hard to make the right choice" (see appendix 9). Because, there are lots of information, but most of it is experiences as misinformation. The participants do not know what is real and what is just greenwashing or exaggeration. However, in some cases the participants were also expressing that they were lacking more information – especially trustworthy information.

As we had already established their ability through the initial assignments, we also asked into how digital solutions could be used as a means to help them act more sustainable. As already noted, being able to see one's impact on the environment could have an effect. However, one of the participants highlighted that this should be retrospectively, like the "screen time"

shown on the iPhone, which cannot be manipulated or neglected, or having to approve purchases in mobile banking (see appendix 9). Setting goals, and not reaching it, would be too easy to ignore and they would find excuses for not reaching the goal. Rating of products, like "Kemiluppen" was also emphasised to potentially have a positive impact as this would make it easier to choose the most sustainable product. Generally, there was a positive attitude towards a digital solution for the mobile, as the participants always have it with them, and use it when they shop. However, autonomy was stressed to be crucial if they should consider using it, which relates to how a Persuasive Technology must be voluntary to use (Fogg, 2009). The participants should be able to individually choose the amount of information they get exposed to. Furthermore, the participants had a negative reaction towards the use of notifications and highlighted that new application should not include to many clicks or making them feel ashamed.

If an app was designed to show one's CO_2-footprint, the participants emphasised that it should not only include the CO_2 emission of the goods they bought, but also the behaviour related to how they bought them.

As one of the participants stated, it seems strange if the CO_2 for driving your car to the shopping centre did not add to the equation (see appendix 9). One last thing, addressed by one of the participants, was that CO_2 is hard to relate to.

By summarizing what we have learned through the focus group, we are now aware of the fact that we, in our design, need to focus on presenting CO_2 tangibly for the users. The data implies several problems when consuming in a sustainable manner, which causes an overall complexity and put the participants in different dilemmas when they consume. Furthermore, we need to focus on keeping them motivated, so that we ensure that both the ability and motivation is present, and we thereby only lack to trigger. To address these findings, we will move on to the next phase: the define phase.

3. Define

The main purpose of the define phase is, according to the Hasso Plattner Institute of Design, to bring clarity and define the challenges and problems we, as researchers, desire to address through the next phases (Hasso Plattner Institute of Design, 2010). To this, we have already identified several dilemmas and complexities in regard to pro-environmental behaviour and sustainable consumption. Furthermore, working with consumption includes the use of personal data such as finances and purchase. In this case it is basically the banks that owns the data. But they are not allowed to use this data to anything else than to provide a personal overview to the users. Our application is only meant as a service, we can provide through the banks, just like how Spar Nord collaborates with the FinTech company, Subaio, on providing a service that creates an overview of the costumers' subscriptions (Sparnord.dk/nyheder, 2019).

Moreover, the aim of this phase is to define a meaningful and clear problem statement. To do this, one needs to make a transition in one's point-of-view, as the goal of this phase is not to just understand the field one is working in, but "[…] to process all the things you heard and saw in order to understand the big picture and grasp the takeaways of it all." (Hasso Plattner Institute of Design, 2010, p. 3). As the data has emerged several problems and challenges that could be interesting to address, we need to be able to frame a problem statement in order to create the right design and the right solution (Hasso Plattner Institute of Design, 2010). Therefore, the define phase is especially important in order to synthesize the information and discover the patterns and connections in it. To this, there are many ways to synthesize the data, and we would state that we have already begun synthesizing and processing the data in the previous phase, as we cannot avoid getting familiar with the data when presenting the summaries in section 3.2 & 3.3.

This phase of the process, contains:
- Our data interpretation using an empathy map
- The creation of the problem statement using a point-of-view method
- The problem statement for further development of the solution

4.1 Processing, mapping and interpreting the data

Synthesizing the data can be compared to what Karen Holtzblatt & Hugh Beyer (2017) refer to as the *interpretation session,* which is carried out with the purpose of building a bridge between the data and the insight the researcher can withdraw from the data (Holtzblatt & Beyer, 2017b). According to the Hasso Plattner Institute of Design, the most essential, when working in the define phase, is to consider what patterns that emerged when we talked to the users and discover if there are specific connections between the user's behaviour and specific contexts. The designer needs to get to know the *user,* to identify a set of *needs* and to visualize the insights withdrawn and processed from the data design (Hasso Plattner Institute of Design, 2010). When working with elements such as behaviour and human experiences, Holtzblatt & Beyer (2017) also present visual presentations and graphical diagrams as a way to visualize the insights and knowledge in a structured and tangible way. To this, we have chosen to include an empathy map. An empathy map is presented as a *UX-toolkit* that helps designers collaborate and create a "[…] shared understanding and empathy for other people." (Gray, 2018). The empathy map is furthermore described as: "a collaborative visualization used to articulate what we know about a particular type of user. It externalizes knowledge about users in order to 1) create a shared understanding of user needs, and 2) aid in decision making." (Gibbons, 2018). Traditionally an empathy map consists of four different quadrants focusing on: what the users *say*, *do*, *think*, and how the users *feel* (Gibbons, 2018). A traditional empathy map can be seen in figure 12. Besides getting to know the users, the empathy map can also be useful to remove biases from our design and discover weaknesses.

EMPATHY MAP

NNGROUP.COM N N/g
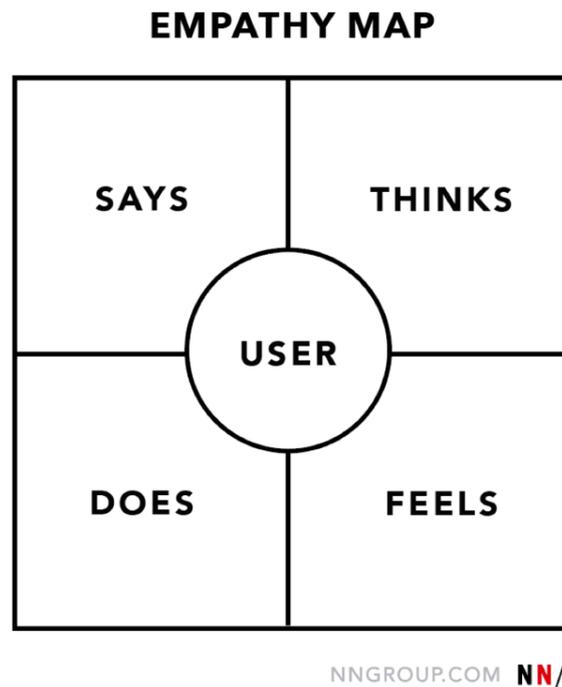
Figure 12: Traditional empathy map by Nielsen Norman Group (Gibbons, 2018).

The *says* quadrant should only contain what the users – in our case the consumers from our data collection - have said during the data gatherings sessions. Therefore, this quadrant should mostly include direct quotes (Gibbons, 2018).

The *thinks* quadrant can be difficult to fill out, as the researcher needs to ask themselves what the user is thinking and what their thoughts are occupied with. This quadrant can possibly contain the same as the *says* quadrant, but the main purpose is to notice what the users think – especially what they think but do not express vocally (Gibbons, 2018).

The *does* quadrant contains what the users do. The main purpose is to include what the users physically do in the research (Gibbons, 2018). As our data gathering session were conducted online, we will use this quadrant to highlight what the users tell us they have done when consuming.

Lastly, the *feels* quadrant represents the users emotional state (Gibbons, 2018). This can be how we have interpreted the emotional state of the users when they are describing situations, dilemmas or attitudes towards a specific topic.

When these four quadrants are combined, the empathy map provides "[...] a glance into who a user is as a whole and are not chronological or sequential." (Gibbons, 2018).

Before we can fill out the empathy map and visualize the insights, we need to process every dataset. Processing the data can be approached in different manners and according to Holtzblatt & Beyer (2017) the use of models can help the researchers and the designers to reveal what actually matters. Especially when dealing with the complexity that we have identified in our data, the use of either models or specific methods can be helpful when processing the data. To this, we have chosen to conduct an *interpretation session*, as the main goal of this session is to build a shared understanding between the team members and researchers (Holtzblatt & Beyer, 2017a). Normally, the interpretation session is structured as a meeting between the interviewer and other team members – often the whole product team - but as both of us were present and contributed in interviewing the participants, we have approached this in a different manner. Together we talked through every event in order to gain knowledge on how each of us views the data with the aim of creating a shared understanding. Instead of being present physically, we conducted this session by a combination of Google Hangouts, which provided us with a real-time-video and Google Drive that is also a collaborative document tool recommended by Holtzblatt & Beyer (2017).

This way, we were able to uncover how each of us engaged with the data and how each of us had understood the users' needs as well as what drives the users' behaviour. For example, we created a shared online list, where we first focused on what we have learned about consumers – through the literature research (see the list in appendix 13). This way, we were able to get an overview of the learnings from our literature research and compare this with the findings from both our interview with Kim Østergaard and the Focus group interview through the Emphaty map.

According to Holtzblatt & Beyer (2017) the interpretation session also provides the team members with multiple point of views and perspectives. This is based on the fact that each member brings their own understanding and own focus, which is based on each member's personal history (Holtzblatt & Beyer, 2017a). One of the ways we worked on achieving a shared understanding was by talking through the answers we have collected from the participants and categorizing them by dividing them according to specific headlines. Usually,

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it is important to define the role of each team member when conducting and structuring an interpretation session (Holtzblatt & Beyer, 2017a). But, as we are only two members of our "team" and as we see ourselves as equally familiar with the data, the main goal of this session is to achieve a shared understanding – and a shared overview of the data.

The "[…] combination of listening, inquiring, thinking, and drawing or writing the implications creates the immersion in the data that results in real understanding and insight." (Holtzblatt & Beyer, 2017a, p. 93). By categorizing findings and key points from the understand phase, we were able to structure the data based on *what* we have learned. Furthermore, our interpretation session also resulted in a shared understanding of the concept of sustainability as well as a shared understanding of the bank industry.

The next step in the data processing is to map our findings in an empathy map.

Our empathy map

As we have now gained an overview of our data, we will include our findings in the following empathy map. But, before presenting our final empathy map which will be used in order to define this projects problem, it is important to be aware of the facts that users are human beings – and according to Sarah Gibbons (2017) human beings are complex. Therefore, there are often associations and contrasts between the quadrants. Furthermore, one might notice that our empathy map is not completely equal to the traditional empathy map presented in figure 12. This is based on the fact that we have assessed that it is not enough for us to just understand the users, as we also need insight in other important elements from our understand phase. Therefore, we have created a circle surrounding the empathy map where insights about the context and the knowledge we have gathered regarding the banking industry as well as Spar Nord is included (see figure 13 below).
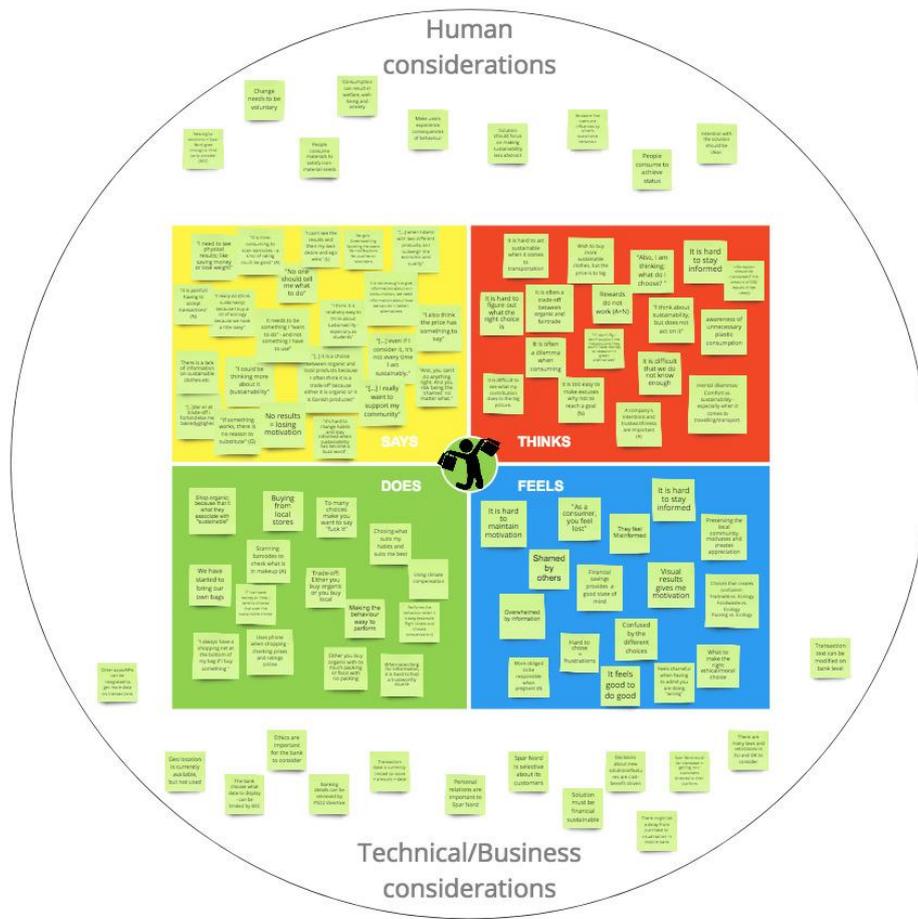
Figure 13: Our empathy map

The process for filling out the map

The process of filling out our empathy map can be compared to what Graham R. Gibbs (2007) calls a *concept-driven coding*. When conducting a concept-driven coding, the codes or concepts already exists, as they may have originated from previous studies or the literature research etc. (Gibbs, 2007). In our case, the empathy map already provided us with four concepts: what the user *says*, what they *do,* what they *think*, and what they *feel.* Furthermore, Gibbs (2007) argues that the process of coding often involves categorizing and "[…] the identification of chunks of text that exemplify the codes in this initial list." (Gibbs. 2007, p. 45). As we have already created a list of findings and key points from the literature research in the understand phase, we went through our transcriptions from both the focus group interview and the interview with Kim Østergaard and highlighted "chunks of text" with the

colour we had delegated to each quadrant. The *says* quadrant were marked yellow and contains of a mix of direct quotes from the participants, as well as meaning condensation of their verbally expresses attitudes (see figure 14).

Figure 14: The "says" quadrant

Firstly, the participants in our focus group interview expressed that they experience difficulties when having to choose between two products. This is based on the fact that the sustainable consumer lacks information they can base their choices on. It became clear, that in order for us to help the users to maintain motivation, we need to visualize direct results of the users' behaviour and actions. Lastly, this quadrant has taught us that we must emphasize with the consumers' independency as our application must not be forced upon them. To this, the participants expressed that "No one should tell me what to do" and the digital solution needs to be "[…] something I want to use, and not something I am forced or have to use" (see figure 14).

The next quadrant in our empathy map is the *does* quadrant which were marked green. In this quadrant the main purpose is for the researcher to include what the participants have done during the data gathering session (Gibbons, 2018). But, as our data session was

conducted online, we have chosen to focus on what the participants told us they do, when consuming. This quadrant therefore contains several notes on experiences the participants have shared with us as well as how they have explained their own behaviour (see figure 15).
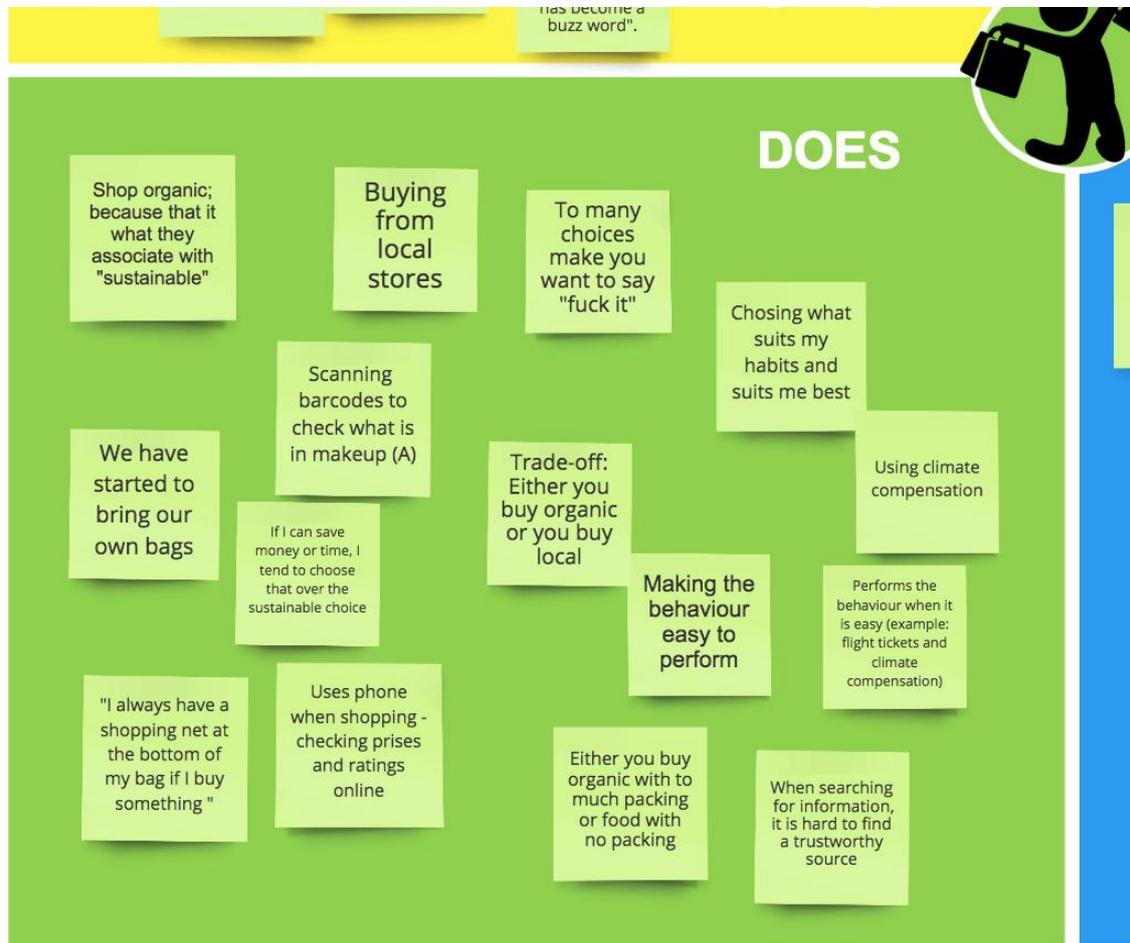

Figure 15: The "does" quadrant

The fact that this quadrant does not contain observations of the participants actual behaviour during the session, we are aware of the subjectivity in this quadrant. This is based on the fact that, we do not have any objective observations or insight into their behaviour – so we have to trust, how the participant portrays themselves and what they do.

In this quadrant it became clear that every participant in our focus group interview can in fact be categorized as *a sustainable consumer*, as each participant tries to make sustainable choices. However, as they experience either too much information or misinformation, they lose the motivation for consuming sustainable. Therefore, we need to be aware of this misinformation in order to support trustworthy information and thereby support the consumers in making the "right" sustainable choice of products.

The third quadrant in our empathy map is the *thinks* quadrant which is marked red. This quadrant was challenging to fill out, as this required interpretation, as we cannot be sure what the participants specific thoughts are. According to Gibbons (2018) this quadrant can sometimes contain the same as the *says* quadrant. We have chosen to the thoughts the participants have when consuming – especially when they are trying to consume sustainable – even though they did not vocally express it (see figure 16).

Figure 16: The "thinks" quadrant

The thoughts of the participants, and thereby of our sustainable consumers, are centred on the dilemmas and the trade-off they experience when purchasing. When trying to consume sustainable, they think about dilemmas such as price vs. quality, price vs. organic products as well as organic vs. local product etc. Other thoughts are centred on how it can be hard for the individual consumers to understand how their choices actually have an impact on "the big picture", which is an aspect we will keep in mind in the upcoming phases.

The last quadrant is the *feels* quadrant, and we have chosen to colour this blue. In this quadrant we have tried to define the users emotional state when consuming sustainable. This quadrant therefore contains different feelings such as how the participant sometimes feels confused, frustrated and overwhelmed by all the choices and information there are in regard to being a sustainable consumer (see figure 17).

Figure 17: The "feels" quadrant

Their feelings can be compared to both what the participants have expressed vocally as well as the thought and actions from the previous three quadrants. The dilemmas and misinformation the participants experience results in feelings such as frustrations and confusion. Furthermore, the participant can often feel shamed by others, even though they have an interest in pro-environmental behaviour. Therefore, it is important that our digital solution does not contribute to them feeling shamed and we need to make sure that we

design an application that does not judge the users, but only focus on motivating the consumers in a positive way.

Lastly, as seen in figure 13, we have created a further expansion to the empathy map, as we have included a circle around the map. The sticky notes in this circle was selected based on our learnings, subsidiary to our focus group insight (see appendix 13). We carefully added the learnings, that we assessed may have an impact on our development and thereby our design considerations and decisions. To this, we divided these considerations into two poles: one centred around the human aspects and one centred around the technical and business aspects worth considering. As highlighted previously, these sticky notes are not necessarily affecting our solution directly, as our solution is conceptional and will not necessarily be limited by the current restrictions.

This is based on the fact that the knowledge we have gathered and put into the circle does not tell us so much about the users themselves, which is the purpose of the empathy map, but about human aspects such as: The change needs to be voluntary, people consume to satisfy non-material needs, and the users are influenced by others as well as the society. Whereas the other pole that centre on technical and business aspects contain knowledge about the challenges we may experience, as the transaction data is current providing limited data and the amount of data depends on a third-party collaboration, such as BEC or other FinTech businesses.

Using models for data processing and filling out this mind-map provides us with a toolbox that helps us think and reflect in a specific manner. One might compare the use of this map with how we used generative techniques in the focus group interview, as it helps us identify key findings about the user. It has furthermore helped us to categorize the learning whether it includes knowledge delivered form our case partner, Spar Nord, if it includes our own reflections or if it regards the future users' feelings, thought or actions. To conclude this phase, we will now present our concretization of the empathy map, as we will use the insights and knowledge to define the problem statement we will address with our solution.

4.2 Problem statement

According to Rikke Friis Dam & Yu Siang Teo (2019), creating a good and clear problem statement will guide you through the next phases of ideation and prototyping. Creating a final problem statement will – just like our research questions in section 1 - provide us with a focus and point of view in our work. The difference between a problem statement and the research questions is, that the research question was created as a guide through our research and is based on our initial interests and what we wanted to investigate. Creating a problem statement as a result of the define phase allows us to be more concrete and identify the problem(s) that we want to directly address through our design. Dam & Teo (2019) presents three different traits that the problem statement should include: It needs to be human-centred, it needs to be specific – but at the same time broad enough to path the way for creative freedom, but still narrow enough for us to be able to manage and address the problem(s) (Dam & Teo, 2019).

Our initial interest was how we could both persuade and support Spar Nord's customers to act and consume more sustainable through a digital solution. To this, our empathy map showed a clear tendency that when our users/consumers are trying to consume sustainably, they feel frustrated, confused and overwhelmed by too much information along with the many choices they face.

To define the problem statement, we have chosen to apply a *Point-of-View (POV) template* and fill it out with the *POV madlip* in mind (The d.school, 2009). The POV madlip is a method that articulates three components: the user, the needs of the user and the insights these needs provides us (Dam & Teo, 2018). Basically, the method is a generative ideation, which helps the designer to drive and define a problem statement based on the findings from the empathy map (Dam & Teo, 2019). In order to make the researcher reflect on his/hers Point-Of-View (POV), it is not enough to only fill out the template with knowledge about the user, needs and insights. You need to "Use the following madlip to capture and harmonize three elements of POV" (The d.school, 2009, p. 21):

(THE USER) needs to (USER'S NEED) because (SURPRISING INSIGHT).

To this, The d.school of Hasso Plattner Institute of Design argues that the team need to try various options and combinations, and to remember that the "needs of the users" must consist of verbs. Whereas the insight must not only contain the reason for the insight, but a "synthesized statement" including our own interpretation of what we have learned through both the understand phase as well as the define phase (The d.school, 2009). With this in mind, we have created the following Point-of-view Template that contains 11 different articulations, which define the challenges and constitute our overall point of view:

No.	User	User's need	Because (= Insight)
1	The sustainable consumer who does not always make the sustainable choice when consuming	… needs to see the results of own behaviour	... because a visualisation of the direct consequences provides better understanding of their personal impact, which support their motivation to act more sustainable
2	The sustainable consumer, who feels that there is a pressure to act sustainable	… needs to not feel ashamed	… because, even if the consumers do not make a sustainable choices, they do not like to feel bad about it. Feeling ashamed by others create a feeling of being a bad person, and hence they lose confidence to act pro-environmentally
3	The sustainable consumer, who has their own routines and strongly feels the need to "do what I want to do, when I want to do it"	… needs to feel autonomy and an opportunity to choose	… because the change of behaviour needs to be voluntary, as it otherwise might feel like a burden.
4	The sustainable consumer, who has a hard time staying informed, and often feels overwhelmed and confused about the many choices when trying to purchase sustainable products	… needs to know what the right moral/ethical choice is	… because, it can be hard to figure out how they can make a sustainable choice without feeling they need to make a trade-off. And because being sustainable is full of dilemmas and confusion. Feeling overwhelmed results in lack of sustainable behaviour
5	The sustainable consumer, who often feels misinformed and finding it hard to gather trustworthy information	… needs accessible and trustworthy information	… because the term "sustainability" has become a buzzword, and they are overwhelmed by information as well as misinformation. Some of the sustainable consumers think about sustainability, but does not act upon

			it, as they are not sure what to believe and hence what choice to make
6	The sustainable consumer, who has a hard time maintaining motivation for pro-environmental behaviour	… needs to able to see and learn how their choices contributes to the big picture	… because it is difficult to see "what my contribution does to the big picture". Both when making the sustainable choice as well as the non-sustainable choice.
7	The sustainable consumer, who is not completely motivated to act sustainable	… needs support in maintaining motivation	… because, this is not a behaviour you change 100% overnight - but a process that starts by taking sustainable choices and because in order to change the behaviour, you need to make it easy for yourself.
8	The sustainable consumer, who feels lost and that, in order for them to act sustainable, need to make a trade-off	… needs to experience that it is easy to make the more sustainable choice and not feel overwhelmed by too many choices	… because, when the consumers are exposed to too many choices, they feel frustrated and this frustration becomes "an excuse to not perform the desired behaviour".
9	The sustainable consumer, who sometimes does not have the opportunity to make a sustainable choice - for example in regard to transportation	… needs the option to compensate for their non-sustainable behaviour	… because, three out of four users expressed that when they for example buy flight tickets, they want an easy and accessible way to climate compensate.
10	The sustainable consumer, who has a hard time changing their patterns and habits in their everyday life	… needs to be able get inspiration on how to perform the behaviour easier	… because, changing habits is not easy and sometimes it can be unmanageable to begin changing a behaviour. Making the behaviour easy to perform results in a higher chance of achieving the wanted behaviour
11	The sustainable consumer, who struggle to understand quantitative information on sustainability	… needs to get information in an easily understandable way	… because the term "sustainability" can be hard to relate to. As for example it can be hard to relate to 5 kg CO2 - it is easier to understand the information when it is built on a tangible example, like when 5kg CO2 equals taking the bike 3 times instead of the car.

Based on the above Points-of-view statements, the best practice guide is to ask "How might we?". This guide encourages the researchers and designers to "[…] rephrasing and framing

your Point of View as several questions by adding "How might we?" at the beginning." (Dam & Teo, 2018). The main purpose is to formulate questions that might be answered or addressed by different kinds of solutions, which provides the designer with creative freedom (Dam & Teo, 2018). Through the "how might we"-guide, we were able to brainstorm on our learnings, in order to articulate the knowledge, we have obtained, and how this affects our problem statement. This has helped us formulating this projects problem statement, which is as follows:

How might we design a trustworthy application integrated in Spar Nord's mobile bank, which visualise users' environmental impact in a tangible way with the aim of encouraging pro-environmental behaviour, without making the users feel forced or shamed?

In order to address the problem statement, we will include an ideation workshop in the next phase, in order to investigate how we might make the sustainable behaviour easier to perform.

4. Ideate

In the ideate phase, we seek to address the defined problem statement. This phase will include both idea generation as well as decision making in order to establish requirements, which will be presented in the end of this section.

This section covers:

- An online workshop, we have performed with users.
- Requirement specifications based on our workshop, along with requirements identified during our understand phase.

It is important to note, that the ideation and creation of the solution is not limited to this phase. During the understand and define phases, we have already started getting ideas for the solution. Furthermore, the ideation continues during the prototyping phase, as presented by Hasso Plattner Institute of Design (2010) as well.

5.1 Ideation Workshop

In order to get inspiration, generate ideas and make design decisions, we arranged a workshop with potential users. According to Hasso Plattner Institute of Design (2010), ideation is framed to be a phase involving the internal design team, and though the Design Thinking process is a human-centred approach, they do not suggest involving the users in this phase. However, as expressed in the beginning of this thesis, we are inspired by the participatory approach, where the users are being involved in the design process as co-designers.

As it will be elaborated later, the participants selected for this workshop is a different group of respondents than we included in the focus group interview in section 3.3. These workshop participants are potential users yet with an IT/design background. We name them co-designers. According to Sanders and Stappers (2008), co-design refers to "the creativity of designers and people not trained in design working together in the design development process." (Sanders & Stappers, 2008, p. 6). Furthermore, they associate this collective creativity with participatory design. We see our workshop as a co-design session with potential users.

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The difference from our focus group interview is both the goal and the setup of the session. In our focus group interview, we were interested in getting to know the potential users in order to create an understanding and an ability to empathise with them – to study them as subjects (cf. section 2.1, figure 1). In the workshop, we seek to continue to get to know the users, however, more importantly we aim to generate ideas with them and include them in decision making as well – counting them as partners (cf. section 2.1, figure 1). Sanders and Stappers (2008) present in their article 'co-creation and the landscape of design' (2008), that involving users in idea generation is "an important place to be practising participatory design. However, 'participation at the moment of decision' is gaining interest as well" (Sanders & Stappers, 2008, p. 9). Moreover, they highlight that involving users in both of these two practises "will change design and may change the world." (Sanders & Stappers, 2008, p. 9).

Where the focus group interview was performed to get insight about the users (classical approach), the workshop is built to include the participants, and provide them with generative tools in order to work as a team of designers (co-design approach) (see figure 18).
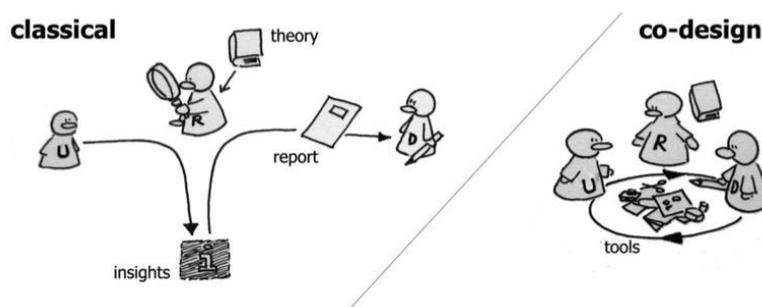

Figure 18: Classical approach vs co-design approach (Sanders & Stappers, 2008, p. 11)

As presented in the article 'Early user involvement in research and design projects – A review of methods and practices' these tools are "applied to facilitate communication within a project team, to 'support inspiration, empathy and engagement' with the end users" (Steen, Kuijt-Evers & Klok, 2007, p. 12).

When involving the users in co-design sessions, it is important to apply the generative tools, and facilitate the process carefully, as one of the often discussed challenges of involving the users is that the "end-users may not be aware of their needs; they may not be able to articulate their needs; and they may not be willing to speak about their needs with an

interviewer." (Steen et al., 2007, p. 3). Therefore, we are aware that we cannot just ask the participants what they want, we need to provide the right tools and facilitate the process.

In the following sections, we present the thoughts behind the workshop; how we prepared, how it was executed, along with presenting the results supporting us in establishing the requirements for our solution.

Preparation and technical considerations

As presented in section 3.1, we will include considerations according to Preece, Rogers & Sharp's (2015) five key issues. By addressing these relevant issues, we can make sure that our data sessions are successful. Planning the workshop for this phase, we have again considered the following key issues; *setting goals, identifying participants, relationship with participants,* and *pilot studies* (Preece et al., 2015a).

The goal of the workshop is to address parts of the problem statement with a prioritization on how to visually present the users' CO2-footprint in a motivational matter, and how to trigger the user into using the platform and, thereby, get them hooked. The chosen topics for the workshop was centred on where, we felt, we would benefit the most from involving users/co-designers. Overall, we invited the users to generate new ideas and inspiration, and with the aim of making design decisions together with the users.

Instead of only sampling the participants for our ideation workshop through the *Convenience sampling* similar to our focus group interview (cf. section 3.3), we would state that we applied the *Snowball sampling* as well. Because, as the workshop was held online and required the participants to interact in online tasks, it was essential that the participants possess a high level of technological confidence and were consumers with an interest in sustainable consumption. Therefore, we contacted MakeImpact which is a FinTech start-up working on sustainable investment, and luckily, our contact person was able to establish contact to three employees relevant for our study. The fact that we used our contact person to help us establish contact to others relevant for our study, is similar to Bryman (2016) presentation of the Snowball sampling whereas the approach is related to convenience sampling. The distinction between these sampling forms is based on the fact convenience sampling "[…] is

simply available to the researcher by virtue of its accessibility." (Bryman, 2016b, p. 187). Whereas the snowball sampling is when a smaller group help establish contact to a larger group of relevant participants (Bryman, 2016e).

In total we had five participants in the workshop: three women and two men, all in their 20's and with an interest in living more sustainable – reflecting our identified target group, as presented in section 3.3.

After recruiting our participants and scheduling a date, we started designing the workshop in detail. Like in the planning of our focus group interview, we created a playbook for the workshop (see appendix 15). The playbook gives us a great overview and provides us with a tool to make a detailed plan together, where we make sure to cover what we want within a timeframe. Especially the column "formål" (purpose), keeps us focused on what is important to us, and supports us in discussing and designing the right activities. Before we present the different activities, the thoughts behind them and the results, we will address some of the more general considerations in the preparation of the workshop.

As mentioned, our workshop had to be held online. Obviously, this had a huge impact on our workshop setup, as we had to rethink the physical workshop as we know it. By exploring different online tools, we ended up choosing MURAL, which is a "digital workspace for visual collaboration" (Mural.co, 2020). In other words, MURAL is a whiteboard people can access online and work in simultaneously. We chose MURAL as it is fairly intuitive and thereby easy to get started with, which was essential for us as neither of our participants nor ourselves had used this tool before. Secondly, MURAL can be used without having to download anything, as Bryman (2012) is also stating: "Participants may not feel confident about loading the software" (Bryman, 2012, p. 664). Lastly, MURAL has a feature making it possible to summon people to a specific area of the board for better guidance – along with the opportunity to set up voting sessions, which would support our goal of making design decisions together with the participants.

Beside MURAL, we used Zoom.us to video communicate and share our screen with participants during the workshop.

As mentioned in section 3.3, doing the data collection online, gives us the opportunity to invite people from far away, which we also benefited from in our workshop by inviting three participants located in Copenhagen, one in Aarhus and one in Aalborg. These participants were booked for a two-hour workshop, while we were preparing for a 90 minutes workshop. We calculated with the extra 30 minutes as a buffer to make sure we would have time to cover everything, avoiding running out of time because of circumstances like technical issues. This showed to be a good idea, as one of our participants experienced technical issues in the beginning of the workshop. Having only 90 minutes for the workshop, demanded us to plan and prioritise carefully.

There was no preparation for the participants to perform, however, as can be seen in appendix 14, we sent them emails with purpose and goal of the workshop, among our expectations to their contribution. Besides that, it was important for us to ensure that they felt safe, as the workshop would be performed using a non-familiar tool. We made it clear that we would schedule time for them to test the tool at the beginning of the workshop, and that we would guide them safely through the whole process. Furthermore, we provided them with a link to a "test-MURAL", so they could play with it beforehand if they felt the need. The emails also contributed to the relationship with the participants as Seitz (2016) highlights, and the third key issue (*Relationship with participants*) entails.

As mentioned above, we had to plan the workshop carefully to cover the aspects wanted within a strict time frame of 90 minutes. Our strategy became to design the workshop to avoid talk/discussions as much as possible and keep the brainstorming sessions short. Figure 19 (appendix 16.1), shows a screenshot of MURAL and the workshop template, to reflect the activities as stated in the playbook (appendix 15). MURAL is just a clean white board, so creating the template beforehand made it possible for us to focus on facilitating the workshop and be present without having to worry about the tool. We also created an outline, as can be seen to the right in figure 19, basically including part of the playbook into the tool for easy overview. Before the workshop, we ran through the workshop template several times to test questions, tools and features, to gain confidence as facilitators - aligned with Preece et. al.'s (2015) fifth key issue: *pilot studies*.
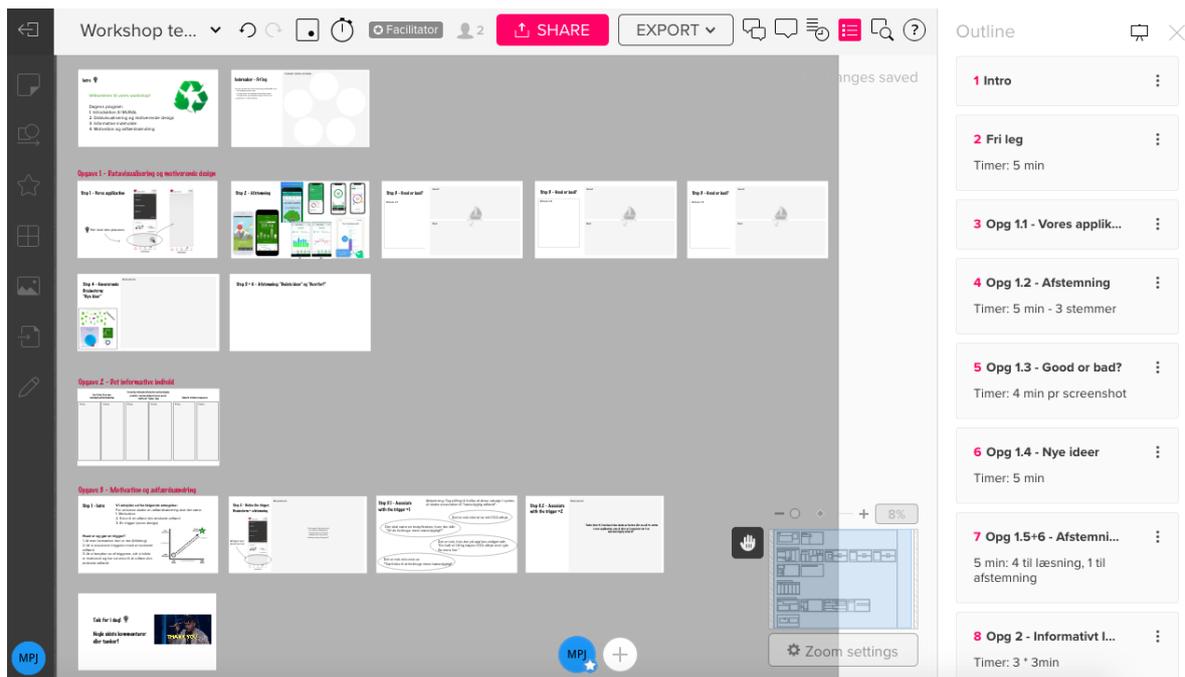
Figure 19: Screenshot of our built MURAL workshop template and the outline feature (larger picture in appendix 16.1)

Hereafter, we will present the activities in detail and the results from performing the different activities, which ultimately leads to the requirements in section 5.2.

Workshop activities and results

After a few technical issues from one of our participants, we started the workshop by presenting ourselves and once more the goal and purpose of the workshop. As seen in figure 20, we presented the agenda and introduced the participants to key features in MURAL by sharing our screen, before we had the first activity. We made an icebreaker to make sure the participants could get familiar with the tool and ask questions, in order to gain confidence for the rest of the workshop. People drawing and adding pictures also contributed to a good and relaxed atmosphere, strengthening the relationship.
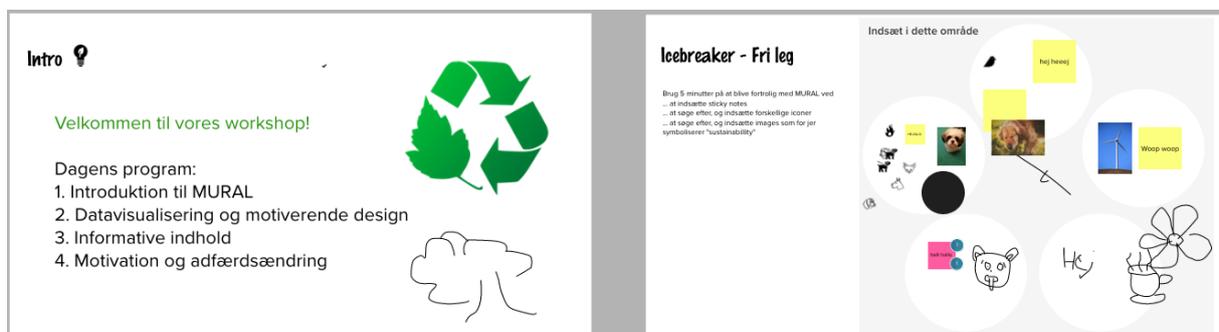

Figure 20: Screenshot from MURAL; Introduction to workshop and the first activity

We designed the workshop to address three different areas:

- 1. Data visualisation and motivating design
- 2. Level of informational content in the app
- 3. Motivation and behaviour change

1. Data visualisation and motivating design

The first assignment consisted of 6 steps and had the purpose to investigate how the users prefer content to be visualised – what is a motivational design to them? We included an evaluation activity of existing applications (cf. section 3.2). Furthermore, the aim of this assignment was to give the participants a better feeling of what we are aiming at with our solution.

The first step was a presentation of where the Widget will be placed in Spar Nord's mobile bank, as seen in figure 21 (step 1). In step two, we asked the participants to vote on the three solutions they find most pleasing in terms of layout and motivational visualisation. The different layouts in step two consist of existing applications such as the application presented in section 3.2.
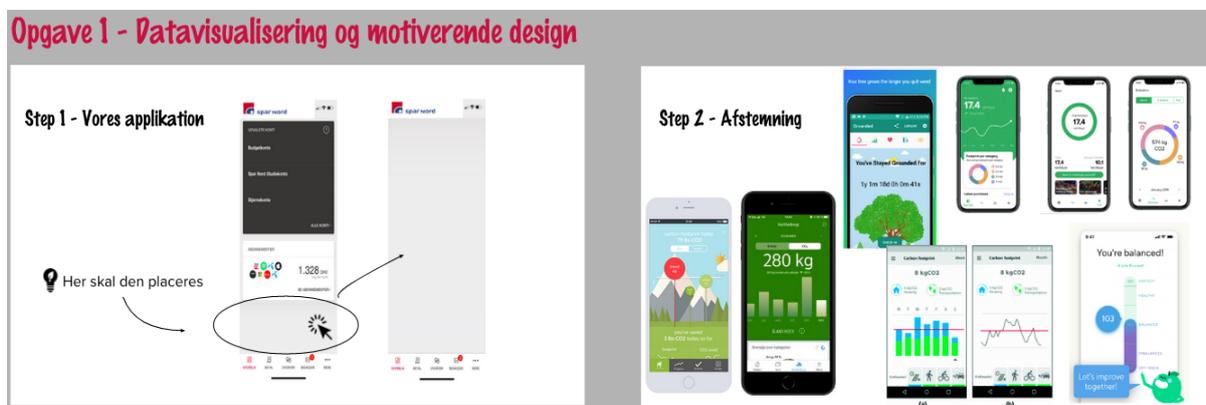
Figure 21: Screenshot from MURAL; Assignment 1 - Step 1 & 2

The three solutions with the highest votes in step 2, were then divided into the new activities – one for each of the three elected layouts (see figure 22). We addressed one layout at the time and provided the participants with four minutes to note what they like about the design and what they dislike. During the four minutes we kept the participants updated on the

remaining time and reminded them to designate time for both the "good" and the "bad". This step was repeated with layout two and three.
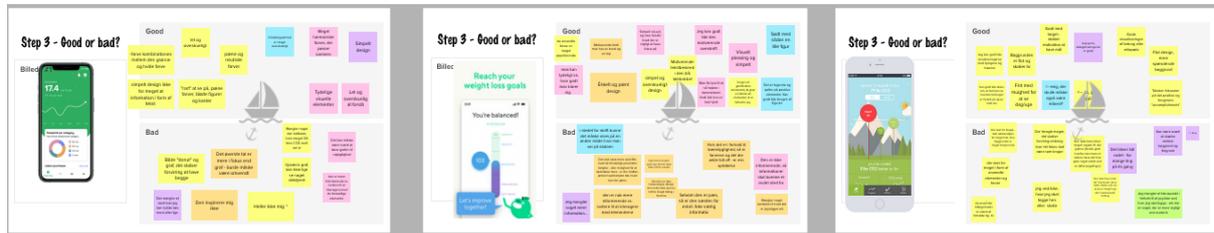

Figure 22: Screenshot from MURAL; Assignment 1 - Step 3 (attached separately in appendix 16.2)

After identifying what the participants like and dislike about the selected layouts, we asked them to brainstorm on new ideas. In addition to the activity they had just performed, we were interested in getting their ideas on how to motivate and visualise users' CO2 footprint. Some pictures were added, as seen in figure 23, to inspire the participants. At last, we collected the sticky notes with all the new ideas together with the "good" sticky notes from step 3 (what they liked about the three layouts), as can be seen in figure 23 step 5 + 6. After the participants had read through them all, they were asked to place five votes onto maximum three sticky notes. This means they could place all five votes on one idea or distribute them. In figure 23, the distribution of votes is shown as purple dots. Before taking a small break, we had scheduled 7 minutes for the participants to share the reasoning behind their votes (see appendix 17).

Figure 23: Screenshot from MURAL; Assignment 1 - Step 4 and step 5 + 6 (attached separately in appendix 16.3)

Key learnings from assignment 1:

In this first assignment, we got great insight of what the participants find appealing.

- Design should be simple without too much text; it is important to find a balance between too much text and too little. It needs to be simple but informative. The solution should have a modern look, and associate with sustainability.

- Having the option to see how you are doing on a scale is good. Maybe with a visualisation of consumption in relation to a personal goal. It is good to have something to compare yourself against as it creates competition. It could be comparison against others. However, it needs to be against the average person or someone on your own level – not the "fanatic sustainability ambassador", who are far from your level.
- We should be careful with the colours in the solution; a red colour may symbolise that the user is doing something wrong and give the user a feeling of shame.
- It is good to focus on the positive, and the solution should focus solely on positivity.
- CO_2 should be represented in a way where it gets easier to understand and easier to relate to. Instead of X amount of CO_2 kilograms, it could be represented as running the dishwasher 38 times.
- It is good to have CO_2 footprint distributed into categories.
- Having the option to switch between consumption/footprint on daily/monthly/yearly view, is good.
- There was a divided opinion about the use of gamification (60% against). One argued that gamification works in the beginning but will quickly stop being motivating.

2. Level of informational content in the app

Getting back from the break, we shortly talked about the setup: How they were doing and whether the tool and the setup was understandable and okay to work with. This was a good way for us to check in on the participants, keep the atmosphere relaxed, and get feedback.

In the second assignment, the aim was to get more knowledge on what information the application should include. All in all, we wanted to know whether we, in our solution, should include: Tips and tricks to a more sustainable behaviour, the option to read more about sustainable products, and/or the possibility to climate compensate. Instead of asking the participants whether they want it or not, we decided to ask the participants to list their pros and cons to each type of information - as can be seen in figure 24. By using this approach, we would avoid the bias of participants just saying yes because the option is there. We would get a more nuanced insight, plus inspiration and ideas to how the feature should appear if we implement it.

Figure 24: Screenshot from MURAL; Assignment 2 (attached in appendix 16.4)

Key learnings from assignment 2:

- Tips and trick are good. However, it is important not to make people feel less intelligent by them, and at the same time they need to be easy to perform. The tips and tricks need to have reliable references. The participants were in doubt whether this feature is relevant for a bank, and if it would have any effect.

- Banks should be neutral and not favour one product over the other. Maybe the bank should only provide external links to read more.

- Generally, there was a negative attitude towards adding an option to climate compensate.

3. Motivation and behaviour change

The last assignment had the aim of designing what we call the widget, or the frontpage (see figure 21, step). The widget should be noticeable and attract the users. In other words, how do we trigger the users to engage with our solution and, thereby, change their behaviour? Like in our focus group interview, we include knowledge from Persuasive Technology.

In the article 'A Behavior Model for Persuasive Design' a trigger is defined: "A trigger can take many forms – an alarm that sounds, a text message, an announcement that a sale is ending, a growling stomach, and so on." (Fogg, 2009, p. 3). However, as we learned from our focus group, our users dislike the idea of getting notifications, such as alarms and texts messages. For that reason, we wanted to generate ideas with the participants on the different possibilities to attract the potential users without notifications. We designed the steps according to Fogg's presentation of a successful trigger: "Whatever the form, successful triggers have three characteristics: First, we notice the trigger. Second, we associate the trigger with a target behavior. Third, the trigger happens when we are both motivated and able to perform the behavior." (Fogg, 2009, p. 3).

First, we introduced the participants to Fogg's theory on triggers and behaviour change, for them to better understand our standpoint and purpose with this assignment (figure 25, step 1). Furthermore, we explained that our widget/frontpage should work as a trigger.

The first activity for the participants was to address Fogg's (2009) first characteristic "notice the trigger". As seen in figure 25, step 2, we asked them to brainstorm ideas on how we might attract the user with our widget – making them notice it and encourage them to interact with the application. The participants got five minutes to brainstorm as many ideas as possible. We finished step 2 with a voting session, giving the participants an opportunity to vote on their favourites. The votes were widely spread as can be seen in figure 25.
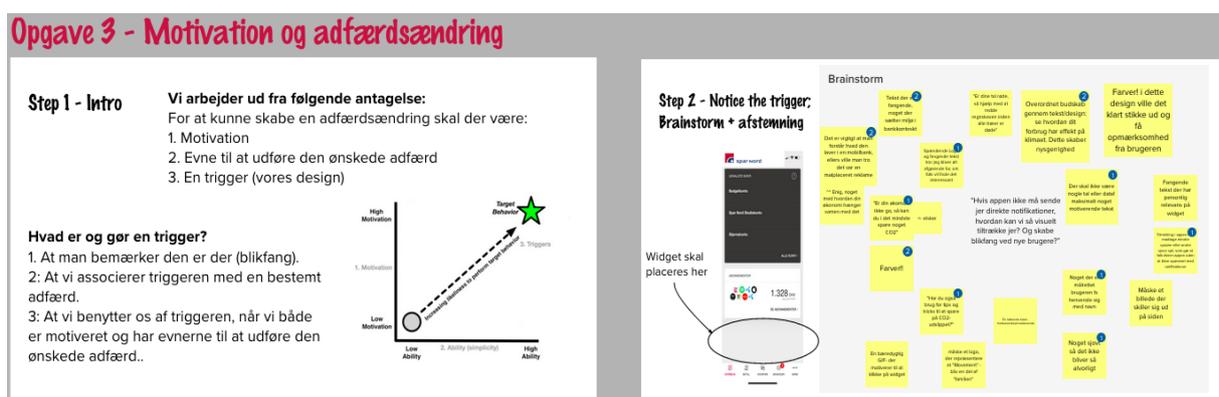
Figure 25: Screenshot from MURAL; Assignment 3 - Step 1 & 2 (step 3.2 attached separately in appendix 16.5)

In step 3, we wanted to investigate Fogg's second characteristic of a successful trigger: "we associate the trigger with a target behaviour" (Fogg, 2009, p. 3). The purpose was to explore what makes the users associate our solution pro-environmental behaviour.

As can be seen in figure 26, step 3.1, we created four statements for this purpose. By voting they were asked to highlight which statements they agreed with. How these votes got divided can be seen in figure 26, step 3.1.

After this we asked the participants to generate their own ideas in step 3.2 (figure 26).
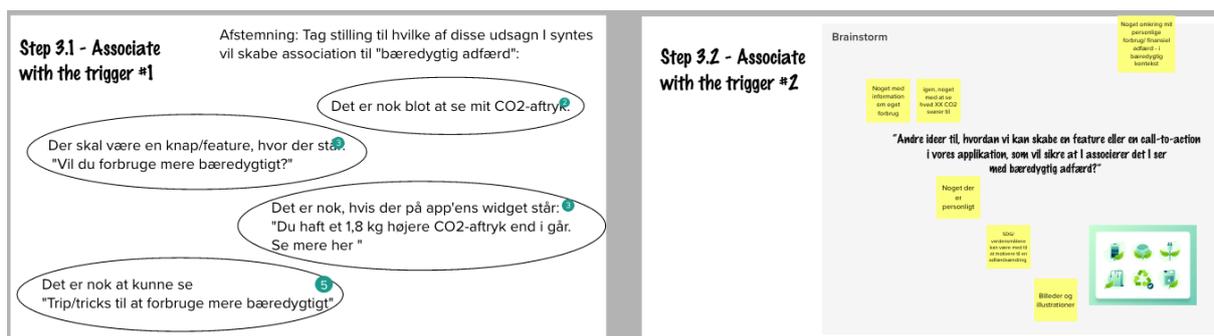
Figure 26: Screenshot from MURAL; Assignment 3 - Step 3.1 and 3.2 (step 3.2 attached separately in appendix 16.5)

Key learnings from assignment 3:

- The widget should have a catchy text, and it should have personal relevance – maybe with the user's name.

- The widget needs to show visual relevance for its implementation in the mobile bank.

- Colours are good to get the user's attention.

- The widget could show the impact of the user's consumption on the climate to develop curiosity.

- All participants agreed that showing tips and tricks would associate them with sustainable behaviour.

- The solution should be personal, show own consumption/footprint. Show what CO2 is equivalent to (making CO2 relevant, tangible and easier to understand).

- Pictures and illustrations can create associations to sustainable behaviour.

- The Sustainable development goals can be motivating.

The remaining characteristic "the trigger happens when we are both motivated and able to perform the behavior." (Fogg, 2009, p. 3), was not covered in our workshop, because we have already defined our target group as being sustainable consumers with both the ability and motivation to consume more sustainable (cf. section 3.3.).

Aligned with Bryman (2012), we had scheduled time to express our appreciation for the participation. We asked the participants if they wanted to add anything on either the final assignment or the workshop in general. The participants were positive about the workshop and they found the activities easy to understand and address, and the tool, MURAL, surprisingly easy to work in.

The findings from our workshop, along with the findings from our understand phase, creates the foundation for the requirements specifications, we will address in the following section.

5.2 Requirement specifications

According to Bashar Nuseibeh & Steve Easterbrook (2000), the requirement specifications can be categorized as a "roadmap" for designing and developing the prototype for a new design, or system, as "The primary measure of success of a software system is the degree to which it meets it purpose for which it was intended." (Nuseibeh & Easterbrook, 2000, p. 37). Our purpose with this system - with our digital design - is to change the mindset of the users by visualizing how the individual consumer actually affects the environment as well as how small changes of action can make a difference in the big picture. This is based on one of our main learnings through both the understand phase, the define phase as well as this ideate phase: The consumers need to understand the concept of CO_2 and they need to understand how their individual consumption can in fact have a positive impact on the environment. If they do not gain an understanding of how their consumption actually affects the global CO_2-footprint, they will not be able to maintain their motivation for being a sustainable consumer. Creating our requirements specification is not just an important part of the ideate phase but is essential in both multi-disciplinary and human-centred design, as the requirement specifications include both functional and non-functional techniques. Therefore, it is a way to

make sure that the system actually contains the necessary requirements and elements in order to reach its goals and purpose (Nuseibeh & Easterbrook, 2000).

With the results of our ideation workshop presented in the previous section, we have created a "[…] construction of abstract descriptions that are amenable to interpretation – which is a fundamental activity in RE." (Nuseibeh & Easterbrook, 2000, p. 40). RE stands for the term *Requirement Engineering,* which according to Nuseibeh & Easterbrook (2000) refer to the process of creating requirements specification for new designs and software. Using the term Requirement Engineering can be compared to how we have been modelling requirements through our interpretations of the results. In order for us to define the requirements, we decided to categorise these according to elements, such as: what tasks in our workshop the requirements are based on, which phase the requirements erupts from, as well as if the requirements are functional or non-functional.

To this, we have chosen to categorize the following requirements according to David Benyon's (2014) MoSCoW rules. The MoSCoW rules provide us with a categorisation that both differentiate whether the requirements are functional (F) or non-functional (NF) (Benyon, 2014). Furthermore, The MoSCoW rules allows us to define in what degree the different requirements are essential to include:

M = Must have requirements (Which is the requirements the application *must* include in order for the design to actually work)

S = Should have (Which is the requirements the application *should* have in order for the design to reach it purpose, but these are not essential for the application to actually work)

C = Could have (Which is the type of requirements we *could* include but not necessary. This categorization can furthermore be referred to as requirements that are "nice to have") (Benyon, 2014).

With the categories from Benyon's (2014) *MoSCoW rules* in mind, the following scheme include all of our requirements, as well as a description of each requirement:

Nr.	MoSCoW	Requirement	Description	F/NF
Informative content				
1	S	The solution should contain links with an option to read more about different products - in order to gain deeper information about sustainable consumption.	Sustainable consumers often experience frustrations when choosing between two/or more sustainable products. Therefore, the solution should include links to trustworthy references and sources with information. Banks should be neutral, as it will not be ethically/morally appropriate to influence how the customers should act and what products they choose to buy - therefore the application itself will not include information but refer to external links with trustworthy information.	F
2	S	The solution should include simple tips/advices that can help the users make it easy for themselves to consume/act more sustainable.	Tips and tricks are good, but one should be aware not to make the user feel less intelligent by them. Example: "If you use your own bag when shopping, you save X CO2 in a year"	F
Motivational and behaviour changing requirements				
3	S	The frontpage/widget should include personalized text and your daily CO2-footprint.	The text on the widget/frontpage should have personal relevance for the users in order to create attention and curiosity. The text should include relevant information as well as showing the users CO2-footprint.	NF
4	M	It must be clear why this feature is relevant in a mobile bank: It is important that the solution fits the banking context.	It is important that the users understand the purpose of having this application in their mobile bank - otherwise it can seem like an advertisement. It needs to be clear how this application is relevant for your finances.	NF
5	M	The frontpage/widget must be colourful and noticeable	Colours such as: green creates an association with environment and sustainability.	NF
6	S	Requirement number 1 should be visually noticeable on the main page in the	It is easier for the users to understand the purpose with the solution and to associate the solution with sustainable	NF

		solution in order to enhance users' association with sustainability	behaviour, if the solution visually includes a feature such as tips and advices to consume more sustainable.	
7	M	The solution must have high personal relevance: The primary content in the solution must be personalized.	Both the text and numbers visually presented in the solution must be relevant for the individual users, as it must be generated and withdrawn from the data about their personal consumption.	**F/NF**
		Data visualisation and motivating design requirements		
8	M	The users CO2-footprint must be presented in a tangible way and it needs to be easy for the users to understand how their behaviour have an impact in the bigger "environmental" picture. (must be compared to everyday things).	The number CO2 is abstract and hard to relate to. Presenting it in a tangible way, by providing examples, makes it easier for the user to understand their impact. Example: X kg CO2 equals x times running the washing machine etc. Examples on how their behaviour have a global impact.	**NF**
9	S	The design should be simple. The solution needs to be easy for the users to get a good overview.	The solution must not include too much information because this is overwhelming for the users. Therefore, the visual presentation must be easy to understand and provide the users with a quick overview.	**NF**
10	S	The solution should not contain too much text but should primarily visualize the content.	It should be informative but not overwhelming. We need to find the right balance between including must-have text and visualization, because too much information can create frustrations and make the users feel overwhelmed.	**NF**
11	S	It should be possible to see how you perform and the users should see their progress (from start - to - now) on the main page.	The solution could include a scale with milestones/goals. This has a good effect on the users' motivation. It gives the users an eager to reach higher. This can both be presented as a diagram/graph or a tree/mountain/thermometer.	**NF**
12	S	The solution should focus on the positive and avoid making the user feel ashamed.	The text that supports the data visualization must focus on the user's consumption in a positive way; "Yes, you have now…." Sets the user up for success.	**NF**

13	C	The solution could include the possibility to get an overview of the CO2-footprint distributed over time.	The users wish to have the possibility to see their CO2-footprint from both today/ last week/ last month/last year.	F
14	M	The calculation of the carbon footprint will be based on a database (like the Ålands index) containing the average CO2 consumption for each product-category and this needs to be clear for the users.	As the CO2-footprint is calculated through product-categories and not on specific product-level, the solution must include an icon or footnote with knowledge about the calculation.	F
15	M	The CO2-footprint calculation must be based on different product-categories, and these needs to include an elaboration.

And it should be clear where the data comes from. | The CO2-footprint should be visually represented based on different categories (transportation, food etc). And it should be possible for the user to easily get the information on what these different categories contains by clicking on them. | F |
| 16 | S | The solution should include a feature that allows the users to measure themselves against the average consumption or set personalized goals. | It is good and it can be motivating to be able to compete against yourself or the average.

Measuring yourself against environmental fanatics has a negative impact. | F |
17	M	The solution must not include negative colours: such as using red if the goals are not reached.	The colour red could indicate shame - the user is doing something wrong.	NF
18	C	The Sustainable Development Goals by the UN could be included in the design.	By including the Sustainable Development Goals, the design would create an association to sustainable behaviour.	NF
19	M	The solution must only visualize information about the user's behaviour/consumption.	The solution must only include elaborative information about the users CO2-footprint - and it needs to be voluntary if goals are included.	NF
20	M	The solution must not include too many visual elements. It must be clear what to focus on.	If the solution includes too many different elements, we will not achieve a simple and easy-to-understand design.	NF

		Requirements from the Understand- and Define phase		
21	M	It needs to be clear that the solution is developed with the intention of persuading the users to change their behaviour.	The intention and purpose of the solution must be clear without shaming or forcing the users to something they don't want. (We need to focus on their behaviour and base the solution on positive colours/text).	NF
22	M	The solution will automatically be accessible in the users' mobile bank, but it must be voluntary to use.	The solution will be implemented in the mobile bank, as a feature that CAN be used. Therefore, the Widget must not include content that shames or forces them to use it. It needs to be their own choice - if they want to click into it or not.	F
23	C	It could be made visually clear to the user that the bank will not use the data to anything else or share it with a third party - as it will not be ethical correct.	It is important for the users to know that their information and CO2-footprint will not have an influence on their possibilities to take loans or other financial matters in their bank.	NF
24	S	The solution should include a visual presentation of the results of reducing the CO2-footprint - not only in regard to everyday life, but with examples from around the world.	In addition to the fact that it is important that CO2 is presented in a tangible way (number 8), we need to show the users what positive results the reduction of CO2 has on the big picture (the global environment), in order to maintain their motivation. At the same time, they can also see that their behaviour can actually make a difference (close the gap). This can, for example, come as pop-ups IF they have reduced their carbon footprint. (Examples can be based on 2kg, 5kg, 10kg and so on).	F

As the requirements specifications have now been defined, we will move on to the next – and last phase covered in this thesis; the prototype phase.

5. Prototype

The prototype phase is both an experimental phase as well as a creative phase (Siang & Interaction Design Foundation, 2019). This means that we now will start focusing on creating a solution, whereas in the previous phases our focus has been on understanding the area we are working in - challenging our learnings and assumptions (Siang & Interaction Design Foundation, 2019). The prototype phase is – like the rest of the Design Thinking process – an iterative phase with the purpose of building solutions that can be tested (Hasso Plattner Institute of Design, 2010). This is the phase where our work become more tangible, because, as the earlier phases are concerned with broad and explorative questions, the prototype phase focuses on building a product and designing a solution the user can actually interact with (Hasso Plattner Institute of Design, 2010).

According to Marco de Sá & Luis Carriço (2006), the most important aspect of developing prototypes is to include every part and every requirement within the scope of the project - for us this means all the presented requirements in section 5.2.

In order to include every part of the scope, the designers and researchers need to create specific representations and organising the content (de Sá & Carriço, 2006). In this stage, it is often not enough to create concepts based on sticky notes, but a more realistic prototype is necessary because this provides a more realistic visualization for testing and usability evaluation. This is especially the case, when working with mobile applications and prototypes on a mobile device, as the screen is quite smaller than on a desktop (de Sá & Carriço, 2006). We often differ between developing *low-fidelity* prototypes and *high-fidelity* prototypes. There are many opinions on how to draw the lines between high-fidelity prototyping and low-fidelity prototyping, where many might compare the differences with the degree of realistic representation and the functionalities it includes. Instead of defining the degree of differences between a low-fidelity prototype and a high-fidelity, we adopt Sá & Carriço's (2006) distinction, wherein a low-fidelity mobile prototype can in fact be both functional and have a realistic view, as the term low-fidelity prototype refers to a prototype built *early* in the iterative process: "Low-Fidelity prototypes, present an important tool for designers to test their designs and solutions […]." (de Sá & Carriço, 2006, p. 3-4). This means that the reason why our prototype will be characterized as a low-fidelity prototype is that our prototype is

developed during the early stages of this design process. What characterizes a low-fidelity prototype is, furthermore, that the prototype is inexpensive to make and does not take too much time to make, as the main purpose of a low-fidelity prototype is to be tested and evaluated in the *early stages* of the design process (de Sá & Carriço, 2006). To this, our prototype will be built with the purpose of conceptualizing and represent our findings, learnings and understandings from previous phases as well as realising our requirement specifications (see section 5.2). Creating this prototype can be approached in many different ways, but we have chosen to begin with a hand-drawn sketch (see figure 27) of the user interface (UI), which is an approach recommended by Sá & Carriço (2006). However, the hand-drawn sketches can be problematic as it can be hard to sketch a prototype that includes the right sizes and shapes for a mobile application. This might in fact mislead the people's view on the digital solution during the test (de Sá & Carriço, 2006). The prototypes need to be equal to the actual size and be adaptable to the device the prototype will be used on (de Sá & Carriço, 2006). This way, the prototype will be a realistic presentation of the concept and we will, therefore, be able to gain realistic feedback from the test phase which will allow us to optimise, idea generate again, and create a redesign – as a result of the iterative nature of Design Thinking.

Another issue we need to keep in mind, during this phase, is the degree in which we choose to let the technical limitations, presented by our case partner Spar Nord, affect our prototype. By this, we are referring to the circumstances we have discovered in regard to Spar Nord's platforms, and the limitations of having a third-party, BEC, as the main IT-provider for Spar Nord (cf. Section 3.2). If we were to contemplate both the technical possibilities as well as the technical limitations, that the collaboration with Spar Nord provides us, we might not be able to accommodate all the findings and learnings from our understand phase, the define phase, and the ideation workshop in the ideate phase.

The fact that it is limited what kind of data we can extract from a transaction, as presented in section 3.2, is a challenge. However, these limitations are not in our focus in this phase, and in this stage of development. In this phase, we will focus on building a prototype that reflects and fulfils the user's needs. This means that the scope of this phase is to realise the concept of our application – not to consider in what degree we are actually able to withdraw more

data from the transactions by including for example Merchant Category Codes (MCC). Even though as we previously found this to be an option for us to gather more data on transactions (cf. section 3.2). Moreover, we will not address how we can comply with the PSD2 directive, or if we can persuade Spar Nord to invest in the development or implementation of new technical products which allows us to use more detailed data from the consumers' transactions (cf. Section 3.2). These issues will first influence the application in a future phase where the realisation and implementation of the product will be in focus. But, as we want to be sure our prototype represents a digital solution ready to implement, we have chosen to include product categories inspired by the Ålandsindex.

The Ålandindex is, as mentioned in section 3.2, a digital service that Nordea provides their customers. The index provides an approximate calculation of the consumer's CO_2-footprint by dividing the products and purchases into categories (Paulsen, 2019). This way, we know that the calculation of the user's CO_2-footprint can actually be carried out in practice (cf. Requirement 14) – even though we will work concept-oriented in this phase. Including knowledge from Spar Nord in this project has, therefore, supported our overall insight and knowledge about both financial institutions and finance technology – but, as we are primarily user-centred we will, as mentioned earlier, focus on accommodating all the findings and learnings from our users.

With these reflections in mind, we will present our low-fidelity prototype in the following section.

6.1 Considerations when designing a low-fidelity prototype

Before presenting our low-fidelity prototype, it is essential to mention that this prototype is developed with the aim of *testing it in a future iteration*; both in regard to the visual elements in the interface and with the usability of the application in mind. But, how can we make sure that our application contains both the wishes from our users as well as accommodating their needs? First, we need to make sure that our prototype includes every must-have requirement specification from section 5.1, and secondly, it is our job as designers to make explicit design choices in order to develop a user-friendly application, To this, Jenifer Tidwell (2011) has published the book "Designing Interfaces", which addresses the issues designers can meet

when designing software and application interfaces. According to Tidwell (2011) the designer needs to make several design choices. Therefore, we will use her book as a guideline to navigate between the different patterns and design choices for mobile applications, as well as a guideline for the problems we might experience during this phase.

Designing mobile applications and prototypes through UI and IA[2] patterns

If we compare designing digital applications to a decade ago, the focus today has changed, as we now primarily focus on mobile applications instead of desktops and laptops (Tidwell, 2011). This change of focus is based on the technical and digital development that we have been through. Today most people use their smartphones for emails, browsing and everyday tasks, whereas this was mostly done on a desktop or a laptop earlier (Tidwell, 2011). The fact that the focus has shifted from designing desktop interfaces to mobile applications makes this book relevant to include, as it can be compared with net-banking evolving into mobile banking.

Fogg also addresses that the transition from computer devices to mobiles, provides us with the better change to obtain the opportune moment, as "the technology can travel wherever they go" (Fogg, 2009, pp. 187–188). However, with the increased use of smartphones in our everyday life, Tidwell (2011) furthermore argues that "[…] iPhones and other complex mobile devices now are spreading everywhere, putting the whole Web in our pockets, many designers have been forced to face the special problems inherent to mobile design." (Tidwell, 2011, p. xi).

Tidwell (2011) refers to many of her UI design choices as *patterns*, because every choice and every visual element invites to a certain behaviour, interaction or navigation within the system (Tidwell, 2011). Tidwell presents several patterns, whereas we will highlight a few of those we find most relevant to our solution.

The UI patterns

Most importantly, the user needs to feel safe and comfortable when exploring the system or application. To this Tidwell (2011) presents the pattern *Safe exploration* as something every

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[2] Information Architecture

design must have in mind, because good software and good design is not just about the visual elements – it is about how it makes the users feel (Tidwell, 2011). The pattern safe exploration is, therefore, an important pattern no matter how complex the navigation is, and no matter how many sub-pages the application includes (Tidwell, 2011). Furthermore, the safe exploration patterns also refer to a specific behaviour - making the users explore the content and the sub-pages in the system safely. But, what other patterns do we need to be aware of when designing our digital application?

Firstly, we need to include the appropriate behaviour patterns in order to design an application, which aims for a specific human behaviour. Because, it is not just the usability of the application that is important, but how the specific technology can enable new structures and new kinds of interaction within the ongoing practices (see discussion section 7).

When designing for specific behaviour, Tidwell (2011) states that designers have over time been able to study and observe users in order to be able to predict the users' behaviour. Therefore, the behaviour patterns such as *Instant gratification*, *Satisficing*, *Changes in Midstream,* and *Streamlined Repetition* are not to be confused with visual elements or interface design elements (Tidwell, 2011). Instead they represent either a state of mind or a behaviour that we, as designers, wish to support or achieve through visual design choices.

For example, the *Instant Gratification* refers to the fact that "People like to see immediate results from the actions they take – it's human nature." (Tidwell, 2011, p. 10). This means that we need to design a prototype that ensures a "success" experience within few seconds (Tidwell, 2011). This can also be compared with our wish to motivate our users to consume more sustainable, because, if they experience instant gratification, they may be more compelled to use our application again and, thereby, get inspired or motivated to make more sustainable choices when purchasing. One of the behaviour patterns that is connected to Instant gratification is the pattern *Deferred Choices,* where the application provides the user with the possibility to skip a step or request (Tidwell, 2011). This is, for example, one of the reasons why we have chosen that even though the users of our application can set personalized goals, this step is not forced upon them – but merely an option. This is also

aligned with our participants' wish for personalization and to not be forced into a certain behaviour (cf. section 3.3 & 5.1).

Satisficing is a pattern that refers to the fact that human beings – the users – do not read all the content on an interface in order to figure out how they can get what they need (Tidwell, 2011). Instead, they only scan the elements and the labels on the page after which they guess or try the labels, they think will get them what they want (Tidwell, 2011). Therefore, it is essential that the labels used in the interface is both simple and easy to understand. This can also be paralleled with what we learned during our workshop-assignment 1, as several of the participants pointed out the importance of creating a simple design (See section 5.1), which matches the fact that a complicated interface demands "[…] a large cognitive cost on new users." (Tidwell, 2011, p. 11).

Streamlined Repetition is a behaviour pattern that is included when the users have to perform the same action or "operation" several times (Tidwell, 2011). Especially the number of clicks is important to have in mind, as we need to make it as easy and intuitive to perform the task again and again (Tidwell, 2011). This can also be linked to our responds in both the online focus group interview (cf. section 3.3) and our Ideation workshop (cf. Section 5.1), where several of the participants expressed frustrations of having to use several different applications, systems and devices every day. Therefore, it was important for our participants that our application did not require many clicks which means that we need to be careful not to implement too many steps in the interface.

As mentioned earlier, the patterns presented by Tidwell (2011) can also refer to visualization and organisation of content on a page. The patterns related to the structure of content, the visual elements and the organization of the interface are all implemented with the desired behaviour in mind (Tidwell, 2011). Especially the visual hierarchy of the interface is important when designing mobile applications, as the screen itself is not as big as a desktop. It is vital that the interface emphasises what is important on the page, and what is less important. As a result of our embracement of Persuasive Technology as an overall strategy in this project, we also need to make sure that the content clarifies our intention with the design: To promote, motivate, and change the behaviour of the users in a pro-environmental way.

The patterns related to both the content, the interaction and the visual representation of the interface can be put into play in different ways (Tidwell, 2011). Therefore, we will present these patterns, along with the chosen behavioural patterns, during the presentation of our prototype.

Another aspect we need to keep in mind when designing and developing a low-fidelity mobile prototype is the amount of information the application needs to include. In our case, it has become clear that there is a lack of trustworthy information when it comes to sustainable consumption. Already during our online focus group interview, it got clear that the users get overwhelmed by the large amount of information/misinformation they are exposed to. They experience dilemmas when trying to behave sustainable and find it hard to navigate in what information to trust and rely on. The participants from our focus group interview found themselves sceptical towards the sources of information – one participant highlighted that when she needed specific information, she searched the internet until she found what, in her opinion, was a trustworthy source (cf. section 3.3). In the workshop, the level of information we need to provide in the solution, was examined, and it became clear that we need to include both information about the product categories, personalised information about each user's CO2-footprint and information that presents CO2 in a tangible way. Similar for all types of information was that it needs to come from reliable sources (cf. section 3.3 & 5.1).

Organising information

When organising information, we need to make sure that our interface contains a synthesis of labelling and navigation (Ding, Ling & Zarro, 2017). Especially the term *structural design* is important as it involves organising content in a manner that is understandable and not overwhelming for the users. Organising content is also related to the behaviours and the patterns mentioned above, as it rests in the relationship between usability, architecture and findability that a good design emerges from (Ding et al., 2017).

In order to organise the information and content in a good and understandable way, we can include perspectives and guidelines that form the field of information architecture (IA), as AI is connected to the user-centred design approach we have applied during this project.

According to Ding, Lin and Zarro (2017), the field of user-centred design can be compared to both contextual design and customer-oriented design, as the primary focus of each of them is that "[…] the "user" should be the center of the focus during the whole design process." (Ding et al., 2017, p. 25).

We need to design for "finding", we need to design for "understanding", and we need to include the appropriate labelling-, navigation- and organisation systems. To this, Rosenfeld, Morville and Arango (2015) presents different IA solutions and systems that can be helpful in our situation.

Initially, the content needs to be *labelled* correctly in order to not misguide- or mislead the users. When using labels to organise the content on the interface, the designer can either use common types of labels or customised labels (Rosenfeld, Morville & Arango, 2015). Labels represent the word, large chunk of words or a message that we want to send to the users, for example if the designer includes a "Contact us" on a webpage, the need for contact name, telephone number, e-mail address or similar information are not necessary (Rosenfeld et al., 2015). This way labels becomes a shortcut for the users, and hence an important element in the design – as long as the label and what the label stand for are understood correctly (Rosenfeld et al., 2015).

Secondly, the content can - when working with IA - be organised according to either hierarchy, subjects or other structures (Rosenfeld et al., 2015). According to Rosenfeld, Morville and Arango (2015) the classification systems are especially important as it can prevent *Ambiguity, Heterogeneity*, and differences in perspectives (Rosenfeld et al., 2015). We will, therefore, include the knowledge and organisation systems from the field of IA we see fit when developing and designing our prototype.

Lastly, the behaviour pattern presented by Tidwell is not the only elements, which can help us support a specific behaviour or interaction with our application. By applying navigation systems, we make sure to be aware of the navigation within the system in a user-centred way throughout the process of building and designing the prototype. Because, even though our participants in both our online focus group interview and our ideation workshop pointed out

that they did not wish to use a new application that requires too many clicks, the need for a flexibility between information and pages are essential (Rosenfeld et al., 2015). There are many navigation possibilities for a new system, which is why we need to be aware of what the different navigation systems offer both our design and the users. For example, we can include both *local navigation* and *global navigation* in our application. *The global navigation system* is according to Rosenfeld, Morville and Arango (2015) "[…] intended to be present on every page throughout a site." (Rosenfeld et al., 2015, p. 183). Whereas *the Local navigation system* is the navigation that is possible on the site where the user is located. Local navigation systems are often implemented in the global navigation systems, as they "enable users to explore the immediate area." (Rosenfeld et al., 2015, p. 186). The combination of local- and global navigation systems can also be understood as the degree of steps or depth in the organisation of content. The global navigation can, in some systems, be used in order to organise the main content, whereas the local navigation is used as classification and categorisation of content within each of these categories.

How the patterns and UI elements has affected our prototype, along with what considerations we have had when organising information and including the different IA systems, will be elaborated in the next section.

6.2 The application: "My Climate-footprint"

According to Stephanie Houde and Charles Hill (1997) the prototype can have several different purposes. It can be developed with the purpose of presenting *the role* it has within the context, it will be implemented. It can be developed in order for the designers to be able to test the prototype and to be able to realise a product the future users can *look at and feel*, and it can be developed with the purpose of planning the *implementation* better (Houde & Hill, 1997). A prototype can be referred to as the *artefact* of the project as the prototype is the designers' realization of a design idea. The artefact of the project – our prototype – is developed with the aim of creating something we can test and something the future users can both *look and feel.* Because, in order for us to test the actual product we need to be able to present it in a material way to gain a realistic and usable evaluation. To this, our prototype

is a realisation of the users' wishes and needs, as well as the requirement specifications presented in section 5.2.

As mentioned earlier, we decided to begin the process of developing our prototype with hand-sketches (see figure 27).
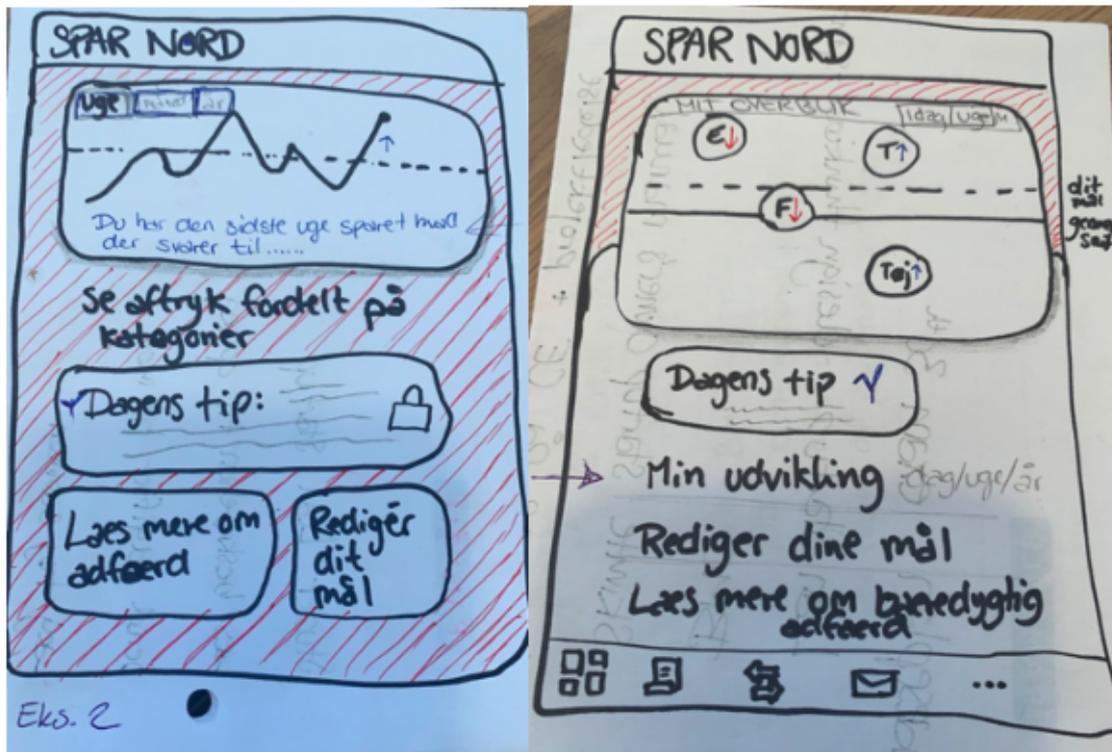

Figure 27: Our hand-drawn low-fidelity prototype

Using pen and paper to draw, reflect and discuss the content of the prototype was a good way to achieve a shared understanding of our design, as the requirement specifications presented in section 5.2 often refers to specific functionalities or elements that the application needs to include. However, our requirements do not provide us with a guide on exactly *how* we should include or design these elements.

Therefore, the hand-drawn sketches on figure 27 above were highly inspired by how the participants in our workshop evaluated and voted on the existing application layouts (see figure 22 in section 5.1). Particularly, the visualisation of categories is something our participants liked about the different examples and is thus something we had in mind when creating these sketches.

Besides including the categories in our visual design, we were inspired by looking at app designs we, as the designers, find appealing and that are trending at the moment. This also accommodates some of the wishes from the workshop, as one of the participants stated the following: "Den måde elementerne præsenteres på er vigtigt; specielt grønne farver, bløde figurer/kanter og et moderne look gør det genkendeligt og skaber et lækkert design, der forbindes med miljø og bæredygtighed" (cf. section 5.1 & appendix 17). The soft curves and modern look will, therefore, be elements we will keep in mind when designing the interfaces.

The two sketches on figure 27 are two different examples to a design, as they both represent *the main page* in the application. The sketch to the left represents a version, where the progress over time is centralised (cf. requirement 11), and the CO2 footprint divided into categories are secondary - accessible by a button below the graph (cf. requirement 15). The version to the right in figure 27 is opposite with the categories represented as primary, and the graph accessible under "Min udvikling" [My progress]. This is inspired by the participants' positive attitude towards the visualisation of categories in assignment 1, step 3 in our workshop (figure 22 & appendix 16.2). To accommodate the need for a visualisation of the user's performance and progress (cf. requirement 11), along with the option to compare with others or your own goal (cf. requirement 15), we have added a bar (the dotted and straight line) and arrows to give the users a visual and quick status on their CO2-footprint (see figure 27). This also addresses requirement 10 stating that the solution should prioritise visuals over text. We have decided to include the visualisation of categories as the primary screen (the sketch to the right), which will be elaborated later in our presentation of the digital low-fidelity prototype.

The reason for continuing with a digital prototype, instead of a hand-drawn sketch, is that as we draw these sketches it became clear that in order for us to develop a prototype that actually provides us with a realistic view, we needed to include a digital developed prototype – in the right size and form as a smartphone. This aligns with the arguments by de Sá & Carriço (2006), where they refer to the importance of creating a low-fidelity prototype that has the same size and possibilities as the real product.

The digital prototype

The first screen the user meet, when logging into their Spar Nord mobile bank, is the front page with an overview of their financial status and subscriptions.
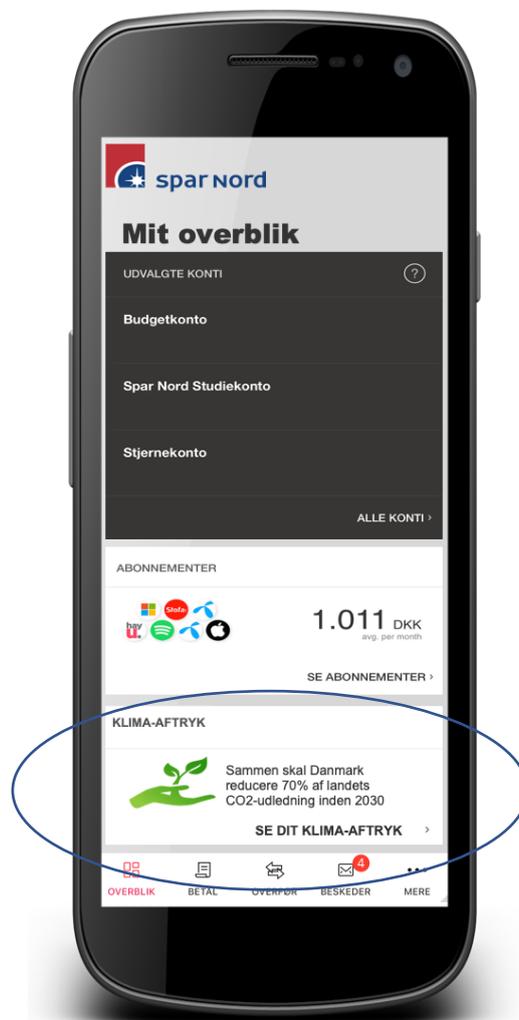

Figure 28: The Widget

On this screen, we have chosen to implement and design what we refer to as our 'widget' with the pattern *Titled Section* in mind (See figure 28). Titled section is often used to separate different sections and the content on a desktop interface that contains different kinds of information (Tidwell, 2011). Nevertheless, we assessed it appropriate to include this pattern, even though we are developing a mobile interface, as it allows us to focus on making the page well-defined and well-named. To this, it was important for us that the widget was noticeable - addressing Fogg's theory on triggers (cf. section 3.3). The solution will automatically be

accessible in the user's mobile bank, but it must be voluntary whether the individual user want to interact with it or not (cf. requirement 22).

As the blue circle in figure 28 illustrates, we only had little space in the widget, and therefore we needed to cover what the application contains and provides the users as well as why this application is relevant. The visual expression on the widget/frontpage was something our workshop participants discussed, as they referred to the widget as an interface that must be colourful and noticeable (cf. requirement 5), include personalised text about the user's CO2-footprint (cf. requirement 3), and it must be clear why this application is actually relevant for the user (cf. requirement 4).

These requirements are fulfilled by including the visual logo (the green hand) as an eye catcher, together with the text "Together Denmark has to reduce the overall CO2-footprint by 70% before the year 2030 – see your climate footprint". This text is also inspired by some of our key learnings from our ideation workshop, where both a logo to represent a sort of "movement", and a sense of togetherness/family, was defined as important elements when attracting new users (figure 25 & appendix 16.5). Therefore, we formulated the text with a focus on "togetherness" as an attempt to make the users feel included in the national goal to reach the 70% CO2 reduction.

At the same time, the text needs to be neutral with an effort to accommodate the user's need to not feel forced or shamed, which have been an ongoing theme throughout both our online focus group interview and our ideation workshop (section 3.3 & 5.1). The text might not include personalized CO2-footprint (cf. requirement 3), but we will assess that it still implies the relevance of taking action. Whether we need to include something more personalised in order to trigger the users to actually interact with the application, is an aspect we could include in a future test phase.

1. **The Welcome screen**

If this is the first time the user clicks into our application on their mobile bank, they will meet the following "welcome screen" (see figure 29). The purpose of our welcome screen is to make sure that the purpose and content of the application is defined and clearly presented.

Figure 29: Welcome screen

To this, we have had different reflections as some of our participants in our focus group interview expressed that the application needs to be easy to use and not require too many clicks or steps because the participants emphasised frustrations on having too many apps to navigate in (cf. appendix 9). However, at the same time, we assessed it necessary to present what this application can do, how it can be used, and what it shows. This way, we made sure that the users did not feel deceived or misled when opening the application for the first time,

which is an essential aspect when designing persuasive technologies. Ensuring that the users do not feel deceived or mislead is according to Fogg (2003) important as many ethical issues related to persuasive technologies revolves on the intentions of the technology. It needs to be clear that the methods and elements, in a piece of technology, is included with the intent of persuading the users (Fogg, 2003). Furthermore, when organising the content and information on an interface, it is, according to Rosenfeld, Morville, and Jorge Arango (2015), important that the designer makes sure that the users are well informed about what the system contains, along with its purpose (cf. requirement 4 & 21).

Besides ensuring that the intention with the system is clear, this "welcome page" also has the tenacity of ensuring the right *association*. By this, we are referring to the field of Persuasive Technology and more precisely Fogg's (2009) presentation of the trigger in the behaviour model (cf. section 3.3). When working with mobile phones as trigger, the context becomes more important than it is when working with other technologies such as desktops, since the mobile phones "[...] go beyond the desktop into our active lives." (Fogg, 2009, p. 7). As mentioned previously, one of the purposes for developing a prototype is to establish the role of the prototype, in order to establish how a new technology will be used in different contexts (Houde & Hill, 1997). Therefore, creating this welcome pop-up could support the use of the application sooner, as we both inform the users and hopefully trigger the users to interact with it.

Besides welcoming the users to the application, we have decided to include text that informs the user that the bank will not use the data to anything else or share it with a third party (see figure 29) - as it will not be ethical correct aligned with requirement 23.

When the users have read the welcome text in the pop-up (figure 29), the icon "X" in the top right corner can be pressed with the aim of closing it. To this we have chosen to include a label which, according to both Tidwell (2011) and Rosenfeld, Morville, and Jorge Arango (2015), is a *universal label* that most users associate with "closing something" in order to minimize *ambiguity* as "[...] we must try our best to design labels that speak the same language as our environment's users while reflecting its content." (Rosenfeld et al., 2015, p. 135). We could in fact also choose to write a text instead, but as one of our main focuses is to

provide the users with a simple design that can be sensed easily (cf. requirement 10), we have chosen to only include the "X" label.

Before moving on to the next screen (the main page), we would like to highlight that this "welcome pop-up" is not a demand of our requirements from section 5.1. Instead it is developed with the aim of testing if this pop-up screen provides a better association with the desired pro-environmental behaviour. Because, in order for our application to function, as to as a *trigger* (Fogg, 2009), the user needs to experience a direct association between the content in our prototype and pro-environmental behaviour. Moreover, we are interested in testing if this "welcome text" provides the users with a better understanding of the application and thereby contribute to a better usability.

When the Welcome pop-up is closed, the main page of our application appears (see figure 30).

2. The main page; My 2020 Climate-footprint

Figure 30: Main page

On this screen several elements and different content is shown. It is on this page the application's navigation system is represented, as we have included what Rosenfeld, Morville, and Arango (2015) refer to as a *Global navigation system*, as presented in the beginning of this phase. To this, the global navigation system is represented in the visualisation of the following elements:

- "Min Udvikling" [My progress].
- "Rediger mine mål" [Edit my personal goals].
- "Læs mere om de forskellige kategorier" [read more about the different categories].

● "Læs mere om, hvordan du kan reducere dit CO2-aftryk og se, hvordan dit forbrug påvirker miljøet" [Read more on how you can reduce your CO2-footprint and gain insight on how your consumption affects the environment].

When focusing on navigation, it is relevant to point out *the back-button* that appears in the top left corner on every page in the application. The implementation of a back button might propose the implementation of the *Pyramid navigation.* According to Tidwell (2011) the pyramid navigation is often visualised by only including Back- or Next links/buttons between the sequence of pages. The main page then represents the top of the pyramid and is, furthermore, the page that links to every sub-page (Tidwell, 2011) – see illustration of how the pyramid navigation system would appear as a navigation map for our application:
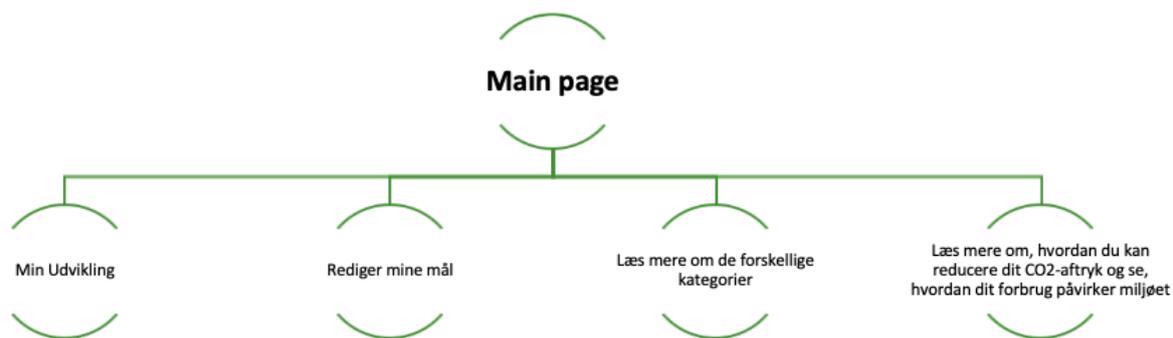
Figure 31: The pyramid navigation system

However, as we have chosen to implement a global navigation system throughout the entire application, the main menu needs to be visible on every sub-page (Rosenfeld et al., 2015). Therefore, as a final navigation label, we have implemented the three dots in the top right corner. The use of three dots can be compared to how Tidwell presents using common icons that are easy to decode (Tidwell, 2011), as we have assessed the use of three dots in the top corner as common icons for "menu" or "navigation possibilities" in mobile designs. When including the possibility to navigate between every page in the global navigation, without having to go through the main page each time, the navigation model *fully connected* (Tidwell, 2011) can be used in order to visualise the overall navigation map for our application:
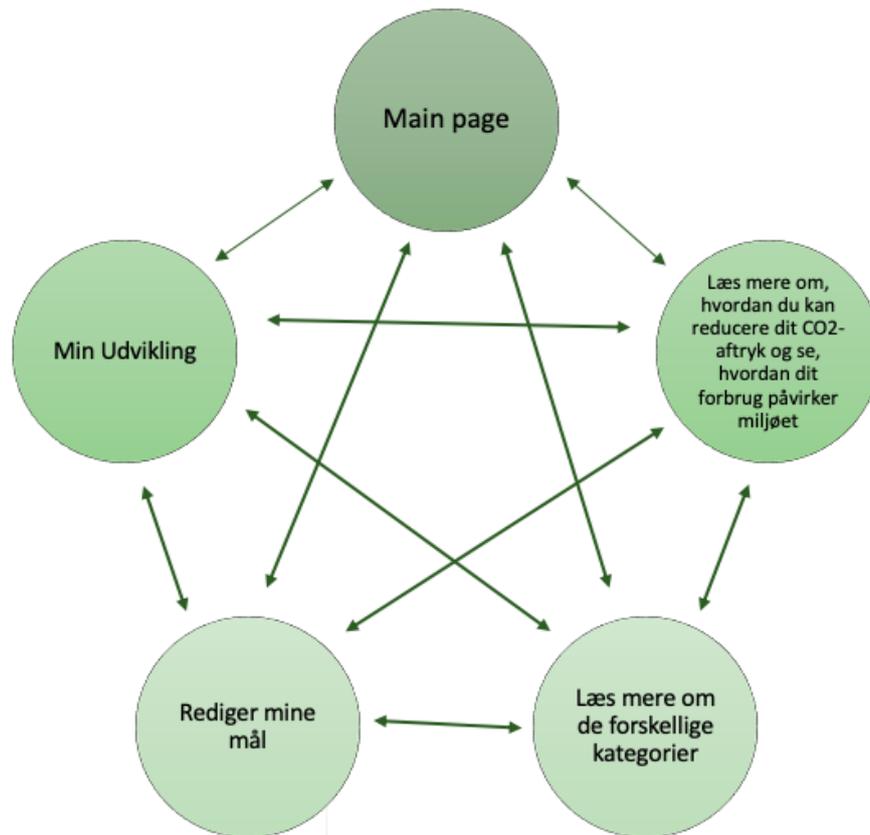
Figure 32: Global navigation model/Fully connected model (Tidwell, 2011).

If we compare the pyramid navigation model (figure 31) with the fully connected model above (figure 32), it is clear that the global navigation system provides the users with more navigation possibilities in the application, as it connects the main page as well as every sub-page to each other. This navigation system also embraces the previously presented pattern *Safe exploration*– as the user can move around in the system without getting lost, and the pattern *Changes in Midstream* because the user can always navigate directly back to the main page as well as to every other page in the application.

General design choices:

Common for every page and every interface in our application is that they are based on the same *Visual Framework* pattern. This means that every page includes the same basic layout (Tidwell, 2011). For example, our design is based on a light grey background that is the same background that Spar Nord uses in their mobile bank. This way, we are using the same basic

elements as a framework in order to provide and give an aesthetic overall impression and visualize that our application is an integrated part of spar Nord's mobile bank.

In addition, Tidwell (2011) points out that in order to persuade a user to actually click through the system, a title is not enough. Therefore, we have decided to include both our logo (the green hand) and the title "My Climate-footprint" on every page in the application, whereas Spar Nord's logo is visual on figure 28 because the user is still interacting with their mobile bank. This way, we would state that elements from the pattern *Satisficing* is included, since the users only needs to do "a quick scan of the page" in order to know that they are now interacting with our application.

One of the last design choices, that can be categorized as a *general design* choice, throughout the entire application is the chosen colour scale. According to our requirement 17: "The solution must not include negative colours; such as using red if the goals are not reached" (cf. section 5.2). The primary colours in our application are within the green colour scale, as this was the colour both our participants in the online focus group interview as well as the ideation workshop associated with sustainability. Using red often refers to something negative and we did have several considerations in regard to implementing a red colour in the design. However, we did decide to include a muted red colour in the arrows in "My 2020 Climate-footprint" view, as we wanted to make it clear whether the user's CO2-footprint in figure 30 is falling (green arrow) or rising (muted red arrow).

Visualisation of climate footprint:
This page also visualises the user's "2020 Climate-footprint". In the workshop it became clear that the visual representation of the user's CO2-footprint does not have to be a graph or a diagram, but can in fact be visualised in several different ways as long as the design does not include too much text and has a simple and modern layout (cf. requirement 9 & 10). The key requests from both our online focus group and workshop participants were that they need a tool that can help them understand the concept of CO2, and a tool that visualises the connection between their consumption and CO2-footprint (cf. Section 3.3). The need for a tangible visualization of their CO2-footprint can, furthermore, be compared to the pattern *Satisficing*. "When people look at a new interface, they don't read every piece of it

methodically [...]" (Tidwell, 2011, p. 11), which means that we need to focus on designing an interface that calls for action, is easy to understand, quick to read and "[...] where the layout of the interface communicate meaning." (Tidwell, 2011, p. 11). Our visualization therefore needs to communicate what CO_2 actually is, how it is calculated and what the categories mean.

So, in order to provide the users with a visible relationship between their consumption and their climate footprint, we decided to integrate the categories. We have experimented with the visual elements, since we do not include graphs, diagrams or natural objects such as mountains or trees to visualise the user's CO_2-footprint (see figure 30). We want to investigate if such an overview gives users anything at all – if it communicate its meaning. We could in fact state that we want to let the users decide if this visualisation makes sense to them. To this, we could argue that applying the user-centred mindset have inferred the desire to experiment with visual elements in order to test these - as it is the user's desires and needs, we want to incorporate into the design (cf. section 2.1). Regardless of what visual preferences and what kind of feedback the users express during a test phase, the design must still be based on the fact that the content in our application must have high personal relevance for the users (cf. requirement 7).

The last element, we want to address on the main page is the two lines in the user's 2020 Climate-footprint. In figure 30 (above) both a regular green line as well as a dotted line is visible. The main purpose with these lines is to provide the users with the opportunity to personalize their application. The regular line represents the amount of CO_2 the average Dane emits through their consumption. According to Tidwell (2011), every user is unique and each user's goal with using a system is different. Therefore, we wanted to provide the users with the possibility to set personalised goals, which is why the dotted line is not visualised on the screen the first time they use the application. This will only appear if the user chooses to set a personal goal. How the users can set their own goal will be elaborate later.

Today's tip:

According to Tidwell (2011) humans have a need to experience *instant gratification* even though they only *scan* the content on the interface. Therefore, we needed to recognise this through every step of our design and ask ourselves "what do we want the users to gain from

using our application as a minimum?". By including "today's tip", we are able to deliver short and accessible tips that might inspire the users to act more sustainable. To this, we are aware that not every Spar Nord customer is interested or motivated to consume more sustainable. Therefore, our target group is the "sustainable consumers" – consumers who already have an interest and motivation, along with the ability to consume pro-environmental (cf. section 3.3). By including small tips (requirement 2), we address the user's needs for making it easy for themselves when changing routines, and to get inspired. With "today's tip" we make sure that even though some of the users might not use our application again – at least we have provided them with a (unconscious) trigger, as the tip might make these users realise that small actions can actually make a difference. Visually, we have chosen to implement a plant as the icon/label that represent "today's tip"' This plant appears next to the "today's tip" and does not change even though our intention is that the tip of the day will change every week as we want to include dynamic and inspiring elements in the application. In order to embrace requirement 6 and making "today's tip" visually noticeable, we have implemented a combination of the plant-icon as well as highlighted "today's tip" by making the heading bold and placing the section in the middle of the interface.

As mentioned in section 5.1, it is important that these tips and tricks are: easy to perform; are coming from a reliable source; and are not condescending - making the user feel unwise. The fact that the tips should be easy to perform, also aligns with Fogg's behaviour model, where both motivation and ability is crucial for the behaviour to happen (cf. section 3.3), and hence crucial in order for the tips, we provide, to have the desired effect.

The workshop participants also expressed their concern about the relevance of tips and tricks in the mobile bank (cf. figure 24 or appendix 16.4). However, when performing workshop assignment 3, step 3.1, all participants agreed with the fact that being able to see tips and tricks would associate them with sustainable behaviour (figure 26).

The remaining labels:

The visualization of the next three labels "My progress", "edit my goals" and "Read more about the categories" are based on the pattern *Grid of equals.* According to Tidwell (2011) this pattern can be helpful when the interface contains many different items and content. By

giving these three labels the same size – and thereby an equal representation on the interface, we express that these choices/subpages are equally important in the application.

Lastly, the users can click into the sub-page "Read more about reducing your CO2-footprint", where it is possible to read more about how he or she, as an individual consumer, can reduce the CO2-footprint as well as how this can affect the environment. This label is bigger than the others - and is therefore not included in the *Grid of equal* pattern. This label has been enlarged, as this is an information page that contains elements that the participants in both the focus group and the workshop have expressed great emphasis on. Namely, that there is a need for trustworthy information and that they need insight to how their behaviour can actually have an impact on the environment and in the big picture (cf. requirement 8). Providing the users with trustworthy information that both enlightens and informs the users about their impact on the environment can also help closing the gap on why consumers with a pro-environmental attitude does not always correspond with their behaviour (cf. section 3.3).

When the user has reduced his or her CO2-footprint with for example 10kg, 20kg and 100kg, they will automatically receive a "congratulation pop-up", which will be presented next.

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3. **The "congratulation pop-up"**

This pop-up appears automatically when different milestones or X amount of CO_2 is reduced (see figure 33). The purpose of this pop-up is to maintain the user's motivation and present what their reduction of CO_2 actually means for the climate and the environment (cf. requirement 8).

Figure 33: Congratulation pop-up

The idea with the pop-up feature is also aligned with requirement 12 stating that the solution should focus on the positive and set the user up for success. This was a pervasive topic throughout both the focus group interview and our workshop, as our users sometimes experience getting shamed for not acting sustainable enough. Therefore, we are especially aware of only focusing on the positive – avoiding implementation of any content, that might

make them feel shamed or express a focus on what they did not do. Furthermore, this feature is inspired by gamification, expressing that the users has accomplished a milestone or a goal. Yet, we want to emphasise that gamification as a concept was discussed by the participants during our ideation workshop, exposing arguments both for and against gamification, hence we have not designed our solution around this concept (see section 5.1 & appendix 17). Gamification can be a positive reinforcement through behaviour change – but, according to our workshop participants it is a balance. How we have implemented the element of setting goals will be presented later.

When this "congratulation pop-up" appears is programmed in the application and is not visible for the users. Therefore, this pop-up will be an occasional surprise when the user has reduced their CO_2-footprint and are hitting a target. The pop-up will only focus on positive results and will not appear in other cases nor will it function as a reminder for the users to do better. This is decided in order to support requirement 8.

4. The "My Progress" screen

By clicking on "Min Udvikling" [My progress] the user will meet the interface in figure 34, where the users can get a more detailed view on his or her CO_2-footprint progress over time This interface is developed for two purposes:

- It aims to give users a more tangible understanding of how they impact the environment in terms of their CO_2 consumption (cf. requirement 19). Because, as we have mentioned before, our users experience difficulties in understanding what x kg CO_2 actually is.

- It aims to include a visual presentation over time (cf. requirement 13), where the categories are not included, which provides us with two different visualisations (see figure 30 & 29) for further usability testing. By providing the user with the possibility to gain more information about his/hers progress and consumption, we are able to test another visual representation of the climate footprint and compare which visual design provides most value for the users.

Figure 34: My progress

According to Rosenfeld, Morville, and Arango (2015) one of the most relevant aspects of organising different content is to make sure the user does not experience *Heterogeneity,* which refers to "[…] a collection of objects composed of unrelated or unlike parts." (Rosenfeld, et. al., 2015, p. 100). In addition, Din, Ling and Zarro (2017) present the nature of *logical organisation*, as a way to let the content define what kind of order systems that are appropriate. To this, they present the organisation as something that can be carried out *chronological, alphabetical* or according to *popularity, relevance* and *personalisation/customisation* (Ding et al., 2017). To this, we have chosen to organise the content on figure 34 according to both *relevance* and *personalisation/customisation*, as the

eye primarily catches the graph, which is the visual representation. However, the text that elaborates pointers and knowledge about the individual user's CO_2-footprint can be either defined as customised content or relevant content – as it elaborates the visual graph. The customisation will automatically happen, as the text will change and always fit to what the graph is showing as well as the users progress.

When focusing on the amount of information on this page, we must assume that our users are both motivated and interested in reading more about their CO_2-footprint. Therefore, we do not assess the amount of information of being too overwhelming (cf. section 3.3), because in order to get exposed to this information the users must actively enter this page.

We have chosen to organise the content hierarchy on this page according to what elements, we assess being the most important. Thus, we have placed the graph as the first object in the top of the screen, thereafter the elaborating text that explains details about the users CO_2-footprint progress, as well as comparing the amount of CO_2 to everyday situations to make it more tangible to the users.

Lastly, the link to "read more about sustainable behaviour" and "today's tip" can furthermore be compared to the pattern *Wizard* (Tidwell, 2011). When applying the wizard pattern, the designer "Lead the user through the interface step by step […]" (Tidwell, 2011, p. 55). We are leading the user through different objects: firstly, the user sees the graph; secondly, the users read elaborating text about the graph; and lastly the user can either get more knowledge about sustainability or reading "today's tip" and, thereafter, terminate the interaction with this interface.

As mentioned before, the user can always go back to the main page as well as every other page in the application, which refers to the patterns *safe exploration* and *changes in midstream.*

A pervasive theme in both our focus group and our workshop was the unclarity that participants experience when being exposed to the term CO_2. However, we cannot avoid using the term CO_2 because it is what our application is able to measure/calculate. But, in order to make it user-friendly we have tried to name the users CO_2-footprint the "climate footprint" as it relates to how the users have an impact on the climate.

5. Setting personal goals

As mentioned earlier in this phase, we have chosen to include the possibilities of setting goals (see figure 35).

Figure 35: Personalized goal setting

The pattern *Deferred Choices* refers to when a system provides the user with the possibility to skip a step or request (Tidwell, 2011). We could have made the goal setting a mandatory step, but as we are working with Persuasive Technology, the change of behaviour needs to be voluntary (Fogg, 2003). Instead, we have chosen to let the users customise their screen by implementing the pattern *Dashboard* (Tidwell, 2001), and thereby display of their 2020 climate footprint as they see necessary. Another pattern this feature can relate to Is the *Streamlined Repetition* patterns, which refers to how the users often have to repeat the same action again and again in an application (Tidwell, 2011). When the users have set their goal –

whether it is a comparing goal or a personal competition – the dotted or straight line will appear on the 2020 Climate-footprint dashboard shown on figure 30. The appearance of these lines will be on the interface constantly, or at least until the user wants to change his/hers goals. By making sure that the users do not need to set their goals every time they use our application, we make it easier for them by reducing "[…] a few keystrokes or clicks for all repetitions." (Tidwell, 2011, p. 19).

As previously stated, including the possibility to set goals must be handled carefully as competition often includes comparison with other people. We realised this potential issue during the workshop assignment 1, step 6, as one of the participants expressed that competition is good but can quickly have a negative impact if the person the user is competing against is doing better, causing the user to feel ashamed (appendix 17). Being able to set goals, addresses our requirement number 16. In order to give the user the freedom to choose who to compare and compete with, we have added two different options (see figure 35). The essential part of these two goal-setting possibilities is that we have tried to make sure that the users will not be compared to someone who is much more passionate about sustainability – or someone who only walks/uses the bike as transportation, if the user for example drives a car. Therefore, if the user chooses the first goal setting: to compete with others, the following screen will appear (see figure 36).

Figure 36: Customized goal-setting

If the user chooses to compare themselves to a customised average, as seen on the screen in figure 36, the user can customise what kind of household they represent. They can choose if they live alone, with a partner or with other family member/children. They can choose if they live in an apartment, a house – and if they rent or own their homes. This information can have a large influence on the user's consumption, and therefore the goal setting will be regulated according to the information the user provides. This option is again added as an attempt to address the issues from our workshop, where the user can be negatively impacted by comparison and competition against other users that are not on the same level, as addressed above (cf. section 5.1).

The next menu item in our global navigation in figure 30 is the possibility to read more about the different categories, which will be presented next.

6. The product categories

As we in the application's main page have only included icons that represent the different product categories, it needs to be possible for the user to read more about the different categories. When clicking this menu item, the following screen will appear (see figure 37). On this page, we have embedded what Rosenfeld, Morville, and Arango (2015) refer to as a *Local navigation system* as elaborated previously. This means that the user is able to explore this page further by "un-rolling" each category and thereby study the different categories in-depth.
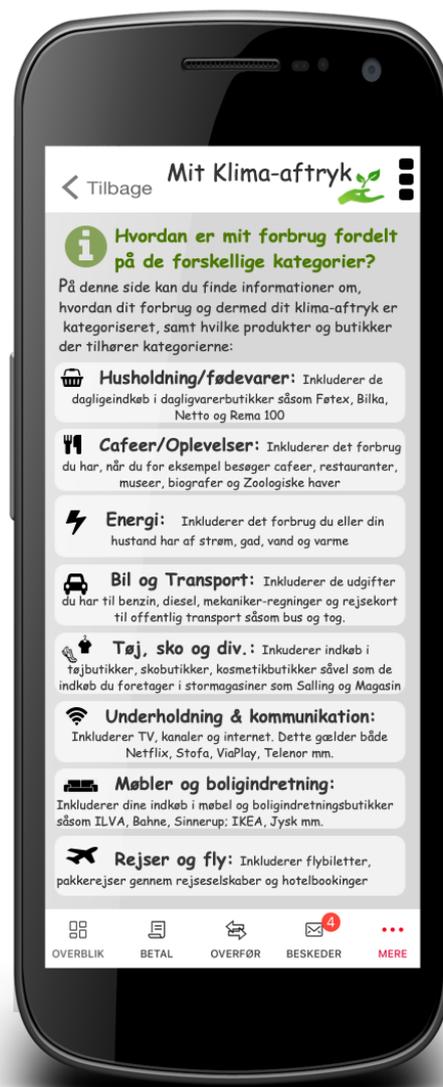
Figure 37: Read more about the categories

Both on the main page (see figure 30) as well as on this screen (figure 37), every category is represented with an icon. According to Rosenfeld, Morville, and Arango (2015), icons can

represent information just like text can. Using icons instead of text is especially relevant on mobile devices, as the screen is much smaller. But, using icons can be risky as it entitles the possibility to create misunderstanding, if the specific icon cannot represent the direct *meaning (Rosenfeld et al., 2015).* To this, we have tried to include icons that we associate with the different categories, for example the category "travel and aircraft" is represented by an airplane icon, whereas the category "household and food" is represented with a shopping cart.

Some of the categories were easier to connect to certain icons than others, as specific categories such as "Clothes and shoes" and "furniture and decor" were more obvious, whereas categories such as "Cafes/experiences" and "Entertainment/communication" included a wider segments of products (see figure 37). Designing effective and understandable icons are according to Rosenfeld, Morville, and Arango (2015), a difficult aspect of the field of information architecture. We, as designers, are aware of the possibility that the icons used for presenting the different categories can be confusing for the users – especially in the beginning. However, our goal with this application is to create something the users will use continuously over time which allows us to (hopefully) create a learning amongst the consumers, which leads to an attitude change and finally a pro-environmental behaviour change. As mentioned in section 2.1, we are focusing on changing behaviour on a cognitive level, which means that we are not aiming for a quick effect, but a long-lasting change in both attitude and behaviour. Creating a long-time effect likewise includes a continuously use of our application. To this, we hope that the icons used to represent the categories become familiar to the users, as the purpose is to visually represent the categories as understandable as possible.

Every section and element in this interface are designed according to both the patterns *Grid of Equals* and *Titles Sections*. Every category is arranged in equally sized grids whereas each section contains a title and an icon that separates the content (Tidwell, 2011). This illustrates that every category is equally important for the user as well as the user's climate footprint.

7. The "Read more about reducing your CO2-footprint"

The last screen, we want to present, is the screen where the user can read more on how they can reduce their CO2-footprint as well as how their consumption impact the environment (see figure 38).

Figure 38: Learn more about you CO2-footprint

As mentioned in section 2.1 and 3.3, one way we might close the gap between attitudes and behaviour is by exposing human beings to the direct results of their actions. In order to realise requirement 8 and 24 as a way of closing the gap, most of the information about the users CO2-footprint are presented with tangible examples, such as: "You have saved 15kg CO2 in the last 5 weeks on your transport! This is equivalent to a saving of 11 litres of water per week, which is equivalent to doing the dishes by hand twice a week!". Furthermore, we have included "Did you know?" information on this interface to which our intention is to provide

different pictures and information that can help the users understand CO2 and how much X kg CO2 actually is.

To this, figure 38 shows different types of content. First and foremost, the user is being exposed to why this application is actually relevant, as the individual consumer's purchases are being presented in relation to UN's sustainability goals (cf. requirement 18). This creates a connection to the widget with the text "Together Denmark must reduce 70% of the country's CO2 emissions by 2030" (see figure 28). The fact that this is a goal we must reach together, can hopefully create a kind of community feeling, and thus strengthen motivation. Secondly, the participants in our workshop emphasised the importance of presenting CO2 as something tangible – and something related to the everyday life:
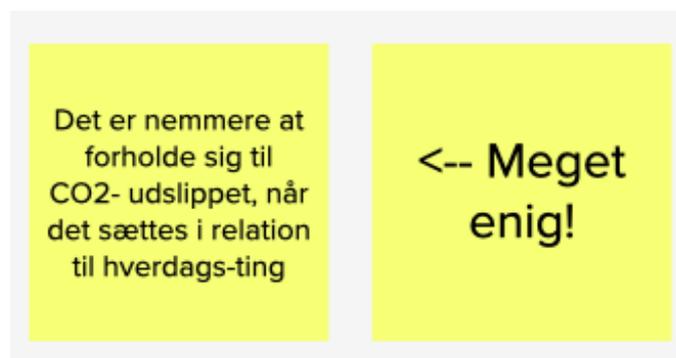
Figure 39: From workshop brainstorm: Participants expressing the importance of keeping CO2 tangible

However, Kollmuss and Agyeman (2002) argue that in order to close this gap there needs to be a direct link between behaviour and results/consequences of this behaviour.
Therefore, we have compared the concept of CO2 to everyday situations such as; doing the dishes, driving to Milano, or the amount of money the consumer can save, in order to make it more tangible.

As our requirement 20 states, the solution must not include too many visual elements; it must be clear what to focus on, hence, we have chosen to only include small visual pictures on this interface. The picture is related to the "did you know" content, whereas the example in our prototype refers to: The amount of CO2, threes can reduce pr. acres (see figure 38). Otherwise, the primary content on this interface consists of different sections including the

pattern *titled sections* and labelling in order to organise it in a user-friendly way (Tidwell, 2011).

The last element on this page is "Vil du vide mere om bæredygtige produkter? Så klik her" [Do you want to know more about sustainable products? The click here] (see figure 38). This last option is included with the purpose of providing consumers with a direct path to reliable information or assistance in making knowledge-based choices when consuming. Lack of trustworthy information on how to make the right (sustainable) choice, was an issue addressed by our focus group - expressing a jungle of information and dilemmas (section 5.1 & appendix 9). However, when we tested the idea of including this type of information in the application itself, it was clear that our workshop participants did not think this type of information was relevant for the mobile bank, stating that the bank should be a neutral stakeholder (see workshop assignment 2, figure 24). Therefore, this element refers to external links with reliable information, as presented in requirement 1.

As we have now presented our prototype, the next step and phase in the Design Thinking process would be to move on to the test phase. However, as stated in section 2.3 the test phase is not included in the scope of this thesis. Instead, we will proceed to a discussion, which will address how we can apply the practice lens when investigating how our application will be used in practice.

6. Discussion: Using the Practice lens as an additional layer

This thesis has focussed on how to design a trustworthy application that can visualise the users' environmental impact in a tangible way, without making them feel ashamed. We want to encourage and persuade the users to act more sustainable when consuming, but at the same time, this change should to be voluntary. Therefore, the approach in this project have mainly been design-oriented and conceptual whereas our key investigation has been on designing usable, motivating and inspirational interfaces based on the users' needs.

In this section we have applied an additional layer to our thesis, with an aim of addressing what it would take to make our application a part of human actions and ongoing practices - and thereby have a chance to obtain and maintain sustainable behaviour. Furthermore, we want to investigate whether our application can actually change the user's behaviour, along with addressing the opportune moment for persuasion.

When exploring how technology is used in both work- and everyday life, it can be helpful to apply what Wanda J. Orlikowski (2000) refers to as a *practice lens*. Especially, when the main focus is to investigate how the use of technology can enable and support new sustainable behaviour, which can be compared to what she calls *new structures* and new kinds of interaction within the ongoing practices (Orlikowski, 2000). Approaching the combination of practice and technology "[…] as a process of enactment enables a deeper understanding of the constitutive role of social practice in the ongoing use and change of technology in the workspace." (Orlikowski, 2000, p. 404). Furthermore, she defines technology as something that affects the notion of both learning and improvisation in the embedded structures in human behaviour, as technology is deeply associated with human behavioural structures (Orlikowski, 2000). An interesting perspective in Orlikowski's (2000) approach to technology and practice is the fact that the internal functionalities in a technology or design is far from being the only relevant factor influencing whether and how people will use a specific technology (Orlikowski, 2000).

As mentioned in section 3.3, Kollmuss and Agyeman (2002) argue that the relationship between attitude and behaviour is not simple, at least not when it comes to pro-environmental behaviour. Therefore, the assumption that knowledge and learning leads to

an attitude change which lead to a pro-environmental behaviour change is more complex than such. If the technology - our application - first needs to be an integrated part of the users' behaviour, we might assume that the content and information integrated in the application will not have an impact until after implementation. This means, we need to ensure that our technology is part of the users' structural behaviour.

According to Orlikowski (2000) "It is only when such technological elements […] are routinely mobilized in use that we can say that they "structure" human action, and in this way they become implicated as *rules* and *resources* in the constitution of particular recurrent social practice." (Orlikowski, 2000, p. 406). To this, we can compare our goal to Olikowski's reference to *particular recurrent social practic*e, as we aim to design an application which may be used in a pro-environmental practice, whereas we hope our application with time can structure new recurrent pro-environmental actions and change behaviour.

As preparation for our online focus group interview presented in section 3.3, the participants were given an assignment with the aim of gaining knowledge about how they understand the term "sustainability" and what financial platform they use the most (cf. section 3.3, appendix 8). We wanted to investigate if they use the traditional net bank on their computer, or if they use the mobile banking application that most banks offer their customers. Our initial purpose of this assignment was to examine their *ability* in using the mobile bank application *(*Fogg, 2009). But if we apply Orlikowski's (2000) perspective on technology and practice, we are able to gain even greater insights as this kind of assignment provides us with knowledge about the degree in which mobile banking is a mobilised part of the participant's ongoing practice. Because, as our main focus in the project have been on the cognitive level, a shift of focus to the patterns of human behaviour - is equally significant. To this, Orlikowski (2000) is working with the term *structures*, and how technology can structure human action, as she in this perspective explains structure "[…] as the set of rules and resources instantiated in recurrent social practice." (Orlikowski, 2000, p. 406). But is human behaviour only observable? And if so, why is the cognitive level an essential part of the field Design for Behaviour Change (cf. section 2.2)?

To this, Orlikowski (2000) presents the term *cognition in practice*, which relates to her proposed *practice lens,* which "[…] focuses on emergent technology structures enact in practice rather than embodied structures fixed in technology." (Orlikowski, 2000, p. 408).

The practice lens proposed by Orlikowski acknowledges that technology is often understood as both an *artefact* and as something *used* by people (Orlikowski, 2000). Classifying the technology as an artefact entitles focus on the content, and how the technology includes recognisable symbols and elements on the interface. This view on technology is therefore the view we, as both researchers and designers, have applied throughout this thesis. Whereas understanding technology as something *used* requires a focus on "[…] what people actually do with the technological artefact in the recurrent, situated practice." (Orlikowski, 2000, p. 408). Hence, we would have to observe the users.

Even though we cannot exactly *test* ongoing practices, we do have the possibility to can both *observe* and *study* practice and human behaviour, and gain knowledge about how people actually use a specific piece of technology in an ongoing social practice. Therefore, this would be interesting to study in future development, as we cannot study the use of our technology before it is developed, functional and accessible to the users.

However, as we have designed the application while approaching it as an *artefact*, we can *test* the usability of this artefact. Thus, when planning and conducting usability tests, we need to understand our application as an artefact, which is why our focus in a usability test would be to investigate if the actual content in the application is recognisable and user-friendly. Because, usability testing is usually described as an approach where the designer includes different methods in order to evaluate the usability within user interfaces (Preece, Rogers & Sharp, 2015b).

According to Preece, Rogers & Sharp (2015) "The primary goal is to determine whether an interface is usable by the intended user population to carry out the task for which it was designed." (Preece et. al., 2015b, p. 370). When presenting our prototype in section 6.2 several visual elements such as labels and icons are included with the aim of testing if the meaning of these labels and icons makes sense to the users. Because, as we were developing our low-fidelity prototype, the main focus was to include the specified requirements and

organise the content in a usable manner. By this, we could state that our main purpose was to develop an artefact that is both visually pleasing and usable for the intended interaction.

The fact that our goal for this application is to have an impact on people's consumer behaviour, also requires a focus on how our technology is *used*, as we aim for developing an application that can function as a *trigger.* According to Fogg (2009) this trigger needs to happen at *the opportune moment*, where both ability and motivation is present. This moment is referred to as the *behaviour activation threshold,* which is when the desired behaviour is performed (Fogg, 2009). But, how can we investigate when *the opportune moment* is for our sustainable consumers?

According to Orlikowski (2000) the technology can be used in many ways, as it is the "[…] cultural properties that transcend the experience of individuals and particular settings." (Orlikowski, 2000, p. 408). This means that even though the technology – our application – is the same, different users might not use it in the same way, as the technology *facilitates* different cultures and norms depending on the setting it is used in (Orlikowski, 2000). So, the opportune moment might not be just *one* moment, it can include different moments according to the individual user depending on the emergent structures our application enacts in practice.

Lastly, Preece, Rogers & Sharp (2015) present how the evaluation and testing of technology and design can be carried out with users in both *controlled settings* as well as *natural settings*. The controlled settings are often used for experimental and/or usability testing, as the settings are controlled by the facilitators (Preece, Rogers & Sharp, 2015b). Whereas, the natural settings provide the facilitator with little or no control of the circumstances during the test (Preece, Rogers & Sharp, 2015b).

If we were to approach the next phase of our Design Thinking Process, it would be relevant to discuss whether a controlled or natural setting would be appropriate. This depends on the purpose of the test, whereas our goal is to evaluate if the application is usable and understandable for our users. Therefore, a controlled setting where we control the tasks and observe our users without disturbances is preferable. This way, we can focus on testing our application while recognising it as an artefact. This also allows us to test our navigation within

the application. Recognising it as an artefact can "[…] ensure that there are always boundary conditions on how we use them." (Olikowski, 2000, p. 409). Thereby, we can direct our attention on the usability of our application and test if our users can perform the intended tasks in our application.

If we would try to investigate when the opportune moment is, and what *constitutive role* our technology can have when being used in an ongoing social practice, we would carry out our study in a natural setting. When focusing on the role of the technology, it is relevant to include Houde & Hill's (1997) presentation of using the prototype to investigate the role the application (cf. section 6.2). Moreover, we could compare the investigation of the technology's constitutive role with how Fogg (2003) present mobile devices as a technology that easily can "[…] intervene at the opportune moments for persuasion […]" (Fogg, 2003, p. 188) - as most people carry their phone with them wherever they go. If most people both carry the mobile device with them everywhere as well as using it every day, we might state that the technology itself is already structuring *recurrent social practice*.

Therefore, our task must be to focus on how our application can emerge new technology structures in the users' ongoing practices and investigate how the users actually use our climate footprint application.

Finally, by investigating the degree in which mobile devices are emerging new structures, we can also argue that the gulf between attitude and behaviour, presented by Giddens (2009) in section 3.3, has become less abstract. This is based on the fact that the technology our users carry with them – our application - visualizes the consequences of our users' consumption and CO_2 emission. What we do not know is how the users will actually use our application, and how exactly our application can emerge new recurrent structures within ongoing pro-environmental practice.

With these considerations in mind, we will now move on to the conclusion of this project, where we will highlight the main findings and results of our design thinking process.

7. Conclusion

As stated, the initial aim of this thesis was to design a solution that can be implemented in Spar Nord's mobile bank, supporting their customers to consume more sustainable. During this thesis the Design Thinking process functioned as a frame for working user-centred, whereas we applied elements and perspectives from Persuasive Technology as a strategy. This has primarily been to address the complexity in designing for behaviour change – especially, when it comes to pro-environmental behaviour change. Because, working with pro-environmental behaviour has particularly revealed that the attitude does not necessarily lead to a change in behaviour. As an example; though the majority of people in Denmark wish to consume more sustainable, their behaviour does not follow these statistics (cf. section 3.3). With this in mind, we were interested in uncovering how we might enhance consumers' sustainable behaviour by designing an integrated digital solution for mobile banking. Furthermore, we were interested in exploring to what degree the consumers might be willing to adapt and adjust to sustainable behaviour.

The complexity of working within the field of pro-environmental behaviour change has been driving this thesis to focus on the early stages of the design process.

By studying the field of Persuasive Technology, and especially Fogg's behaviour model, we discovered that in order to change the user's behaviour through technology, the user needs to have both motivation and the ability to perform the desired behaviour, before we can trigger them into change. We identified our target group to be those of Spar Nord's customers who already have an *interest* in sustainable behaviour, and who has the ability to use Spar Nord's mobile bank, amongst the ability to *perform* a sustainable behaviour. Even though the initial assignment from our focus group interview confirmed that our users have the ability to use and interact with their mobile bank, and thereby our application, this is not the only ability relevant in our case. They need to have the ability to actually consume sustainable in order for our application to work as a trigger to make sustainable choices.

During the first phase, the understand phase, the complexity of both sustainability and behaviour change was addressed, along with the bank's role within sustainability. The primary issue when addressing pro-environmental behaviour change is the gap between people's

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sustainable attitude and their behaviour (cf. section 3.3). This was confirmed and investigated in our focus group interview, stating that the concept of sustainability is too abstract and difficult to navigate in as the consumers have limited resources to trust. This ultimately results in a lack of sustainable action. We concluded that in order to close the gap between attitude and behaviour, we needed to provide the consumers with trustworthy information, present CO_2 in a tangible manner and at the same time make sure that the content in our application does not make the users feel ashamed.

The data was synthetized in the presented define phase, in section 4, by applying an Empathy map and a Point-of-View template in order to generate the following problem statement:

> *How might we design a trustworthy application integrated in Spar Nord's mobile bank, which visualise users' environmental impact in a tangible way with the aim of encouraging pro-environmental behaviour, without making the users feel forced or shamed?*

The ideation workshop, involving users as partners, was conducted with the aim of generating ideas and design choices for our application. The workshop provided us with highly valuable insight in order to address the problem statement, as the participants stated the importance for a simple design, with a high level of personalization. Furthermore, the visualisation of the user's CO_2 footprint should be represented in other ways than solely the number of kilograms. The colour scale included in the interface should be pleasing, and the solution must fit the context of the bank – keeping the bank neutral and considering the ethical aspects of financial institutions (cf. section 5.1). Lastly, the needs and attitudes of the users in the focus group interview differed from the needs expressed in our workshop, as different elements might not be possible or appropriate to actually implement in the design. Several of the participants emphasised a need for the pro-environmental behaviour to be easy to perform. For example, tips & trick for sustainable consumption was according to the workshop participants types of information that might not be relevant in a mobile bank application (cf. section 3.3 and 5.1).

With these new insights in mind, we were able to identify the types of information to be included in our application as: Trustworthy information with an aim to avoid making the users

feel less intelligent or forcing the users to interact with the application. The development and presentation of the prototype (cf. section 6), can thus be seen as our visual conclusion in this thesis. It represents how we have aimed to design a trustworthy application which visualises users' environmental impact in a tangible way. In regard to the visualisation of the CO_2-footprint, it can be concluded that it is not the data itself that is most important. It is how we present this data to the user, as the concept of CO_2 was identified as both abstract, intangible and difficult to understand (cf. section 5.1 and 6.3). Our sustainable consumers simply do not understand how they as an individual can affect the global environment in a positive manner.

Lastly, to summarise our conclusion on this thesis: Firstly, when working with human behaviour, we cannot be sure that our application will actually persuade the users to act more sustainable. The designer can never be sure if the solution will have the intended effect, but we can continue to work through future iterations, to learn more about pro-environmental behaviour and improve our application. Furthermore, there might be other aspects to consider as well, as we learned that both consumption and behaviour change might be more complex than anticipated.

Therefore, we *can* design an application that visualises the users' environmental impact, which is trustworthy without making the users feel shamed or forced to use it. However, we can only *hope* that the application becomes part of the users ongoing social practices and, thereby, actually encourages and persuades the users to consume more sustainable.

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9. Appendix

Appendix 1 – Informed Consent Form to Kim Østergaard:

Aalborg Universitet: AAU/Create

Cvr. nr. 29102384

Rendsburggade 14

9000 Aalborg

Samtykkeerklæring

Vi er to kandidatstuderende på uddannelsen Information Studies på Aalborg Universitet, som ønsker at indsamle data omhandlende Spar Nord og dine erfaringer vedrørende implementeringen af digitale løsninger i denne virksomhed.

Derfor ønsker vi, Sissel Graakjær Bøgh Pedersen og Mia Pagh Jensen, samtykke til at behandle data i forbindelse med udarbejdelsen af vores speciale. Dataene vil blive anvendt til dels for at give en større indsigt i virksomheden og forståelse for, hvordan Spar Nord gennemfører digitale processer i udarbejdelsen af nye løsninger. Derudover, ønsker vi indsigt i de udfordringer der kan være når data vedrørende privatforbruget skal udstrækkes og analyseres via banken eller tredje part.

Specialet er den akademiske afslutning af vores uddannelse og vil fremgå i Aalborg universitets projektbibliotek. Du vil som respondent til dette projekt altid have mulighed for indsigt i indholdet.

Udfyldes af den registrerede informant:

Jeg giver samtykke til, at AAU må behandle mine oplysninger til brug for ovenstående formål:

Dato/navn:

Underskrift:

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Appendix 2 – Interview guide for Kim Østergaard:

Purpose with this interview:

To gain insight into Spar Nord as a business, as well as understand the digital initiatives within a financial institute. Furthermore, the questions in this interview guide will focus on the technical possibilities and Spar Nords use of data in the customers' transactions.

Overordnet forståelse for hvordan man kan implementerede en API:

- hvem skal godkende? Banken eller BEC
- hvad er forholdet mellem BEC og banken?
- Hvilke godkendelsesprocesser skal man igennem?

PSD2:

- Hvilke data kan en tredjepart få adgang til?
- Gælder deling af disse oplysninger kun fra banken til tredjepart? Eller hvad er mulighederne for at benytte oplysninger fra tredjepart.
- Hvordan påvirker det nye direktiv jeres forretning?
- Du nævnte at posteringsdetaljer afviger fra bank til bank. Hvordan?
- Hvilke andre muligheder kan PSD2 give?

MCC - Visa/MC:

- Benytter I jer på nuværende tidspunkt af disse ekstra data? Til hvad?
- Hvilke metadata vil kunne hentes, foruden MCC?
- Er MCC synlig for jeres kunder?

3. Party collaboration:

- Hvilke andre tredjeparter kan berige transaktionsdata? Hvordan?
- Hvordan ville et sådan samarbejde evt kunne se ud?

Closing question:

Er der andre informationer du kan komme i tanke om, som kan være relevant i forhold til at udtrække og udnytte kundedata til at påvirke dem i en bæredygtig retning?

Appendix 3 – Transcription of interview with Kim Østergaard

Dato: 09/03 - 2020
I: Interviewer
K: Kim Østergaard (respondent)

I: Først og fremmest, så kunne vi godt tænke os at høre sådan generelt om, og få en forståelse for hvordan man kan implementere en API? Altså, hvem skal godkende det? Er det Spar Nord der skal godkende det? Eller går det igennem BEC? Hvad er forholdet der?

K: Altså, først og fremmest så skal man passe på med ikke at gøre API mere komplekst end det er. Det handler egentlig om en måde, hvor to systemer snakker med hinanden på. Man kan sige, at vi kan flytte filer ved at sende ved at sende en kommasepareret fil, men man kan så gøre det smartere ved at bruge en API så det sker mere integreret.

Vi kan dels bruge et API til at kalde noget ting, og vi kan dels bruge et API til at sende nogle ting. Det kan være data, som man sender og modtager men det kan også være funktionalitet, som man sender og modtager, hvis man kan sige det sådan.

Og hvad skal til, for at tage sådan et i brug? Sådan generelt når vi handler med tredjeparter, så er vi inde og forholde os til tredjeparten som virksomhed. Vi laver en almindelig leverandørgodkendelse af dem, hvor vi involverer flere forskellige parter i hele organisationen. Det kan være alt lige fra IT-sikkerhed, til compliance og til dem der skal bygge det. Den anden del af det er, at når man integrerer sådan noget så giver det selvfølgelig ikke mening, hvis man ikke har noget på toppen - altså et produkt. Hvis det er et nyt produkt vi skal godkendt, så er der også en process med produktgodkendelse, hvor vi skal igennem nogle ting og alt det her bliver så godkendt i et omfang der hvor man også forholder sig til, om det er outsourcing eller ej. Og hvis det er væsentlig outsourcing så er det kompleks og det skal op og godkendes i bestyrelsen. Og det er sådan meget fra sag til sag. Hvornår skal det egentlig videre til næste niveau (næste instans)

Så det er sådan lidt processen omkring godkendelsen - ikke så meget når det er en API men når det er et nyt produkt eller ny leverandør.

I: Hvilke faktorer kigger I på ved en almindelig leverandørgodkendelse?

K: Alt, hvad der omhandler løsning, risiko, væsentlighed. Altså det er egentlig, hvor vi beskriver en hel case, altså forretnings-casen i det. Hvorfor gør vi det? Hvad er det for en risici der er forbundet med det her? Er der en exit-strategi, hvis for eksempel leverandøren dør i morgen? Hvor står vi så, og hvilken kundeoplevelse er der omkring det. Så jeg vil egentlig sige, at det er sådan en 360 graders due diligence af et setup.

I: Ole (Direktør for Kommunikation og Digital) nævnte det her med BEC, og at der var nogle restriktioner og nogle udfordringer når man gerne vil have implementeret noget nyt. Gælder det også når man vil implementere en API, eller har i fuldstændig selv kontrol over det som bank eller skal det ind over BEC?

K: Det kommer an på, hvordan du vil bruge det her API. Hvad er det for et samarbejde man kigger ind i. Hvis det er noget der skal dykke ind i BEC systemet, sådan meget core-banking funktionalitet eller hvis det er det system som rådgiverne primært er til stede i som vi kalder I-nettet, så kræver det involvering af BEC.
Men Ole har sikkert også fortalt, at vi er ved at implementere sales-force som er en ongoing process. Og det har givet os en eller anden form for frihed, altså det er blevet mere autonomt så der er mindre bureaukratier omkring det, fordi sales-force er en udviklingsplatform, hvor vi har flere adgange til at lave flere justeringer selv. Og, hvis vi kan lave det i sales-force så involverer det ikke BEC i samme grad.

I: Og hvad hvis det er i Mobilbanken? Eller Wallet?

K: Hvis det er mobilbanken så involverer det også BEC. Mobil og Netbank.

I: Ja, og I har jo det her med abonnement, hvor man som kunde kan få et overblik over sine abonnementer, og det er jo en implementering af en service. Er det sådan noget som kører igennem BEC?

K: Ja, det er det. Da vi egentlig lancerede SubHub som det hed i sin tid, Subaio, der var det en chatbot på facebook, der var vi overhovedet ikke afhængige af BEC i den forstand. Ikke som det ser ud idag, og næste step er jo at vi i mobilbanken dedikerede noget funktionalitet som vi selv er herre over, og hvis vi havde det, så var vi ikke afhængige af BEC. Vi er afhængige af

BEC nu, fordi vi ligesom skulle enable den funktionalitet og vi skulle indstille en tredjepart ind i en app. Så man kan egentlig se det som om, at nu er vinduet lavet, så næste gang vi skal implementerer noget nyt, så er der ikke de samme barrierer.

I: Var det svært at få jeres abonnements-funktion kørt igennem?

K: Jeg ved ikke om det var svært, men der er altid en kompleksitet forbundet med det - når der er flere parter.

I: Jeg tror, at vi kan hoppe videre til lidt PSD2. Er det kun en tredjdepart der kan få de her data fra banken? Altså er det kun den vej det gælder, eller kan man også få data den anden vej?

K: Altså, PSD2 sådan helt high-level - jamen så er det jo lavet med henblik på at skabe mere konkurrence og få flere aktører på det område der er meget domineret af betalingsinstitutter og banker i dag. Og, så har man lancere det her betalings direktiv som er en demokratisering af at dele data og initiere betaling. For at kunne få adgang til dette, så skal man enten være en AISP eller PISP - afhængig om det er account information service providers eller payment initiation service provider. Og, hvis man har PISP-delen, så har man også adgang til AISP-delen - men ikke omvendt. Og man kan sige, at en bank har inklusiv i sin banklicens adgang til de to licenser. Det vil sige, at hvis vi ønsker at udstille andre bankers transkraktioner i vores net- og mobilbank, jamen så kan vi gøre det fordi vi er bank, og vi har en licens. Hvor en start-up ikke skal ud og hente en banklicens, men en PSD2 licens til enten det ene eller andet.
Så, uanset om jeg er en start-up eller bank, så kan jeg som kunde give adgang til én part om at de må hente transaktioner på min bankkonti. Og dette gælder så for hele europa.

Og det er også det der er interessant, når man ser på mange banker herhjemme, så opererer de kun på det danske marked. Men en snart, så kunne sådan en subaio-tjeneste lige så godt bliver udbudt af deutsche bank. På den måde er der mere og mere forretning.

I: Okay. Kan du se, at det er den vej det går? Med at få globaliseret bankverdenen?

K: Ja, men det syntes jeg i og med, at det er et europæisk direktiv (kan ikke høre her??; 09.12 - 9.24). Det er også en tendens man ser ved start-ups, hvor bankerne også har en vækststrategi

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men det er jo om vi skal fusionere noget eller også for at please aktiemarkedet, så skal vi spare nogle penge og blive mere effektiver ihenhold til omkostningskroner. Og hvor startups, de snakker jo om at DK er deres testland, og at de skal gå global, men det er selvfølgelige også venture-kapital, hvor man forventer afkast og fokuserer meget på at få en masse brugere, hvor jeg vil vove den påstand at mange af de *** vi ser nu, der har ikke det product-market fit i forhold til at skulle skabe en bæredygtig forretning. Måske få de brugere, men de brugere generer de egentlig forretning. Det er nemt at brænde penge af, når man får penge ind. Men er det en bæredygtig forretning, det ved jeg ikke. Og vi (Spar Nord) er begrænset til Danmark stadigvæk, og det tror jeg er en kæmpe fejl. Om ikke andet så må man justere ens forretningsmodel. Jeg tror at hvis vi fastholder den forretningsmodel vi har i dag så bliver vi egentlig bare reduceret til at være en rådgivningshus der arbejder pension, forsikringer og boliger.

I: Og det er ikke en del af jeres strategi at blive det?

K: Nej, altså vi fokuserer først på transaktionen - transaction banking, og mobil/netbank som kanal for at gennemføre betalinger osv. Men jeg tror der kommer til at ske en masse. Og vi kan aldrig følge med Apple og Google pay, men hvad skal vi så gøre? Jamen jeg tror bare at vi skal sørge for at følge med på det område og kigge dybere i de forskellige vertikaler. Vores forretningsmodel er nemlig bygget på den personlige relationer, hvor vi sidder sammen med kunderne. Så hvorfor ikke kigge i den retning, hvor det skaber værdi. Det skaber ikke værdi og sidde sammen med jer, hvis I bare skal gennemføre en transaktion med jeres mobilbank.

I: Hvilke data kan en tredjepart få adgang til via det her direktiv?

K: Det der er spændende er, at vi ikke må diskriminere. Så vores PSD2 API, det må ikke være dårligere end det vi selv bruger på vores egne kanaler. Så det du har adgang til som kunde i mobilbanken, det skal du også havde adgang til via en tredjepart. Der sidder nogle og overvåger for eksempel Spar Nord API, og sammenligner det med vores eget mobil-API, og indberetter de det til tilsynet, hvis vi diskriminerer på den front.

Der er nogle banker der sikkert ville tænke, at gøre posteringstekster ulæselige eller forbindelsen pisse langsom så man får en dårlig oplevelse - det må vi ikke gøre.

I: Så det skal være 1-til-1?

K: Ja, det skal det. Og PSD2 det omfatter kun betalingskonti lige nu, men så er de jo allerede ved at tale om en PSD3, hvor det så er investeringskonti, depoter..

I: Okay, så hvad med sådan noget som budgettering - er det også med?

K: Nej, det er ikke. Det er egentlig en betalings service, som du ligger på toppen af en transaktion.

I: Okay, så det er alt hvad der omhandler selve transaktionerne man kan have adgang til?

K: Ja, det er det. Men det der er spændende i Spar Nord, det er at vi ønsker egentlig ikke at begrænse os til PSD2, vi vil gerne åbne mere op. Fordi, hvis man skulle bygge et budget-modul ovenpå en banks transaktioner, hvor du ellers har adgang til posteringstekst, dato og beløb, ville vi kunne give nogle flere informationer på baggrund af noget mere dybtgående data, så ville vi måske gøre os mere attraktive for tredjeparter, når de skal ud og lave en brugeroplevelse. Så kunne man håber, at de her tredjeparter - fx. Spiir, ville sige at man kan få en endnu bedre oplevelse med 99% kategoriserings grader i stedet for 88%, og derfor skal man have en konto ved Spar Nord fordi der er adgang til mere data.

I: Men er der mulighed for at udtrække dybere data end dato, posteringstekst og beløb?

K: Ja, det er der hvor detaljerne også er der - men så handler det om graden af detaljer. Og der vil vi gerne udstille mere, men gør det ikke lige nu.
Vi kunne udstille Merchant category code, som kan vise metadata ved transaktion, så de have en søgefunktionalitet, hvor man kan søge "expences - last week - In London", også fordi at de har lokation på forretningen, så kan de give dig et overblik over hvilke udgifter du har haft. Og hvis man har en kategori for, så kan man se hvor meget der er brugt på for eksempel dagligvarer. Men det er jo der vi kunne vælge at samarbejde med Spenderlog eller en af de andre der viser kvitteringer som Storebox, for at få en endnu større detaljeringsgrad. Så kunne vi sige til tredjeparterne, at hvis de integrerede til os så får I egentlig også kvitterings data med,

så man kan få sådan en detaljeringsgrad som i måske har tænkt på, hvor man går ned på varelinje niveau.

I: Og hvordan ville sådan et samarbejde med fx. Storebox se ud? Altså jeg tænker på, hvordan det vil kunne integreres i en Spar Nord Mobilbank? Vil man kunne se alle sine kvitteringer?

K: Ja, det ville det være. Ligesom ved Mobilpay, de har et samarbejde med Storebox hvor man kan se de kvitteringer som man få fra de butikker som Storebox samarbejder med inden i mobilepay appen. Og det ville vi også kunne gøre, da det data jo egentlig bare er kode. Så det kunne vi jo lægge ind på den enkelte transaktion.

Så kunne det jo stoppe der, også leverer vi noget data til jer som I bruger, eller at der er en startup der vil bygge en service på toppen af det. Det kunne også være, at I vil sælge os en ydelse, hvor I går et step dybere endnu, og identificere at det her er Peter Larsen Kaffe, som har et samarbejde nede i Viborg - så kan I måske fortælle endnu mere om det her produkt, så jeg i mit forbrugsoverblik og transaktionsliste kan blive ved med at klikke dybt for at blive klogere. Så i stedet for et traditionelt billede, så kunne I fortælle hvad jeg har bidraget med i henhold til verdens økonomi eller verdensmål. Altså, hvad min indirekte impact har været på min transaktion. Det kunne også være en måde at ændre adfærd på, i stedet for et forbrugsoverblik. Men der er en masse etik omkring, hvorfor bankerne skal have de her informationer. Bruger de det til noget næste gang der skal lånes penge? Bruger banken den data - der er en masse etik i det. En startup kan gøre meget ved deres privacy og sige at de deler ikke med den store stygge bank.

I: Ja, men man kan også se det på den anden vej rundt - hvorfor ikke banken?

K: Ja, men der kan i tage noget perspektivering med.

I: Fordi, jeg tænker at jeg ville have mere tillid og troværdighed til at informationerne er i min bank i stedet for en tredjepart?

K: Ja, men det er fordi vi er for gamle til at forstå den nye måde at bruge medier på. Folk deler fluks nøgenbilleder i icloud. Jeg vil hellere have folk får adgang til min bank end min dialog på messenger, for der har man talt med sine venner omkring job osv. Det er mere følsom information end hvad der står på ens konto.

I: Har I nogensinde diskuteret, hvorvidt I skulle have kvitteringer osv i netbanken?

K: Ja, vi er involveret i alle dialoger hele tiden, og det er altid en opvejning af cost-benefit.

I: Er der nogen koder, som jeg som forbruger kan gå ind og kigge på? Ligesom MCC?

K: Nej, det er ikke noget vi har valgt - men det er fordi vi har en begrænsning som hedder BEc, som har valgt ikke at udstille det.

I: Okay, så det er BEC der ikke vil bruge det?

K: Jamen, der findes ufattelig meget data som vi ikke udnytter i dag.

I: Og hvad er det for eksempel for nogle data?

K: Det er alle de her metadata som der er på transaktion. Der er blandt andet noget geolocation.
Jeg tænker, at hvis jeg går ind i dag, så er jeg lidt usikker på om der bare står "Føtex" som generel eller om der står "Føtex algade". Men vi kan komme ned på det niveau, det er nemlig ikke mere dybdegående omkring transaktionen, men mere omkring forretningen. Om kortet er blevet brugt. Det afhænger af aftalen med leverandøren.

En anden ting er sådan lidt med hastigheden, hvor der godt kan gå noget tid inden ens køb er tilgængeligt i mobilbanken. Og det er jo ikke særlig fedt, hvis man skal lave en købsoplevelse hvor det skal komme instant.

I: Hvem styrer det? Er det nets eller hvad styrer hastigheden på, hvor hurtigt det kommer ind i mobilbanken?

K: Det er et godt spørgsmål, og der kunne jeg godt forestille mig at det er BEC igen der begrænser. Men det er formentlig også kortleverandøren. Jeg vil næsten tro at Nets, de har det også instant, da de har saldokontrol på, og kontrol på om der er dækning eller ej - og gebyrer

på. Ligesom, hvis man bruger et mastercard, så kan man se beløbet reserveret med det samme - men det er ikke eksekveret.

I: Du nævnte også det her, at posteringsdetaljerne kan afvige fra bank til bank?

K: Jamen det er netop det med at hvad viser det, og hvad man adgang til.

I: Okay, så det er det her med om hvorvidt det viser Føtex algade eller bare Føtex?

K: Ja, og hvordan de egentlig skriver det. Der er nogle posteringstekster, der kan det være at der står "Føtex - algade", men andre steder hvor der står "VISA/Dankort Føtex" med oe - der er ingen standart for hvordan det skal stå. Det er banken der vælger det.

I: Og er der nogle banker der faktisk giver oplysninger på varelinje niveau?

K: Ikke mig bekendt. Jeg ved, at det Lunar gør er at de beriger transaktionen med Logo'er. Og det er det eneste de gør ekstra.

I: Hvordan påvirker det her nye direktiv egentlig jeres forretning? Ser du det som en god ting, at der er åbnet op for det her? Eller er det et pres?

 K: Det er et godt spørgsmål, men det er selvfølgelig er pres, fordi konkurrence jo presser éns forretning. Men vi har jo så valgt en offensiv strategi omkring det, hvor vi ikke vil begrænse os til PSD2, så vi vil egentlig gerne mere end det.
Men, hvordan det egentlig påvirker vores forretning er et godt spørgsmål - fordi da vi lancerede vores strategi som netop handler om at samarbejde med tredjeparter, der gik vi jo netop offensivt ud, og gjorde det klart at der vil komme den her bølger, der disrupter bankerne - men den er bare ikke kommet endnu. Hvor lang tid går der? Måske man fokuserer på det forkerte, for hvad er det der disrupter bankverden? Finans er måske også bare super kedeligt for forbrugeren - det skal vi måske også bare forstå. Andre virksomheder går ud og siger at nu kan man godt droppe sit net og mobilbank, og bruge deres interface i stedet, og det bliver så folk primære interface, og vi mister kontakten med kunder der. Og så bliver det kun når der sker nogle livsbegivenheder i kundernes liv, såsom købe bolig, blive gift, blive skilt - et eller andet som gør, at kunderne har behov for at tale med en rådgiver. Det samm har man set lidt, hvor

bilforhandlere er super aggressive på finansiering, hvor de kan tilbyde at det første serviceeftersyn bliver gratis, eller gratis vinterdæk hvis I tager lån hos os. Og det kan vi så ikke gøre, fordi vi har kun revanchen for det her lån.

Vi skal jo hele tiden udvikle i den ene ende, for i den anden ende er det bare ren commodity. Også handler det om pris eller tilgængelighed, da kerne produkterne er de samme. Hvordan sikre vi og at vi ikke bare bliver den der underleverandør?

I: Så noget af det eneste, som unikke som I har i sidste ende - det er lønkonto?

K: Nej, altså det meste unikke vi har/er - og som også fylder meget i vores forretningsmodel i dag, det er vores lyst til at have dialog med kunder. Også kan man måske godt sidde som studerende og ikke har boligfinansiering og tænker "Hvornår har jeg sidst snakket med min bank?". Men det oplever vi altså stadig, at det er kærkomment at snakke med et menneske, om større livsbegivenheder.

Jeg plejer at vise sådan en graf, der illustrerer at jo større kompleksitet der er i et bankprodukt, jo større tendens er der til at man vil snakke med en rådgiver. Eksempelvis ved omlægning af lån, ved flytning osv.

I: Men jeg tænker da også, at sådan noget som unge der flytter hjemmefra der kommer ind og taler med en rådgiver for at få lagt budget - det er måske en faldende tendens?

K: Ja, det tror jeg egentlig at det er.

I: Men I har jo også de her must-wins battles, som I har har sat op i jeres strategi, hvor I gerne vil rådgive kunderne og udvikle flere services og ydelser som I kan tilbyde jeres kunder. Ved du hvad holdningen er til at eventuelt integrere flere services i jeres mobilbank/mobil app, så det ikke blot bliver en bank men som et værktøj i ens hverdag?

K: Nu ved jeg ikke, hvad holdningen er blandt kunderne men vi kan jo se på subairo (abonnement-tjenesten i mobilbanken), at det bliver brugt og at det får god respons. Og det er jo egentlig data vi har tilgængelig, eller en transaktionsliste som blive illustreret på en mere brugbar måde i en kontekst - og hvor der også er den her ekstra service, hvor man kan få hjælp til at opsige det. Det viser jo, at der er et kæmpe potentiale - og det er ikke kun inden for det.

I: Nej, og det ville også være noget som Spar Nord ville være åben for at arbejde videre på?

K: Ja, helt sikkert. Det kigger vi meget ind i, og det er netop fordi vi anerkender at vi har ikke ressourcer nok i form af mandetimer til at udvikle på de her ting, og en anden ting er kreativiteten. Hvor kommer den egentlig fra? Det ved I jo også, at selvom større tech-virksomheder har alle de penge de skal bruge, så er de ude og opkøbe nogle nye hele tiden. Dels for at opretholde sin innovationsevne, men også for at holde det væk fra konkurrenterne måske.

I: Jeg tænker, at vi lige skal runde det med PSD2 af. Hvilke andre muligheder kan PSD2 give?

K: Jamen det er jo sådan lidt tilbage til det her, at nu har vi jo subairo der viser abonnementer og det tilbyder vi til Spar Nord kunder. Men hvorfor tilbyder vi egentlig ikke alle kunder, at bruge Spar Nord mobilbank fx? Og når de så kommer ind, så spørge den om hvilken bank de har i dag - og hvis de så har fx. Jyske Bank, så udstiller vi deres transaktioner i vores univers fordi det er langt bedre. Og der får de også adgang til at se abonnementer. Så det kunne egentlig være, at noget ikke bliver kunde i Spar Nord - men at de bliver brugere af vores platform for at berige billeder af deres finansielle situation eller deres transaktioner - også derfra deler vi med tredjeparter.
Da Apple pay kom til DK, så var det Nordea og Jyske Bank som lancerede det - og der startede jeg selv om på jyske banks mobilbank og det første jeg så da jeg kom ind, det var at jeg via Nordic API gateway kunne tilføje mine konti fra andre banker.

I: Og hvad er fordele for jer ved at have brugere på jeres platform men at de ikke er jeres kunder?

K: Det må være sådan rent marketing-funnel mæssigt tænker jeg. Jo længere de er nede af tragten, jo nemmere er det at få booket et kundemøde måske. Vi kan på baggrund af transaktionsdata se hvad de betaler i ydelse til kreditforeningslånet, også kan vi se "nå, I har et kreditforeningslån - I skal da komme ind til et bankmøde, hvor vi snakker konvertering.

I: Okay, så I kan bruge det som en kommunikationsvej med brugerne?

K: Ja, til acquisition-delen, det kunne være meget effektivt. Og jo mere data man har generelt, det må da også give noget indsigt i hvordan ser det ud i DK generelt, så vi kan bruge i henhold til vores kunder og når vi skal rådgive nogen i hvor mange penge man typisk bruger på forsikring. Det er jo alt muligt omkring, hvad for nogle data må vi bruge - og det er jo ikke sådan at vi må diskriminere på data. Det er ikke sådan, at vi må gå ind i en transaktion og sige "nå, men du handler i Føtex alt for meget, så du kan ikke få mere i lån".

Men der bør I kigge ind i betalingsloven paragraf 124 og paragraf 125, hvor vi i DK har en begrænsning, hvor man før PSD2 havde man en betalingsloven paragraf 85 stk 3, hvor at bankerne ikke må gå ind og bruge transaktionsdata. Det har man så åbnet op for i en eller anden forstand med PSD2, men vi har stadig en begrænsning i forhold til øvrige lande i Europa. Det vil sige, at det ville være nemmere for mig og køre til Tyskland, etablere en startup der arbejder med transaktionsdata end det ville være i Dk for der har vi en EU-retning og konkurrence-retning. Så der har vi en særlov, selvom vi har PSD2 - så har vi en særlov i DK for at beskytte forbrugeren naturligvis. Alt lovgivning omkring bank, det er for at beskytte forbrugeren. Det er ikke for bankerne skyld.

I: Okay.

K: Så man kan egentlig sige ved PSD2, at en ting er at der kommer mere konkurrence og det flytter lidt på ***. Jeg tror bare, at vi kommer til at se en helt anden konkurrence end vi måske forventer lige nu - uden at jeg kan sætte alt for mange ord på det.

Også bare sådan generelt med økosystemer - altså, hvordan kan vi spille os mere relevante i andre økosystemer? Når vi snakker innovation, hvorfor kigger vi kun over på FinTech? Hvorfor kigger vi ikke på økosystemer inden for rejse og oplevelsesøkonomi generelt? Fordi alle har brug for et eller andet finansielt i den forbindelse. VI snakker meget om at vi skal være en platform og en virksomhed, men hvorfor sætter bankerne ikke en agenda op for at blive en platform for "trust"?

Jeg har selv lige skrevet om den her udvikling, og måske skulle vi fusionere os som - fordi lige nu ser vi os selv som en platform inden for finansielle virksomheder og det er generelt det vi snakker om nu og i henhold til PSD" - men hvorfor ikke bliver vi ikke en platform for "trust"?

I gamle dage, der gik man ned i banken med sine værdier - og gik ned i bankboksen med de vigtigste billeder, dåbsattester og alt sådan noget. Hvordan kunne vi så egentlig sætte os på det - også når der er så meget om data etik?

I: Okay - ja. En "trust"-bank.

K: Ja.

I: Ja, jeg tænker at vi har fået nævnt de fleste kategorier som vi ville igennem - både PSD2, MCC'er og VISA/Mastercard.

K: Det er også - altså nu kender jeg jo ikke jeres ide i dybden, men i dag der vurdere vi jo også kundeforhold, og et kundeforhold det er jo lidt, vi har jo klassisk hvidvask eksempel, vil vi overhovedet have dig som kunde? Det næste er så, at du har brug for en kredit - et lån - hvor vi laver en kreditvurder. Men hvor er det der andet aspekt? Hvor vi egentlig forholder os til hvordan du er som menneske - altså hvor bæedygtig er du? HVis du er en der bare brænder en masse olie af - så hvor er det henne i vores vurdering?
Og hvis I først kan finde ud af at ændre en adfærd hos en kunde - og det at man ligesom tager hensyn til sin omverden, det fortæller jo noget godt når vi er inde og forholde os til en kunde tænker jeg.

I: Ja, det er jo spørgsmålet. Fordi, så er vi jo også inde på et diversity feltet også skelner den ene person fra den anden - også er man jo inde og ramme nogle andre bæredygtigheds-punkter.

K: Ja, nu har I jo selv hørt om det her bæredygtige billån - men I kan prøve at gå ud her og tælle hvor mange El-biler der er på vores parkeringsplads - og jeg tror kun der er én. Snart to.

I: Men, hvordan kan en tredjepart så berige jeres transaktionsdata? Vi er måske kommet omkring den, men nu tænker jeg en tredjepart som Storebox og Spenderlog osv.

K: Ja, de er de eneste to jeg tænker sådan i forhold til hvis vi skal ned på niveau på varelinjer. Ellers ville det være de data man ellers få fra de leverandører vi kender.

K: Hvilken form for data kunne i godt tænke jer? Har I et overblik over det?

I: Altså, noget af det vi har snakket om er jo "hvor specifikt kan vi gå?". Det som du sagde før med at man ville kunne klikke sig videre ind og få flere og flere oplysninger omkring varerne og alt sådan noget - det ville jo være ønskescenarie. Og spørgsmålet er, hvor dybt kan man ret faktisk komme til og grave?

K: Ja, men man kan også - altså nu vil vi jo gerne være en grønnere bank, men hvordan man måler impact på tværs af alle kunder? Det kunne jo også bare være data man brugte til bankerne i første omgang? Så vi kan se, at den økonomi vi er med til at generere, hvordan påvirker den egentlig de fattigste områder i verden? Fordi vores kunder, de køber jo de varer der bliver produceret de her steder - eller økologi kunne indgå i et eller andet CSR regnskab fra vores side.

I: Ja, det ville jo være super fedt! Det er jo drømme at komme derud, hvor man også kan presse bankerne til at tage noget mere ansvar også sige - "jamen det er vores kunder og vi håndterer deres økonomi så har vi ikke et medansvar på, at vi alle sammen forbruger på en sund måde?"
Og lige præcis det her med data - så har vi jo fundet ud af at det er begrænset hvor specifikke data man kan udtrække fra de her transaktioner. Så hvis vi skal beregne et CO2-aftryk, hvor specifikke data har vi så behov for? Hvordan kan vi få det her data? Eller skal vi gøre sådan, at forbrugeren selv har mulighed for at udspecificere sine data - ligesom Spenderlog gør. Hvor meget er det muligt at få forbrugerne til?

K: Jamen hvis det kræver noget fra kunderne, så tror jeg ikke på det.

I: Nej, det er også derfor, at det er vigtigt at få jer (Spar Nord) med og høre, hvad det egentlig er der kan lade sig gøre fra bankens side af. Fordi vi vil gerne så tæt på at automatisere det som overhovedet muligt. Så kunderne har det - ligesom abonnementerne - i mobilbanken, at man bare kan se det derinde og at man ikke skal til at gøre alt muligt for at få oplysningerne derind - og de er der. Også har man mulighed for, at grave lidt i det og måske få nogle bud på "at du kan gøre det her, i stedet for at gøre det her". Og vi gik jo ind og kiggede på, hvilket overblik kunden får i Spar Nords mobilbank applikation - og der er det her overblik, hvor abonnementerne kan ses, hvor vi på samme måde kunne tænke os at vise hvad deres CO2-aftryk er på samme måde - så det bare er en del af den oplevelse forbrugerne har.

K: Og man kan jo sige, at noget gamification ligesom på linkedIn, hvor der står at hvis man lige vil blive en "start" eller hvad for noget kategorier der nu er, jamen så skal man lige opdatere sin beskrivelse og hvor man kan vinde awards. Det I kunne gøre, det var jo at lave et eller andet med - jeg ved det ikke - men noget der påvirker adfærden og vider at så længe du hæver penge til brændstof en gang om ugen, så kommer du hvert fald aldrig op på 10/10.

I: Ja, og jeg ved ikke om du kender applikationen "Lifesum"? Hvor du registrerer hvad du har spist og sådan noget.

K: Jeg har faktisk forsøgt at bruge den, og jeg syntes egentlig at det er fedt - men det er igen sådan, hvor jeg mister den fordi jeg glemmer at taste nogle ting ind.

I: Ja, men der er nogle elementer og inspiration vi har snakket om at få derfra, fordi der er nogen der bliver helt vildt motiveret af at bruge den, så det er måske også spørgsmålet om man har motivationen for at ændre sine kostvaner. Der skal jo helst være en lille smule motivation før at sådan noget det hænger ved.
Nå, men jeg kan se at tiden den løber. Har du en bagkant?

K: Ja, det har jeg. Så vi har 2 minutter tilbage.
Men jeg har lige en tilføjelse - og lige en ting er selvfølgelig madvarer i forhold til en mere bæredygtig omstilling, men jeg gad jo også godt at banken kunne udstille en eller anden kredit score på kunderne, så du ved at så længe du har overtræk hver måned på din madkonto - jamen så kommer du ikke op og ringe i "rating A". Men det er også bare svært at få igang, så man skal bare huske på om det her - er det vigtigere end det andet? Man skal sætte det i perspektiv.

I: Ja, det er muligvis også to forskellige kundetyper. Men, i forhold til at vi skal have indsamlet noget data - er der så nogen mulighed for, at vi ville kunne komme i kontakt med nogle af de kunder som har det grønne billån?

K: Ole (Direktør for kommunikation og digital i Spar Nord), han har lovet at han vil tage sig af alt det andet som I har skrevet om.

I: Okay, så det må vi gå ud fra, at han arbejder på - det kunne være en kæmpe hjælp.

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Men tusind tak for din tid - og tak for i dag.

Appendix 4 – Notes from interview with Kim Østergaard

- Alle implementeringer af digitale produkter og services kræver leverandør-godkendelser. Hvorfor; fordi Spar Nord ikke selv har tid og ressourcer til at hverken udvikle eller designe nye produkter.

<u>Forhold mellem Spar Nord og BEC:</u>

BEC   Spar Nord

Skaber kompleksitet o gen kompleks proces ved implementeringer.
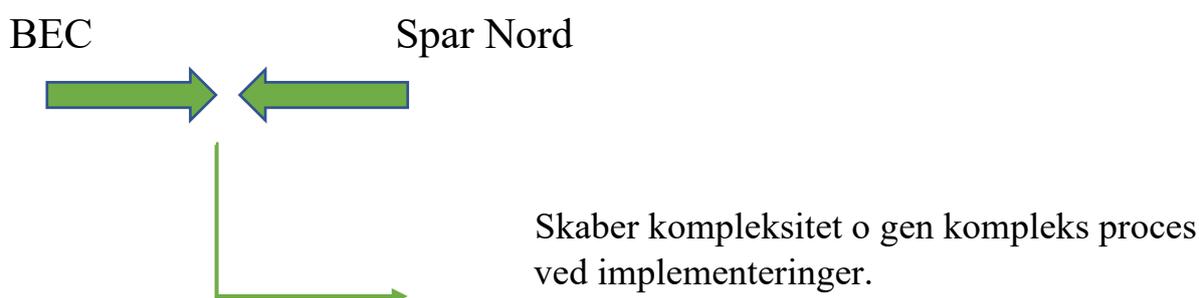
- Der findes 2 forskellige PSD2 licenser, men begge har den regel, at de informationer der bliver delt er 1-til-1.

Flere detaljer – hvordan:

- MCC (kan give flere detaljer såsom varegrupper – men Spar Nord benytter ikke disse – pga. BEC?)
- Der findes mange flere detaljer, som Spar Nord ikke bruger. Måder, hvorpå sådanne detaljer bliver tilgængelige, hvis ikke vi kan udtrække disse automatisk fra transaktionen; samarbejde med fx Spenderlog giver mulighed for detaljer på vareniveau.

"Man kan godt få flere detaljer og gå dybere, men dette skal kodes"

Perspektiver, når der designes FinTech:

- Etik?
- Er banken troværdig?
- Er leverandøren troværdig?
- Er produktet moralsk?

Spar Nords innovationsstrategi:

- De ønsker at samarbejde med tredjeparter – så dette er bestemt en mulighed.
- Men, samarbejdsmulighederne er ikke helt åbne endnu. Men mulighederne for samarbejde med tredjeparter bliver bedre og bedre, i tkst med at flere direktiver bliver besluttet i EU, der støtter globalisering og demokratisering af bankindustrien.

PSD2:

- Giver mulighed for abonnements info.
- Kunder ved andre banker kan blive brugere af Spar Nords platform – også uden at være kunde/blive kunde ved dem.
- Bankerne må ikke diskriminere i data ifølge paragraf 124 – 125 (85 stk 3)
- Særlov beskytter forbrugerne i denne deling af data.

Brainstorming/ Kim Østergaards fremtidige ønsker for Spar Nord:

- At Spar Nord ikke blot er deres egen platform – men en platform for "trust".
- Banke kunne udstille kreditscore – ikke blot baseret på den traditionelle opfattelse af kredit-score, men ud fra andre variationer såsom bæredygtighedsforbrug, bæredygtighed investeringer osv.

Appendix 5 – Fieldnotes from meeting with Ole Madsen

Deres kernemålgruppe: Vokse med normal økonomi.

Vigtigt i forhold til brugerne: At få den digitale løsning ind i deres kerne applikationer.

IT Drift:

- Spar Nord har ikke 100% magt over deres IT-systemer eller mobilbank, da alle banker i DK hører ind under tre datacentraler som er:

  > SDC: Sparkasser
  > BEC: Provisionsbanker
  > Bankdata: Andre

- Deres mobilbank er et BEC produkt, og dette skyldes at de (bankerne) før i tiden håndterede data sammen, og gennem disse centraler. Men pga af love, så er bankerne kommet ud af takst - de har forskellige ønsker og bevæget sig i forskellige retninger. Derfor kan det være udfordrende at alt kører gennem de tre centraler.

- BEC: Er selve kernen - og noget vi skal undersøge nærmere. Da dette er den Spar Nord hører ind under.

Mobilbank/tech:

- Issues ved mobilbank: Der er ikke altid så godt dataflow ved alle de forskellige kreditkort/transaktioner. Dette skyldes blandt andet nets.
- Tjek eventuelt op på muligheder for at Spar Nord får Wallet - dette kunne Ole godt tænke sig i Spar Nord.

Hvad er bæredygtighed for Spar Nord:

1. Forbrug af papir mm. (deres footprint)
2. Modvirkning af kriminalitet
3. Bæredygtige investeringer (såsom deres grønne billån)
4. Tiltag i lokalområderne (velgørende aktiviteter)

(Alt dette trænger i følger Ole til at blive digitaliseret)

Appendix 6 – Playbook & Interview guide for Focus Group Interview

Tidspunkt	Opgave	Formål	Forberedelse/Værktøj
Før interview	1. Bæredygtighed: Find nogle billeder som beskriver din opfattelse af bæredygtighed 2. Bank: Notér hvad du forbinder med din bank/banker som helhed	At få deltagerne til at reflektere over hvad de forbinder med bæredygtighed og banker.	Send opgave til deltagere Send samtykkeerklæring
16.00-16.10 (10 min)	Velkommen + introduktion til fokusgruppe og det tekniske	Få folk til at føle sig velkomne og trygge. Hilse på hinanden.	Hangouts, Lydoptagelse
16.10-16.15 (5 min)	Brainstorm; "Hvad er en bæredygtig forbruger"? - I forbindelse med alle køb; rejser, dagligvarer, tøj, transport, fornøjelser, oplevelser mm.	At starte blødt op, få folk sporet ind på emnet. Viden om hvad deltagerne forbinder med bæredygtig forbrug	Padlet https://padlet.com/sgbp15/88r046dc8ia3
16.15-16.20 (5 min)	I hvor høj grad tænker I på bæredygtighed når I gennemfører en handel? - I hvilke situationer?	Få en refleksion i gang om deres egne bæredygtige overvejelser. Har de overhovedet bæredygtige overvejelser?	Hangouts, Lydoptagelse
16.20-16.23 (3 min)	Brainstorm: Hvilke faktorer spiller ind når I skal vælge et produkt? Er det pris? tilbud? rutiner? mærker? Behov? kvalitet? lyst? følelser?	Få en brainstorm i gang om deres forbrugs bevidsthed og hvad der driver deres forbruger.	Padlet: https://padlet.com/sgbp15/bajbrf59ewe2
16.23-16.30 (7 min)	Hvis I prøver at tænke tilbage til sidste gang, I ændrede en vane - hvad motiverede jer til at gøre det? og hvad fastholdte jer?	Få egne/tidligere erfaringer i spil. At skabe indsigt i, hvad der kan motivere til at ændre	Hangouts, Lydoptagelse

	var det penge? sundhed? synlige resultater? Og brugte I nogle digitale redskaber til det såsom apps, youtube eller lignende? Og hvilke barrierer oplevede du/I?	adfærd generelt - og hvad kan give øget motivation.	
16.30-16.37 (7 min)	Hvis I skulle ændre vaner i henhold til bæredygtighed - hvilke barrierer oplever I så i forhold til at agere bæredygtigt som forbruger? Høj pris? manglende info? andet?	At skabe indsigt i, hvad der specifikt kan forhindre forbrugeren til at agere bæredygtigt. At tale ind til evne	Hangouts, Lydoptagelse
16.37-16.42 (5 min)	Har I før benyttet digitale virkemidler til at fastholde en adfærdsændring? Eller som motivation til at opnå et personligt mål? Hvis ja, hvilket - hvordan?	At forbinde digitale produkter/teknologi til adfærdsændring - samt få inspiration til de digitale midler som folk bruger eller har brugt med success samt hvilke der ikke har været brugbare.	Hangouts, Lydoptagelse
16.42-16.52 (10 min)	Hvilke digitale virkemidler kunne I forestille jer ville motivere til at agere mere bæredygtigt? -Og ville I så være klar til at benytte en ny applikation aktivt, eller ville i foretrække en integrering i eksisterende applikation såsom mobilbank eller andet? -Og, ville i foretrække at kunne se en direkte konsekvens/belønning af jeres adfærd? hvorfor/hvorfor ikke?	At skabe viden omkring deres holdning til at inddrage/benytte digitale virkemidler i forbindelse med bæredygtig adfærdsændring.	Hangouts, Lydoptagelse
16.52-17.00 (8 min)	Kunne I forestille jer at indsigt i jeres CO2 forbrug vil kunne påvirke jeres forbrugsvaner? Hvorfor/hvorfor ikke?	Test af respondenternes holdning til vores foreløbige tanker omkring produkt.	Hangouts, Lydoptagelse

Appendix 7 – Informed Consent for Focus Group Interview

Aalborg Universitet: AAU/Create

Cvr. nr. 29102384

Rendsburggade 14

9000 Aalborg

Samtykkeerklæring til fokusgruppe

Vi er to kandidatstuderende på uddannelsen Information Studies på Aalborg Universitet, som ønsker at indsamle data omhandlende forbrugeradfærd og bæredygtigt forbrug.

Derfor ønsker vi, Sissel Graakjær Bøgh Pedersen og Mia Pagh Jensen, samtykke til at behandle data i forbindelse med udarbejdelsen af vores speciale. Dataene vil blive anvendt til dels for at give en større indsigt i, hvad der kan motivere forbrugere til at ændre adfærd samt hvilke barrierer forbrugeren møder, når vaner og adfærdsmønstre skal ændres. Derudover, vil respondenterne få udleveret et dokument med indledende spørgsmål og opgaver, som ligeledes vil blive anvendt med det formål at forstå, hvad den enkelte associerer med begrebet "bæredygtighed" samt hvordan de benytter sig af deres bank.

Fokusgruppen vil blive lyd optaget med det formål at transskribere dataene og anvende eventuelle udsagn mm. i projektet. Dog vil navne og personlige data ikke fremgå i specialet, som er den akademiske afslutning af vores uddannelse og vil fremgå i Aalborg universitets projektbibliotek. Du vil som respondent til dette projekt altid have mulighed for indsigt i indholdet.

Udfyldes af den registrerede informant:

Jeg giver samtykke til, at AAU må behandle mine oplysninger til brug for ovenstående formål:

Dato/navn:

Underskrift:

Appendix 8 – Initial assignments for the focus group participants

8.1 Initial assignment from respondent 1: Lotte

1. Hvordan forstår du ordet "Bæredygtighed"?

I stedet for at besvare dette med ord, så vil vi gerne at du finder 3-5 billeder (fx fra google), der symboliserer eller illustrere hvad ordet "Bæredygtighed" betyder for dig. Indsæt gerne billederne herunder:

Vaskeæg

Hybrid / Elbiler

2. Hvad forbinder du med din bank? Og med banker generelt?

Vi er opmærksomme på, at selvom de fleste er kunder i en bank, så findes der mange forskellige måder at være bankkunde på - og der findes forskellige måder hvorpå bankerne bruges. Derfor vil vi meget gerne høre, hvordan du bruger din bank. Derfor vil vi gerne have at du svarer på nedenstående spørgsmål:

1. Hvis vi siger "bank" hvad tænker du så? (sæt max 3 krydser)

… betaling af regninger

X… betalingsservice

… E-Boks

X… lån

… pension

… investering

… personlig rådgivning

… overblik over økonomi

… overblik over forbrug

… personlig tracking af udgifter

… selvbetjening

X… budgettering

2. Hvornår var sidste gang, at du havde fysisk kontakt til din bank? og med hvilket formål?
   Vurdering af huset, omlægning af lån og renovering af tilbygninger mv.

3. Hvornår var sidste gang du brugte din netbank/mobilbank? og med hvilket formål?
   2 dage siden, overførsel af penge på konti.

4. Hvorfor ofte bruger netbank (på computeren)?
   Et par gange om måneden.

5. Hvor ofte bruger du mobilbank (på mobilen)? Ca. en gang om måneden.

6. Hvorfor ofte bruger du din fysiske bank? 1-2 gange om året.

7. Har du andre digitale finansielle applikationer end din mobilbank? fx. mobilepay, spenderlog mm. Jeg har Mobilpay.

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8.2 Initial assignment from respondent 2: Nanna

2. Hvad forbinder du med din bank? Og med banker generelt?

Vi er opmærksomme på, at selvom de fleste er kunder i en bank, så findes der mange forskellige måder at være bankkunde på - og der findes forskellige måder hvorpå bankerne bruges. Derfor vil vi meget gerne høre, hvordan du bruger din bank. Derfor vil vi gerne have at du svarer på nedenstående spørgsmål:

1. Hvis vi siger "bank" hvad tænker du så? (sæt max 3 krydser)
… betaling af regninger
… betalingsservice
… E-Boks
… lån
… pension
… investering
… personlig rådgivning
… overblik over økonomi
… overblik over forbrug
… personlig tracking af udgifter
… selvbetjening
… budgettering

2. Hvornår var sidste gang, at du havde fysisk kontakt til din bank? og med hvilket formål?
   - Har hemmelig adresse og skulle fysisk ned og underskrive for at modtage mit nye betalingskort.

3. Hvornår var sidste gang du brugte din netbank/mobilbank? og med hvilket formål?
   - Jeg bruger den hver dag for at tracke min udgifter.

4. Hvorfor ofte bruger netbank (på computeren)?
   - Max en gang hver anden måned. Generelt kun når jeg skal omstrukturere min budget konto.

5. Hvor ofte bruger du mobilbank (på mobilen)?
   - I går aftes.

6. Hvorfor ofte bruger du din fysiske bank?
   - Kun under tvang. Der er generelt ikke så mange funktioner, som kræver en fysisk tilstedeværelse i en bank filial.

7. Har du andre digitale finansielle applikationer end din mobilbank? fx. mobilepay, spenderlog mm.
   - Mobilepay og Weshare

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8.3 Initial assignment from respondent 3: Louise

1. Hvordan forstår du ordet "Bæredygtighed"?

I stedet for at besvare dette med ord, så vil vi gerne at du finder 3-5 billeder (fx fra google), der symboliserer eller illustrere hvad ordet "Bæredygtighed" betyder for dig. Indsæt gerne billederne herunder:

2. Hvad forbinder du med din bank? Og med banker generelt?

Vi er opmærksomme på, at selvom de fleste er kunder i en bank, så findes der mange forskellige måder at være bankkunde på - og der findes forskellige måder hvorpå bankerne bruges. Derfor vil vi meget gerne høre, hvordan du bruger din bank. Derfor vil vi gerne have at du svarer på nedenstående spørgsmål:

1. Hvis vi siger "bank" hvad tænker du så? (sæt max 3 krydser)
… betaling af regninger X
… betalingsservice
… E-Boks
… lån
… pension
… investering
… personlig rådgivning |
… overblik over økonomi X
… overblik over forbrug
… personlig tracking af udgifter
… selvbetjening X
… budgettering

2. Hvornår var sidste gang, at du havde fysisk kontakt til din bank? og med hvilket formål?
Det er omkring to måneder siden, hvor jeg skulle indsætte kontanter på min bankkonto.

3. Hvornår var sidste gang du brugte din netbank/mobilbank? og med hvilket formål?
Idag. For at tjekke beløb på konto.

4. Hvorfor ofte bruger netbank (på computeren)?
Maks tre-fire gange om året, hvis jeg alligevel sidder med den fremme.

5. Hvor ofte bruger du mobilbank (på mobilen)?
Flere gange ugentligt.

6. Hvorfor ofte bruger du din fysiske bank?
1-2 gange om året.

7. Har du andre digitale finansielle applikationer end din mobilbank? fx. mobilepay, spenderlog mm.
Mobilepay.

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8.4 Initial assignment from respondent 4: Anne

1. Hvordan forstår du ordet "Bæredygtighed"?

I stedet for at besvare dette med ord, så vil vi gerne at du finder 3-5 billeder (fx fra google), der symboliserer eller illustrere hvad ordet "Bæredygtighed" betyder for dig. Indsæt gerne billederne herunder:

2. Hvad forbinder du med din bank? Og med banker generelt?

Vi er opmærksomme på, at selvom de fleste er kunder i en bank, så findes der mange forskellige måder at være bankkunde på - og der findes forskellige måder hvorpå bankerne bruges. Derfor vil vi meget gerne høre, hvordan du bruger din bank. Derfor vil vi gerne have at du svarer på nedenstående spørgsmål:

1. Hvis vi siger "bank" hvad tænker du så? (sæt max 3 krydser)

X… betaling af regninger
… betalingsservice
… E-Boks
X… lån
… pension
… investering
… personlig rådgivning
X… overblik over økonomi
… overblik over forbrug
… personlig tracking af udgifter
… selvbetjening
… budgettering

2. Hvornår var sidste gang, at du havde fysisk kontakt til din bank? og med hvilket formål?
   Omlæggelse af boliglån sidste år

3. Hvornår var sidste gang du brugte din netbank/mobilbank? og med hvilket formål?
   To dage siden for at tjekke forbrug

4. Hvorfor ofte bruger netbank (på computeren)?
   Næsten aldrig.

5. Hvor ofte bruger du mobilbank (på mobilen)?
   Et par gange om ugen, minimum 1 gang om ugen.

6. Hvorfor ofte bruger du din fysiske bank?
   En gang om året cirka.

7. Har du andre digitale finansielle applikationer end din mobilbank? fx. mobilepay, spenderlog mm.
   Har mobilepay, eboks, mobilbank (jyske banks app), nemID, minekort samt Storebox.

Appendix 9 – Transcription of Online Focus Group Interview

Interviewer og primær facilitator: Mia = M

Observatør og sekundær facilitator: Sissel = S

Deltagere:

Lotte – kvinde på 56år med eget hus og to voksne sønner = **G**

Louise – kvindelig studerende på 29 år og samlever med kæreste i eget hus og bil = **L**

Anne – Nybagt mor, på 30år med eget hus og bil = **A**

Nanna – kvindelig studerende på 24 år som bor til leje = **N**

Velkomst: Alle deltagere introducerer sig selv, hvorefter interviewer gennemgår programmet og gennemgår formålet med fokusgruppen. Her bliver de udfordringer der kan være ved et online fokusgruppe interview også adresseret.

Brainstorm; "Hvad er en bæredygtig forbruger"?

M: I hvor høj grad tænker I på bæredygtighed når I gennemfører en handel?

A: Skal jeg starte? Ja, det kom jeg vist til. jeg starter; jamen det gør jeg egentlig i en ok grad, og det gør jeg egentlig fordi jeg køber meget økologi fordi vi har en lille baby. Også tænker jeg tit på det her valg mellem økologi og lokale råvarer fordi jeg synes tit, at det er et trade-off fordi enten så er det økologi eller så er det dansk produceret. Også står jeg og er i tvivl om hvad jeg skal vælge i det her tilfælde og ellers så leder jeg ofte efter det her "fairtrade" mærke – EU mærke, så jeg vil sige, at jeg tænker over det.

G: jeg tænker på det for eksempel, hvis når jeg står med to forskellige varer, så opvejer jeg det økonomiske og kvaliteten – også er det ret forskelligt, hvad der lige nu ryger i kurven den dag, men jeg synes at jeg overvejer det ofte når jeg ud at handle.

S: Okay, og sammenligner du kvalitet med at det for eksempel er en bæredygtige vare?

G: Nej, produktets kvalitet. Og også for at undgå madspild for eksempel. Min erfaring med noget så simpelt som økologiske gulerødder er, at de holder kun halvt så længe som dem der ikke er økologiske. Så når jeg køber økologiske gulerødder, så er det op til at jeg ved at det skal vi bruge nogle dage nu. På den måde er jeg sikker på at få det brugt, så det ikke bare bliver et madspild.

A: Men der er selvfølgelig forskel på økologi og bæredygtighed? Eller?

S: Det er helt op til jer, og hvad I mener. Altså bæredygtighed er også forskellig fra person til person kan man sige. Så hvordan man selv gør – om det er at købe lokalt, om det er at vælge økologi eller om det er at sørge for, at der mindre madspild så der ikke er ressourcespild – så handler det for os bare om at finde ud af, hvad det er for jer. Og hvilken tanker har i til bæredygtighed?

A: Okay, for jeg tænker nemlig tit at det er et valg mellem økologi og fairtrade – desværre.

M: Men, hvad tænker i andre? I hvor jeg var høj grad tænker i bæredygtighed ind når I står og skal vælge mellem nogle varer?

L: Jamen altså jeg vil sige, at jeg kunne måske godt tænke mere over det men det der med økologi og lokalt, det synes jeg det er det samme dilemma som man står overfor. Fordi jeg synes ofte, at så er det økologiske tomater men de hentede hjem fra Spanien, og så kan jeg købe en almindelig agurk fra Danmark – også tænker jeg "hvad skal jeg så vælge?". Så er jeg nok typen som vælger den danske. Og et andet tidspunkt, hvor jeg tænker over det er i forhold til plastikemballage - altså hvad jeg køber og hertil vil jeg sige, at jeg er overhovedet ikke hellig på nogen måde, men der er nogen varer hvor jeg står kigger og tænker at det er fuldstændig godnat! Altså, så kan jeg se at tingene er pakket ind i tre forskellige slags indpakning før, at jeg kommer ind til produktet i stedet for at jeg bare kunne vaske det. Men det er tit sådan noget jeg

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tænker over, hvor jeg skal vælge mellem det jeg syntes smager bedst, men som er fuldstændig pakket ind i plastik eller noget andet. Og det syntes jeg er et dilemma.

A: Ja, det syntes jeg også tit det er i forhold til frugt. Altså helt almindelig ikke-økologisk frugt som bare ligger i butikkerne, så man selv kan tage det. Hvorimod økologiske frugt er tit en sixpack med papbund også er der plastik wrap udenom og det er simpelthen meget emballage.

N: Jamen, jeg syntes at det er relativt nemt at tænke bæredygtighed ind - især som studerende. Men de punkter, hvor jeg syntes det er svært er sådan noget som transport, så de gange hvor jeg ikke cykler fordi det er vinteren, så tager jeg bussen også kompenserer jeg ved at donere penge til organisationer som planter træer. Så jeg syntes, at det generelt er forholdsvis nemt, fordi man ikke har de største udgifter som studerende –men når det ikke kan lade sig gøre at agere bæredygtigt jamen så kompenserer jeg bare.

M: Så I tænker mere eller mindre alle sammen ret meget på bæredygtighed når i rent faktisk står og skal handle?

L: Ja men jeg vil sige, at der er stor forskel på at tænke på det – også handle på det. Fordi der vil jeg sige, at jeg nogle gange bliver nødsaget – måske lidt overdrevet - til at vælge hvor det passer mine vaner og det passer mig bedst. Også kan jeg blive nødt til at vælge det der måske ikke er det bedste for miljøet, så det er også bare lige for at tilføje, at selvom jeg overvejer det så er det ikke hver gang jeg handler bæredygtigt. Så jeg handler ikke på det hver gang, men det er noget jeg tænker over. At jeg så får dårlig samvittighed – det er noget andet.

S: Ja, du har ret fordi der er jo ofte langt fra adfærd og til hvad man tænker. Men derfor er det også rart lige finde ud af, hvor meget tænker I egentlig over det og hvordan er folks mind-set omkring det når man handler ude i butikkerne.

A: Jeg syntes også, at prisen har noget at sige. Altså, jeg kan godt finde på at købe frugt som er dansk produceret eller økologisk - men for eksempel kylling som er økologisk, det er en helt difference pris. Også tøj, jeg vil rigtig gerne købe mere bæredygtigt tøj og det kan jeg for eksempel gøre på nettet, hvor der er rimelig gode muligheder for at se om det er bæredygtigt. Men der syntes jeg prisen er ret høj i forhold til hvad jeg har lyst til at give, og hvis jeg står i en tøjbutik, så synes jeg det er meget sjældent, at de reklamerer med hvordan og af hvad tøjet

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er produceret. Så skal du i stedet gå ind i en bestemt butik, der selv brander sig på at de sælger bæredygtigt tøj. Hvorimod, når du går ind i en almindelig butik, så ved du ikke om tøjet er produceret bæredygtigt.

M: Og det leder os faktisk hen til vores næste spørgsmål, hvor vi har valgt at lave en brainstorm mere, og det er netop for at få nogle tanker i spil om, hvad det er for nogle faktorer der spiller ind når i skal vurdere hvilke varer I skal købe?

M: Og nu, er det vist tid til at bevæge os videre til det næste spørgsmål. Nu kommer vi til at spørge lidt ind til jeres vaner, og hvordan I ændrer vaner. Så vi kunne godt tænke os, at I tænker tilbage på sidste gang I skulle ændre en vane. Hvordan sørgede i for at holde jer motiveret til at ændre den her vane?

A: Er det kun i forbindelse med indkøbsmønstre?

S: Nej, det generelt.

M: Ja, det kan være hvad som helst. Bare prøv at tænke over sidste gang I skulle ændre en vane derhjemme, en rutine eller noget som I skulle lave om. Jamen, hvordan gjorde I så det og hvad motiverede jer til at gøre det?

L: Så det er alt fra at stoppe med at bide negle, og stoppe med at ryge?

M: Ja, og hvilke teknikker brugte I til at lykkes og til at opnå jeres mål?

G: Vi ændrede vores vane herhjemme, når vi skulle ud og handle.

M: Og hvordan gjorde i så det?

G: Jamen, vi begyndt at bruge indkøbsnet i stedet for at købe bæreposer. Og jeg tror ikke, at vi har købt en bærepose i to - tre år måske. Men vi havde en kasse bag i bilen hvor vi havde net til at ligge i. Og det var så nemt, fordi hvis vi ikke fik dem med ind i butikken, så kørte vi bare vognen ud til bilen og så var nettene jo bare bag i bilen.

M: Så I sørgede for at gøre det nemt for sig selv?

G: Ja, fordi hvis vi skulle huske at have dem med hver gang, så ville det ikke have været skægt tror jeg ikke. Så vi tog konsekvent og fyldte op med de her indkøbsnet i bilen, så havde vi dem nemlig altid med. Også har jeg altid et indkøbsnet i bunden af min taske, så hvis jeg køber et eller andet så har jeg den og den er blevet brugt mange gange efterhånden.

S: Og hvad var det egentlig, der motiverede jer til at gøre det her og til at ændre den her vane?

G: Jamen det var jo bevidstheden om alt det her plastik som vi får brugt og som egentlig er unødvendigt. Og som man samtidig betalter for hver eneste gang. Ofte 3-4 kroner. Så det var sund fornuft, fordi der var økonomi i det og så gav det også en god fornemmelse.

Og der er nogen der konsekvent går ned og handler, og så køber poser hver eneste gang også bruger dem til skraldeposer men hold nu op, hvor er det dyrt.

S: Jo tak. Og er der nogen af jer andre der har noget, som I vil byde ind med?

A: Ja, altså nu har vi jo den her corona-krise, så jeg besluttede at jeg var rigtig slem til at købe online tøj fordi, at jeg synes det er sådan lidt svært at finde tøj der passer til mig, og det er noget jeg har bildt mig selv ind –men så tænkte jeg ej jeg vil gøre en rigtig god gerning! jeg vil rigtig gerne have noget mere kvalitetstøj og jeg rigtig gerne støtte mit lokalsamfund, så jeg valgte at købe noget fra en butik som ligger i min hjemby. De havde også lavet online køb i forbindelse med krisen her, og det havde de normalt ikke og så købte jeg noget der. Og det motiverede mig hvert fald til at gøre noget for mit lokalsamfund. Vi skal også have take-away i dag, selvom vi normalt aldrig får take-away for ligesom at støtte de restauranter og de butikker som har det rigtig svært.

Og det var simpelthen fordi, at vi påskønner rigtig meget at der både er et godt cafeliv og et godt butiksliv her. Så derfor bliver man også nødt til at handle her. Specielt fordi vi bor i grænseområdet, da vi bor i Sønderborg, hvor der er rigtig mange der er slemme til grænsehandel og det har vi principielt sagt, at det vil vi ikke fordi når man lægger så mange penge nede i grænsehandlen, så er det jo svært for de butikker og dagligvarebutikker der ligger i Sønderborg at klare sig.

Så der har vi sagt, at dem vil vi støtte. Og det er ikke for at være hellig eller noget, men hvis vi gerne vil have en butik her hvor vi bor – så gælder det om at handle der til dagligt.

S: Så motivation var det så at vedligeholde og have noget lokalt?

A: Ja det var vigtigt for os i hvert fald, og så er man jo nødt til at lægge nogle penge der også.

L: Altså, jeg prøver at komme på nogle vaner, som jeg har lavet om på og rent faktisk lykkedes.

M: Men hvad så med nogle af dem som ikke lykkedes? Kan du identificere, hvad der eventuelt har været af udfordringer og hvad du har gjort for at forsøge at få det til at lykkedes?

L: Altså, Ud over manglende rygrad, så tror jeg også nogle gange at det handler om, at man ikke kan se resultaterne af det. Et godt eksempel er faktisk "bæredygtighed", hvor jeg prøver at gøre det bedre og ændre nogle vaner - men hvis jeg ikke kan se nogle resultater af det arbejde, og de ting jeg nu gør, jamen så kan man godt miste motivationen til at blive ved.

S: Ja, det giver mening.

L: Nu kan jeg ikke lige huske nogle specifikke vaner, men altså jeg har tabt mig meget engang. Og der kan jeg da huske, at det som fik mig til at blive ved med at dyrke motion var, at jeg kunne se at der skete noget – og der var helt synlige resultater. Men, hvis man ikke kan se det eller se nogle resultater, hvorfor så blive ved? Det kan godt være lidt svært syntes jeg.

M: Brugte du nogle apps, eller digitale løsninger til at tabe dig?

L: Nej, slet ikke nej. Eller en vægt, den er jo faktisk digital.

M: Ja, det er rigtigt. Og det giver dig det synlige tal, som du har brug for, for at vedligeholde din motivation?

L: Ja – ligesom det med bæreposerne, hvor man kan se pengene. Altså, at der er noget fysisk - man kan rent faktisk se, at man sparer penge. Jeg tror det er lidt samme princip, fordi di fysisk kan se at du sparer noget.

S: Ja, også tænker jeg at vi skal hoppe videre til næste spørgsmål.

M: Ja, med mindre, at Nanna har noget som hun brænder inde med?

N: Nej, det meste er nemlig blevet sagt.

M: Okay, jamen det næste spørgsmål er meget i ledtog med det spørgsmål, som vi lige har haft. Nu omhandler det bare mere specifikt "bæredygtighed". Så, hvad motiverer jer til bæredygtighed og hvilke barrierer oplever i forhold til at agere mere bæredygtigt?

A: Jamen, det er nok det med, at der er et trade-off i forbindelse med bæredygtighed. For eksempel, at man tit enten køber økologisk eller også køber man lokalt produceret. Og der synes jeg da i hvert fald ofte, at jeg i tvivl om jeg skal tage det ene eller om jeg skal tage det andet. Og også i forhold til emballage, fordi jeg syntes der er tonsvis af emballage i forhold til det der måske ikke er så bæredygtig produceret.

M: Og hvad ender det så med?

A: Det er lidt en afveksling mellem pris, emballage og transport. For eksempel med æbler, der stod jeg i en situation, hvor jeg havde en nogle økologiske æbler med en hulens masse emballage og de var fra Spanien – og der valgte jeg faktisk de kommercielle æbler, altså de dansk produceret æbler som jeg selv kunne blande i en pose. Og der var der så knapt så meget emballage og de var danske, men de var samtidig ikke økologiske. Også tror jeg, at de prismæssigt var lidt billigere. Men her vil jeg gerne betale ekstra for det "rigtige valg", og for det moralske eller etiske korrekte valg, men i den her situation syntes jeg, at det var svært at regne det ud.

S: Så det du måske mangler, er noget information omkring hvad der egentlig er det mest bæredygtige valg?

A: Ja, fordi som forbruger er man virkelig lost, og jeg synes også at endnu et mærke ville være rigtig træls, men så på en anden måde indikere, hvad det egentlig er der er det bedste valg i ren bæredygtigheds princip. Så kan jeg måske godt trade min økologi off, og prisen den vil jeg også gerne gå på kompromis med, men jeg synes, at som forbruger, så er det virkelig svært at tage et oplyst valg på for eksempel fødevarer.

M: Hvilke andre barrierer oplever I ellers i forhold til at agere bæredygtigt som forbruger?

L: Altså, jeg vil sige at pris spiller da også ind syntes jeg. Et eksempel kunne være afskårne blomster, hvor langt de fleste du køber, er importeret fra udlandet som for eksempel Afrika og

bliver fløjet tværs over verden for at komme hertil. Men der er meget meget få steder, hvor du kan købe dansk produceret blomster, og sådan nogle ting. Og hvis jeg så endelig skal ud og anskaffe mig noget, som er bæredygtigt – jamen så er prisen også bare derefter. Og ved nogle ting, såsom genanvendelige vatpinde som man kan bruge mange gange, så er det selvfølgelig dyrere – men når man står og skal købe det nu og her, så er det stadig en overvejelse som man er nødt til at gøre sig.

M: Og hvad med i forhold til information omkring de forskellige produkter? Er det noget som nogle af jer tænker er en barrierer fordi der simpelthen ikke er nok viden om det?

L: Ja, jeg vil måske også sige, at misvisende information også kan være et problem. Altså, for eksempel sådan noget med, at folk baserer deres viden på film på netflix. Og så er det derfra at man får at vide, at du ikke skal spise kød fordi vi alle så dør af forurening, og der er selvfølgelig også noget sandhed i det, men så er det jo at man kan tænke over, hvad er der af bedre alternativer end ko-mælk for eksempel? Så kan du jo drikke soya-mælk, men soya-produktionen er også sindssygt ødelæggende for miljøet. Så hvordan skal du vide, hvordan du skal agere? Og, du kan nærmest ikke gøre rigtigt. Og kan risikere at blive "sham'et" uanset hvad.

A: Og især den der over-information. Du skal både forholde dig til hvor det er produceret og hvilken emballage det er. Og er det nu også et kæmpe firma der har produceret det, så er det også forkert. Så man kan faktisk ikke lave et rigtig valg, også til sidst må man bare sige "skidt med det" og vælge hvad man lige føler.

L: Lige nøjagtigt.

M: Har i to andre noget at tilføje?

N: Jamen, altså det er meget det samme som er blevet sagt. Fordi, altså green-washing er et kæmpe problem og det er svært at holde sig informeret. Og det at ændre sine vaner handler jo om, at blive ved med at være informeret – og det kan være svært når bæredygtighed er blevet et buzz-ord.

M: Det kan også nogle gange være svært at skelne mellem om det bare er et "cover" eller om det rent faktisk er bæredygtigt?

N: ja fordi det er jo ofte ikke defineret klart i forhold til produktet.

A: Nej også virker det også som om, at der er visse ting og visse varer hvor der ikke er et særlig stort fokus. For eksempel tøj-køb, hvor jeg syntes der er et begyndende fokus på, at man gerne vil købe noget bæredygtigt tøj, men slet ikke i samme grad som nogle fødevarer og andre lignende ting. Jeg synes ofte der mangler noget udbud eller i hvert fald noget information om, hvor jeg kan købe noget bæredygtigt tøj. Hvis jeg finder noget så er det igennem en annonce på Facebook eller sådan noget.

Og jeg er normalt ikke vild med sådan noget, men så kigger man lige og finder en lille virksomhed som sælger bæredygtigt tøj, hvor man samtidig kan gøre noget godt ved at støtte dem – men jeg syntes virkelig, at der er et manglende udbud af bæredygtigt tøj i de store butikker og de store virksomheder.

S: Jeg kunne godt tænke mig lige at følge op på det om for meget/for lidt information. Lotte, nu nævnte du, at I har lavet nogle tiltag derhjemme i forbindelse med bæredygtighed. Hvad har i baseret jeres valg på? Er det en viden i selv har opsøgt, eller er i tilfældigvis blevet eksponeret for det?

G: Lige nøjagtigt det tiltag vi har lavet med at indsamle dåseringe, det kan jeg ikke huske hvor kommer fra. Jeg tror, at jeg læste om det på et tidspunkt også begyndte vi at samle dem uden at vi egentlig vidste, hvor vi kunne aflevere dem. Så fik vi en butik her i Vodskov, hvor jeg bor, som er bæredygtige og som kun forhandler bæredygtige produkter – og i deres vindue stod der en kæmpe sæk, hvor man kunne afleverer de her dåseringe.

S: Og ellers, syntes du også der er mange informationer der kan være misvisende?

G: Ja, det synes jeg. Og man bliver udskældt hvis man blander sig i en debat og man ikke lige er så hellig som alle de andre. Og jeg tror også bare, at man skal give lidt mere plads til hinanden. Nogle er bare bedre til det med bæredygtighed end andre er. Men, hvis dem der er helt ligeglade - det skal man heller ikke accepterer. Men man skal acceptere, at der er forskel på hvor store mængder folk de ligger i det.

S: Ja måske også hvordan de gør det? Fordi allerede nu kan vi jo se at der er rigtig mange måder at gøre det på – og det kunne være, at nogen ikke gør det synligt?

A: Ja, og jeg synes også som forbruger så skal man være ekstremt kildekritisk i dag. Og for eksempel det med at opsøge informationer. Jeg kan huske, at jeg selv har prøvet at lede efter artikler om hvordan jeg kunne være mere bæredygtig, fordi at det var fokus lige den dag. Og så fandt jeg rigtig mange forskellige tiltag, men det var først da jeg fandt nogle artikler fra DR eller TV2, at der var noget faktuelt bag tiltagene. Fordi, jeg syntes det sker rigtig meget, at man som forbruger ofte er i tvivl om man overhovedet kan stole på det man har læst.

M: Hvilke digitale virkemidler kunne i forestille jer der, i samme grad, kunne benyttes til at motivere jer til at agere mere bæredygtigt?
Og til at hjælpe jer, så kan I måske tænke på hvad for nogle digitale virkemidler I eventuelt har brugt tidligere i forhold for eksempel vægttab og rygestop, spise sundere, at huske at spise fisk og eller hvad man kunne finde på; huske at drikke vand, huske at drikke vand kunne det også være.
Vi ønsker altså en lidt større snak om hvilke digitale virkemidler som I kunne forestille jer, kunne hjælpe med at agere mere bæredygtigt som forbruger.

A: jeg kan godt lægge ud, da jeg kom til at tænke på noget der hedder "kemiluppen" eller sådan et eller andet. Det har jeg brugt i forbindelse med min graviditet, da man kan tjekke om hvor meget kemi der er ens makeup og alle mulige produkter. Det er lidt tidskrævende, fordi man skal stå og tage alle ens stregkoder men det kunne være fedt, hvis man kunne få sådan en "rating" af en art. Måske med en app i forhold til hvor godt et produkt er i bæredygtigheds øjemed det var måske en ide.

M: Kemiluppen, ja hvad med sådan noget som viser noget om dine mål. Hvor langt du er, hvor tæt er du på dit mål, belønninger konsekvenser - er det er noget I tænker kunne hjælpe?

N: For mig umiddelbart ikke, fordi jeg tror at selvom jeg sætter mig et meget ambitiøst mål fra starten fordi jeg er meget motiveret, så vil jeg altid kunne finde undskyldninger for hvorfor jeg ikke nåede det.

M: Okay interessant.

N: Jeg tror mere for mig vil det nok være sådan noget med, at jeg kan se hvad jeg rent faktisk har gjort, for eksempel på iphone der kan man se hvor mange timer, som man har brugt og det kan man ikke gøre noget ved - man kan ikke undskylde, man kan måske godt forklare det, men det er rent faktisk hvad der er sket og ikke jeg havde troet. Og nu har for eksempel danske bank, og inde på den app der kan man godkende alle transaktioner, som man har lavet - altså man kan se pengene er brugt men man skal samtidig gå ind fysisk og fjerne notifikationerne, og det gør også lidt ondt at man lige bliver mindet om en ekstra gang hvad man har brugt. Så for mig virker det nok bedre, at bruge et system der viser min handlinger. Altså kun mine egentlige handlinger og ikke fremtidige handlinger.

S: Så det vil give mere mening for at dig kunne se og tracke dine handlinger? Og konsekvenser af dine handlinger? Jeg kunne rigtig godt tænke mig at høre hver især, hvordan I vil have det hvis I skulle ændre noget i forhold til bæredygtighed, vil det være nok og vide det at det er for eksempel godt for miljøet? Eller vil i gerne kunne se en direkte konsekvens eller belønning?

A: Generelt er jeg sådan lidt principielt imod sådan nogle ”belønnings-apps”. Jeg ved for eksempel, at der i snapchat er sådan en belønnings faktor som især de unge bruger. Det er noget med, at hvis du sender en ”streak”, så bruger du det meget. Og det har jeg noget imod rent principielt fordi jeg ved, at der er nogle firmaer der ligesom skaber afhængigheder, og der er da sikkert nogle penge i det fordi de vil gerne have at man bruger ens app.
Så for eksempel at have en app der vil give mig en viden om, at ”nu har du lavet så mange køb i dag som er bæredygtigt”. Altså det vil jeg nok være sådan lidt principielt imod hvis det vi give mening. Jeg vil rigtig gerne være oplyst som forbruger, men så snart der er nogen der går ind og siger ”ej, du købe mere af det her produkt”, så er der jo ikke nogen der vinder fordi det er firmaet der forsøger at sælge mere og det ville jeg have noget imod.

M: Hvad så hvis denne information kommer fra en neutral tredjepart, som ikke er fra selve produktet eller fra den virksomhed som sælger produktet?

A: Så skal det være en jeg har tiltro til Og det er så spørgsmål hvornår har man tiltro til det?

G: Jeg vil næsten vove den påstand, dat er er ikke nogen der hundrede procent neutral.

S: Men nu sad jeg også lige og kiggede lidt på jeres svar på de "inddelende opgaver" som vi sendte til jer og der kunne jeg for eksempel se at det du Lotte brugte mindst, det var faktisk mobilapp, hvor du lidt mere er på netbanken på computeren.

G: Ja, jeg er lidt ældre end jer andre.

S: Men hvis nu der var nogen flere muligheder på mobilappen, noget synlighed eller flere features – ville du så overveje at bruge den (mobile appen) noget mere, i forhold til computer og den originale netbank?

G: Ja, men så er det igen det her med at forbruge, fordi jeg har sådan en fin ældre Samsung, og jeg har ikke mere lagerplads, og jeg kvier mig ved at skulle ud og bruge penge og købe en ny telefon. Fordi den her den virker sgu godt nok , men jeg har ikke plads til flere apps - men altså, sådan er jeg lidt, for hvis jeg har noget der virker så behøver jeg ikke og købe noget andet fordi så kan du jo altid købe noget som kan noget andet. Så det vil kræve endnu en overvejelse, ikk? Hvis jeg skulle få fuld udnyttelse af appen, så ville jeg nok tage en telefon der snart kan lidt mere.

S: Så, hvis vi integrerede for eksempel nogle flere features i nogle af de her kerneapplikationer som du har i forvejen på din mobil, så du ikke behøver købe/bruge en ny telefon ville det så være noget der kunne tiltale dig noget mere?

G: Ja det tror jeg nok. Jeg synes også, at jeg bruger min mobiltelefon meget, til mange ting. Har den altid med mig og jeg kan også stå ude i en forretning og kigge på et eller andet produkt. Også google og se om det (produktet) er billigere andre steder, eller google det for at se andre kunders rating og sådanne ting. Så bruger jeg den når jeg er ude at handle på den måde.

M: Tak, og andre virkemidler? Hvad med bestemte notifikationer eller et eller andet i telefonen der kan poppe op? Kunne det hjælpe jer?

A: Det ville jeg hade, vil jeg sige. Jeg er virkelig sådan en type, der altså helst ikke skal have for mange apps og jeg slår alt fra der hedder notifikationer, fordi jeg bliver enormt stresset i

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min hverdag. Jeg har faktisk slået notifikationer fra på min Facebook, jeg har slået notifikationer fra i min Gmail - også selvom jeg bruger dem dagligt, fordi jeg synes simpelthen, at man bliver så afhængig af sin telefon. Man har den i hånden hele tiden, og det synes jeg – det der med at være på hele tiden, der syntes jeg også man skal prioritere sin tid anderledes. Eller jeg skal i hvert fald, så derfor er sådan noget med notifikationer hvert fald ikke være mig.

L: Jeg har lidt svært ved at sige noget, som jeg tror vil virke for mig, men det er også fordi jeg er lidt skeptisk. Eksempelvis sådan noget med notifikationer eller at du kan gå ind og tracke dit forbrug, for jeg føler hurtig, at det godt kan komme til at virke lidt ligesom en løftet pegefinger der hentyder til, at nu skal du også huske at handle bæredygtigt eller andet. "Belærende" er et meget stærkt ord, men det bliver lidt "pushy" og sådan noget det orker jeg bare ikke. Så bliver det lidt en følelse ligesom veganere som udskammer kødspisere. At man bliver mindet om "at opføre sig ordentligt".

S: Men, hvad så hvis det i stedet for var en app, hvor du selv har mulighed for at vurdere om du har lyst til at tracke dine håndliner eller dit forbrug, uden at den pusher noget på dig? Du har selv mulighed for at beslutte om du vil åbne den og kigge på det eller ej. Ville det være bedre?

L: Ja meget! Det ville være bedre - altså jeg er ikke sikker på, at jeg ville bruge den - men jeg ville klart foretrække det var på den måde. Så ville jeg være mere tiltrukket af at skulle bruge det, hvis det var noget som giver dig mulighed for at vurdere om "du har lyst til at bruge det her" og ikke "nu skal du se". Fordi, jeg tror bare at hvis man hele tiden banket oven i hovedet med, at man skal agere på en speciel måde, så kan jeg godt blive sådan lidt teenageragtig og tænke "at det skal du ikke bestemme." Så bliver jeg sådan lidt modvillig.

S: Ja, og jeg kan se at alle I andre I nikker nemlig også, så det er også jeres holdning til det?

A: Ja jeg tænker, at for eksempel er der sådan nogle features i netbank som er "nice to have" og det er ikke sådan at, som du siger, at der er en løftet pegefinger. Den mobilbank jeg har, der kan man se sit forbrug - man kan se hvor meget man har brugt på cafe besøg og den laver bare sådan et cirkeldiagram. Der er ikke noget med, at du burde gøre et eller andet eller anderledes - hvad ved jeg - en rating eller noget. Der er kun facts, hvor man selv kan danne en mening.

Og det syntes jeg egentlig er en rigtig fed feature, hvor jeg går ind og ser okay nu skal jeg nok lige tænke over hvad jeg har brugt den her måned, men der er ikke nogen fordømmelser.

M: Nu hvor det er inde i netbanken som viser ens pengeforbrug i kroner og ører, hvad så, hvis man gjorde det op i for eksempel jeres CO_2 forbrug? De forskellige ting I har købt, hvor meget CO_2 det udleder, er det noget som kunne påvirke jeres forbrugsvaner?

L: Altså, hvis det udelukkende viser de varer man køber og hvor meget disse udskiller, så tror jeg ikke rigtigt, at det vil ændre noget for mig, fordi det var højst sandsynligt en information vil jeg godt kunne få andet sted. Men hvis man kunne lave noget som også handler om, hvor køber du din vare henne - fordi der er jo også forskel på hvor bæredygtigt det er for mig at cykle op i Netto, eller om jeg vælger at køre til Menu som ligger otte km væk. Altså jeg tænker på den måde må der også være noget bæredygtighed involveret. Altså hvordan man handler. Det ville være mere motiverende for mig hvis man også inkludere sådanne faktorer. På den måde kan du tænke over, at du behøver måske ikke lige køre bilen ud for at handle, når der ligger et supermarked tæt på dig. Men det var bare lige en tanke jeg lige havde.

M: Hvad tænker I andre i forhold til og have jeres forbrug målt i CO_2?

A: Jeg tænker - bare lige eksempel med netbank der - altså jeg tror ikke det vil rykke det store, fordi altså, hvis jeg kigger på mit diagram på denne måned, så kan jeg sagtens se; "okay jeg har brugt for meget på cafe besøg, også prøver jeg at bruge mindre på cafe besøg næste måned". Men når du får en CO_2 beregning, så det er lidt svært for mig i hvert fald, fordi jeg måske ikke er "den oplyste forbruger", og derfor ikke kan gennemskue hvad mit alternativ så er. Fordi, mit alternativ er ikke at jeg kan bruge mindre på noget, det er om jeg skal købe en anden vare i stedet for. Og det er sådan lidt to forskellige købsmønstrer, eller hvad man kalder det.

M: Hvad så hvis det ville være muligt at gå ind og se okay den her vare, som jeg har købt her, den er lig med så og så meget CO_2, og hvis du så kunne klikke ind på den og så få nogle flere oplysninger om det og alternativer som viser dig, at du kunne måske købe æbler i stedet gulerødder eller et eller andet?

A: Jo, det skal jeg ikke kunne afvise. Men, så er der jo lige pludselig mange klik og meget man skal gøre i sine apps, i stedet for når man normalvis bare lige vil have et hurtigt overblik. Jeg skal ikke kunne sige ja eller nej.

M: Hvad tænker I andre?

N: Jeg tror det kommer an på hvordan I gør det. Fordi det er lidt svært relateret til CO_2, og jeg ved at når nogen organisationer gerne vil have et bidrag, hjælper det for mig er at kunne sammenligne, at for eksempel; 150 kroner det svarer til en to kroner om dagen. Altså, så jeg sådan okay det er overkommeligt, det kan jeg godt give, hvorimod 150 dkk i sig selv lyder som en stor donation. Så hvis man fik at vide, at du har brugt så meget CO_2, hvilket svarer til det som tre træer producerer om året. Altså sådan, hvor det er nemt fordøjeligt og giver god mening. Det tror jeg vil slå hårdere igennem.

S: Nu snakker vi jo rigtig meget om indkøb, men jeg kunne godt tænke mig at høre om der nogle af jer som også har tænkt på jeres CO_2 forbrug i forhold til sådan noget som rejser og fornøjelser, oplevelser - altså andre ting som ikke indebærer valget mellem økologisk og ikke økologisk?

N: Ja. Det vil jeg sige, at det gør jeg i hvert fald.

S: Hvordan?

N: Altså jeg byder mig ikke om at flyve, men hvis det er nødvendigt så prøver jeg at undersøge hvor meget det belaster miljøet - og så finder jeg sådan en virksomhed eller en organisation som planter træer, som jeg donerer til og så vil jeg kunne modsvare det CO_2 jeg har forbrugt.

M: Altså klimakompensation?

N: Yes.

A: Jeg har købt klimakompensation på mine flyrejse I'll confess.

G: Det har vi også. Når man bestiller billetten, så får man jo muligheden.

S: Præcis. Hvad med hvis det er, at I skal til København? Hvor man både kan tage sin bil, tage flyet som er hurtigere eller man kan tage toget eller bussen? Er det så pris der afgør, hvilken mulighed I vælger? Eller hvad er det I tænker over, når man vælger transportmidler for eksempel fra Aalborg til København?

L: Altså for mig er det pris. Jeg ville ønske, at jeg kunne sige alt muligt andet, men det passer ikke. Altså for mig handler det udelukkende om pris. Nu har jeg en bror og niece i København, som jeg besøger jævnligt. Og der tager jeg flexbus, fordi jeg er studerende og ikke har råd til andet, men det er ingen hemmelighed at havde jeg haft penge, så havde jeg kørt min fine lille bil ind på færgen og så havde jeg taget molslinien derover. Og det jeg ved godt, at det er skamfuldt   at   sige.
Og hvis man spørger hvorfor er det? Så tror jeg simpelthen, at det vender tilbage til det jeg snakkede om tidligere. Jeg kan ikke overskue, hvad det er min forskel gør i det store hele billede, og jeg ved godt det er rigtig egoistisk at tænke sådan, og det er heller ikke sådan jeg mener det, men det er bare er uoverskueligt at tænke på. Jeg kan jo ikke se resultatet. Altså, så jeg tror det er det.
Så det er lysten og min egen egoisme, som vinder.

S: Giver god mening.

A: jeg kan sagtens toppe den vil jeg sige. Vi bor jo her i Sønderborg, hvor vi har en flyrute direkte til København og det tager kun 35min. Og prismæssigt så koster det, ja på en god dag 300kr. Og jeg er i den heldige situationen, at jeg ikke er studerende mere, har fast job og hus og alt muligt, så jeg har måske råd til den der flyrute, og derfor kan jeg altså godt finde på at købe den. Og jeg ved godt, at flexbus sikkert det er meget mere miljøvenligt, og at det koster kun hundrede kroner - men til gengæld, så tager det fire timer, og jeg synes bare at jeg er et sted i mit liv, hvor tid er rigtig vigtigt for mig og er en ressource som er værdifuld. Og derfor kan jeg godt finde på at købe en flybillet. Men altså, og det er så min dårlige - rigtig dårlige undskyldning, men jeg bilder mig selv ind, at når der nu er så mange der flyver, så er der måske også mere incitament til at forske i et mere klimavenligt brændstof? For jeg tror, at det er utopi og tænker, at nu hvor vi er så mange der tager flyrejser, så tror jeg simpelthen ikke på at vi er stærke nok til at ændre vores vaner og lade vær med at flyve for bare at være med klimavenlige. Jeg tror nærmere, at man finder på bedre tiltag i forhold til for eksempel flyrejser - end at man siger man vil rejse mindre, ja det er min dårlige undskyldning.

Appendix 10 – Padlet; Brainstorm "Hvad er en bæredygtig forbruger?"

Appendix 11 – Padlet; Brainstorm "Hvilke faktorer spiller ind, når jeg skal vælge et produkt?"

Appendix 12 – Fieldnotes from focus group interview

Participants:

- Louise
- Nanna
- Lotte
- Anne

Introduction:

Chat-feature walk-through, introduction to technical functions and the purpose of the focus group.

Focus points from the focus group:

Choices that creates confusion:

- Fraitrade vs. Ecology
- Foodwaste vs. Ecology
- Packing vs. Ecology

What is "sustainability"?

It is different what the participant connects with the concepts of "sustainability" - but at the same time, they agree on what a "sustainable consumer" is.

Changing habits:

- It is important to do it easy for yourself.
- Visual results. For example on the economy. It is motivating to see results.

Barriers:

- Barriers arise when they are trying to understand what is more sustainable; local vs. ecology
- Both price, packing, local vs. foreign and transport can create barriers
- Price creates ekstra considerations

- Misleading information is a problem - and to much information also creates problems

- Comfort vs. sustainability - especially when it comes to travelling/transport.

No-go's:

- Greenwashing

- Scolding the users

- No notifications

- No push'es or reminders

Common attitudes:

- It needs to be something that the users "wants to do" - and not something you have to use" (three out of four participants were nodding to this statement).

- Direct results provides motivation to continue.

- It is better to implement an API in an existing application, instead of developing a new.

- It is not enough to give the users information about their consumption, they need information about how they can do it better; alternatives etc.

- CO2 itself is a difficult concept to understand, so we must make sure to compare with tangible examples.

- It is difficult to see what the individual's contribution is to the big picture.

Appendix 13 – What we have learned in the Understand Phase

What we learned about changing attitude and behaviour (literature):
- The change of attitude and behaviour needs to be voluntary

- We need to provide knowledge and "teach" the users -but information only may not change behaviour

- Environmental knowledge leads to environmental attitude leads to pro-environmental behaviour - however there are big gaps in-between. We need to seek to close these gaps

- A way to close the gap: "Direct experiences have a stronger influence on people's behaviour than indirect experiences" (Kollmuss & Agyeman, 2002, p. 242). We should aim at making users experience consequences.

- People find it hard to relate to climate changes - it is abstract and distant to most people (Giddens)

- What others think matters in pro-environmental behaviour change (both social, cultural and family influence attitude)

- The intention with the solution should be clear. (Fogg)

- Technology can function as a medium to behaviour change

What we learned about consumers (literature):
- Consumers cover a wide segment. Exchange of money makes it a consumer - we need to be aware who our target group is, narrow it

- consumers are easy to manipulate, weak and dependent (Gabriel, Lang)

- We consume for many different reasons: "To satisfy needs, display identity, indicate social belonging, gather resources, differentiate socially or participate in social activities" (Ken, Tukker, and Vezzoli 2008, p. 111)

- Consumers want to achieve social status

- Consumption can result in welfare, well-being, stress and anxiety

- Earlier money and consumption resulted in better life - this was only true until a certain level of prosperity. Though, we still expect it.

- Today, consumers satisfy non-material needs with materials.

What we learned about the concept of sustainability (literature):

- Financial growth in society can promote sustainability

- SDG contain call-to-action statements

- We are mainly concerned about goal 12 + 13

    o 12: focus on sustainable consumption and responsible use of resources

    o 13: focus on improving education, knowledge and the human to fight climate change

- Concept of sustainability contains three pillars: economic viability, environmental responsibility and social responsibility

What we learned about financial institutions (literature):

- Banks have an essential role in the society

- Because of banks role, they have a huge potential for accelerating the green transition

- Many banks already work with sustainability (Nordea as example)

- Some, including Spar Nord, have incorporated the sustainable development goals (SDG) in their strategy

- Banks can have direct and indirect influence on sustainable development

    o direct refer to use of paper, energy and waste management - things the bank has control of

    o indirect refer to things they initiate but where impact is out of their control - example: Spar Nord's green car loan - customers must choose it before it has impact

- There are three things banks can do (Varga):

    o 1. reduce amount of printed documents

    o 2. partner with green suppliers (e.g. credit cards)

    o 3. provide customers with insight on their carbon footprint

- New initiatives should create long-term profitability for the bank. As sustainable development is mostly not done to gain profit, it has to be an active choice by the bank.

- As sustainable development per say is not an economic win, banks need to prioritise sustainability

- Sustainable development initiatives must be financial sustainable in order to have a chance to get implemented.
- The EU-directive "PSD2" makes it possible for external apps to retrieve bank details - made to democratise the banking industry (Kim)
    - must be of same quality as the bank offers (same speed, amount of data etc)

What we learned about Spar Nord (Ole + Kim)
Business model and strategy
- Spar Nord is interested in investigating new business opportunities
    - Should they go into new markets like travel and experience economy? Should they build a platform on trust?
- Spar Nord has implemented sustainable development goals in their strategy 2020-2022
- They offer a green car loan which compensate for CO2 emission
- Spar Nord (Kim) is open to actively change their customers behaviour
- Spar Nord's business model is built on personal relations - meeting with customers.
- It is in their strategy to find new partnerships
- Spar Nord doesn't have the resources (or the creativity) to develop new solutions themselves. They are relying on existing solutions on the market.
    - This demand a rough investigation of the partnership company; IT-security, compliance etc. Hence, it is not an easy task.
- Decisions about new functions are always cost-benefit driven
- Ethics are a concern when considering partnership and new features
- They believe that the banking industry will be disrupted
- Spar Nord wish to make themselves attractive to third party companies
    - could be by offering more details than PSD2 demands
    - this could potentially attract more customers to their platform (mobile bank)
- There is a falling tendency for the use of banks, unless it is more complicated life event like house buy and divorce. Higher complexity = need for personal meetings.
    - Kim: "finance is maybe a bit boring for the consumer"
- Spar Nord concerns about what customers they take in (e.g. because of money laundry etc)
    - Kim: "how about the human aspect? how sustainable you are"

Technical considerations
- API makes it possible to send data or retrieve data smarter (easier way to integrate solution)

- New digital solutions in Spar Nord goes through a third party provider (BEC). Complicates implementation
  - Implementation of Salesforce makes it possible to go around BEC in some cases.
  - Mobile banking and Wallet goes by BEC
  - Integrations like Subaio (Subscription overview in Spar Nord mobile bank) has to go by BEC. However, next time will be easier.
- API makes it possible for customers to have their accounts shown in other banks.
  - Spar Nord is not doing it, but interested in getting other bank customers on their platform for marketing reasons
- Subaio (the subscription service in Spar Nord mobile bank) gets good feedback from customers
- There are many laws and restrictions both in EU and Denmark made to protect customers - can challenge implementation

Transaction data
- The transaction data available in Spar Nord is currently limited to; store + amount + date
  - Text vary from bank to bank.
  - Bank choose what data to show - can be limited by BEC.
  - more data can potentially be retrieved from VISA/Mastercard (Merchant Category Code) or be shown by integrating other applications like Storebox.
  - Geo location is possible to retrieve, but not used by Spar Nord
- There can be delay from purchasement to visualisation in mobile bank
- Spar Nord wish to show more detailed transaction data

Appendix 14 – E-mails to Workshop Participants

Info-mail

Kære deltagere,

Vi håber den nye dato stadig passer jer. Hvis ikke, hører vi meget gerne fra jer, så vi kan planlægge efter det :)

Her er lidt information om workshoppen:

Helt overordnet, er vi ved at designe et digitalt koncept for, hvordan vi gennem mobilbanken kan påvirke folks bæredygtige adfærd. Dette bygger på folks forbrug opgjort i CO2. I kan forestille jer, at der ved siden af jeres personlige forbrug, gjort op i kroner og ører, er en repræsentation af jeres personlige påvirkning på klimaet.
På workshoppen kommer vi til at gøre brug af jeres kloge hjerner til at finde ud, hvordan en sådan løsning skal se ud. Hvordan vi med størst mulig succes kan hjælpe, motivere og støtte brugeren til en mere bæredygtig adfærd.

Vi skal nok guide jer trygt igennem en række brainstorm øvelser, som skal løsne op for ovenstående. Det eneste I skal møde op med, er jeres nysgerrighed og gåpåmod :) Vi glæder os helt vildt!

Tools:
Til workshoppen kommer vi til at benytte os af MURAL, som er et online collaboration tool, der virker lidt som et kæmpe whiteboard. Det kræver ingen login for at deltage, og vi sender jer et link til vores "whiteboard", samt det medie vi beslutter os for at kommunikere igennem (Hangouts eller Zoom). Vi sender begge links via mail senest tirsdag middag.
Vi har fundet en ultra kort introduktionsvideo til MURAL, hvis I er nysgerrige:
https://youtu.be/mBFFpsy-RUo
I får også mulighed for kort at teste nogle af værktøjerne til workshoppen, inden vi rigtigt går i gang. MURAL er også nyt for os, men vi skal gøre vores bedste til at det bliver en god oplevelse for alle.

Helt praktisk, så fungerer MURAL bedst i enten Chrome eller Firefox, og vi vil gøre jer opmærksomme på, at vi kommer til at have begge medier kørende på samme tid, så I skal indstille jer på, at vi kommer til at skifte mellem dem. Hvis I er så heldige at have to skærme, så kan I med fordel sætte et medie op til hver skærm ;)

Vi glæder os til at "se" jer! Ræk endelig ud, hvis I har nogen spørgsmål :)

God weekend,
Sissel og Mia

Links

Kære deltagere,

Så er der links til jer :)

Vi skal i dag bruge Zoom og MURAL, og vi skal benytte begge tools samtidig. Venligst tjek at I kan få det hele til at virke inden vi starter kl 15 - Ræk ud, hvis I oplever problemer)

Zoom:
- Link: https://aaudk.zoom.us/j/63413667404 (Meeting ID: 634-1366-7404)
- Download Zoom eller åben i Google Chrome browser.
  Zoom virker mest optimalt, hvis man downloader det (den beder om download, når I klikker på linket herover). Dog har vi gjort det muligt at tilgå fra browser, hvis I ikke i forvejen har Zoom. I browser virker Zoom bedst i Chrome - Vi har selv haft udfordring med både billede og lyd i andre browsere.
- Vi anbefaler at alle bruger et headset og har video tændt :)

MURAL:
Linket til den "væg" vi skal arbejde med på workshoppen, bliver delt med jer, når vi ses.
Indtil da, og for at I kan teste det hele spiller inden workshoppen, så har vi lavet en "test væg" til jer.
- Test MURAL ved brug af dette link (I er velkomne til at lege lidt rundt, men det er ingen forventning herfra - I får mulighed for at teste det lidt på workshoppen også): https://app.mural.co/t/aauspeciale8879/m/aauspeciale8879/1588661112782/fd58adbfcca2 946edfd172bbb6438699f84897f9
- MURAL fungerer bedst i enten Google Chrome eller Firefox browser

Vi glæder os til at se jer kl 15!
Sissel og Mia

Appendix 15 – Playbook for Ideation Workshop

Tidspunkt	Opgave	Formål	Forberedelse/ Værktøj
Før interview	Ingen forberedelse for deltagerne. Deltagerne skal sikre sig at de kan få adgang til delte links (MURAL + Link til Google Hangout møderum).	*Formål med workshop:* At afholde en kombination af ide-genererende og evaluerende (pga. af vi ikke kan afholde fysisk ide-generende workshop, og derfor må vi arbejde med det vi har…*	Send mail til deltagere
5 min	Kort intro: Præsentation - på baggrund af vores læring fra understand fasen (at vi ønsker at motivere - men ikke give en "løftet pegefinger") Formål - Præsentere, hvad formålet med workshoppen er; hvad vil vi have ud af det. Agenda - Præsentere dagens program.	Det meste info er givet på forhånd pr mail. En kort intro skal præsentere os, vores formål med workshoppen og dagens agenda.	Mia
5 min	Icebreaker: Get familiar with MURAL - fri leg, afprøvning af sticky notes,	At skabe en tryghed hos deltagerne i brugen af værktøjet MURAL. At få en blød start (break the ice).	MURAL Mia
	Opgave 1 - Datavisualisering og motiverende design		
5 min	1. **Step:** Vores applikation at vi ønsker at designe en digital løsning, som via brugerne forbrug udregner brugernes CO2 aftryk. (Vise screenshot af Spar Nord mobilbank).	At give deltagerne et indblik i og forståelse for, hvordan designet skal virke helt praktisk.	MURAL Sissel
5 min	2. **Step:** Præsenter screenshots af, hvordan andre applikationer data visualiserer brugeren adfærd. "Hvilke tiltaler mest til jer, hvis i skulle benytte en applikation der visualiserer og tracker jeres adfærd? Mere specifikt jeres CO2 aftryk?" (bygger på layout og visuel tiltrækning) Afstemning af favorit (Hver deltager stemmer på 3 stk)	Undersøge: Hvilke visuelle præsentationsformer tiltaler vores deltagere mest; hvordan skal indholdet præsenteres, for at det giver brugere motivation/gør dem hooket.	MURAL Mia
4 min pr screenshot = 12 min	3. **Step:** De tre mest populære screenshots bliver udvalgt til yderligere (arbejde?), hvor disse gennemgås med deltagerne. Deltagerne får til opgave at notere hvilke elementer i hvert screenshot som fungere bedst, og hvilke der ikke fungere så godt.	At identificere hvad brugerne kan lide, og ikke lide, i eksisterende apps.	MURAL Mia: faciliterer disse Sissel: indsætter billede #2 og #3
5 min	4. **Step:** (genererende step). Brainstorming med sticky notes: deltagerne får 5 min. til at notere eventuelle nye ideer til den visuelle præsentation, som kan have dukket op gennem step 2-3.	At påvirke deltagerne til at reflektere selv - og ikke blot basere deres ideer/beslutninger på de screenshots vi har præsenteret.	MURAL Mia: copy/paste sticky notes til XX felt Sissel: Holder øje og hjælper deltagerne på vej, hvis de går i stå
5 min - 4 min til at gennemlæse, 1 min voting	5. **Step:** Afstemning: deltagerne stemmer på de resterende elementer (max 5 stemmer; fordelt på max tre valgmuligheder); både fra afstemning i step 2+3 samt brainstorm i step 4.	At komprimere og udtrække de 3 måde at visualisere/visuelle elementer som fungerer bedst for vore respondenter. Resultat: rangeret/prioriteret rækkefølge.	MURAL Mia: copy/paste sticky notes til XX felt

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7 min	6. **Step:** Afslutning: Her sætter deltagerne ord på deres valg og tanker; hvorfor fungerer netop disse elementer for dem? Og hvad er forudsætningerne for, at de faktisk vil virke?	At skabe indsigt i *hvorfor* de udvalgte elementer fungerer for dem - og hvad deres tanker og refleksioner har været.	Google Hangouts/MURAL Sissel: Noterer svar/observerer
5 min	**PAUSE**		MIA HUSKER DENNE
	Opgave 2 - Det informative indhold (tips og gode råd?)		
10 min 3 min pr "step"	1. **Step:** Pros/Cons: Vi har fra vores fokusgruppe fundet ud af, at de har brug for hjælp til at træffe det rigtige, bæredygtige valg, derfor vil vi gerne inddrage yderligere information såsom: - Tips/tricks til en nem bæredygtig adfærdsændring. - Troværdig uddybende information om bæredygtige produkter som kan hjælpe brugerne med at træffe det "rigtige" valg. - Hjælp til steder, hvor man kan klima-kompensere. Vi kunne her godt tænke os at høre jeres umiddelbare tanker omkring disse - fordele og ulemper ved at inkludere disse i applikationen	At finde ud af, om deltagerne gerne vil have supplerende informationer og guidelines i applikationen - eller om et overblik over CO2-aftryk er nok information? Formålet er at sikre, at vi ikke designer en løsning som overvælder brugerne med informationer (finding fra fokusgruppe).	Google Hangouts Sissel præsenterer; 1 ad gangen inklusiv eksempler
	Opgave 3 - Motivation og adfærdsændring via et "Pull-medie"		
3 min	1. **Step:** At præsentere hvordan en trigger er nødvendig i forbindelse med adfærdsændring: 1: At man bemærker den er der (blikfang), 2: At vi associerer triggeren med en	At give deltagerne en forståelse for hvad en "trigger" er, og hvordan denne	Google Hangout Sissel præsenterer
	bestemt adfærd og 3: At vi benytter os af triggeren, når vi både er motiveret og har evnerne til at udføre den ønskede adfærd.	er essentielt i adfærdsændring. Skabe basis-forståelse for de næste tre steps.	
5 min	2. **Step:** Vise screenshot af Spar Nords mobilbank, Hvordan kan vi udnytte denne lille plads på FORSIDEN, og gøre dem nysgerrige - som giver dem lyst til at klikke ind på app'en? Brainstorm: "Hvis vores løsning ikke må sende jer direkte notifikationer, hvordan kan vi så visuelt tiltrække jer? Og skabe blikfang ved nye brugere?" Afslut med afstemning (post-its).	At inddrage deltagerne i visualiseringen af "forsiden". Undersøge hvilke visuelle elementer som tiltrækker deltagerne - blikfang? At generere ideer til det visuelle design af widget/"forside". (FBM: we notice the trigger)	Mia præsenterer og styrer afstemning
3 min	3,1. **Step:** Afstemning om følgende udsagn vedrørende associationer: "Det er nok blot at se mit CO2-aftryk" "Der skal være en knap/feature, hvor der står: Vil du forbruge mere bæredygtigt?" "Det er nok, hvis der på appens widget står: Du har haft et 1,8 kg højere CO2-aftryk end i går. Se mere." "Det er nok at kunne se Tips/tricks til at forbruge mere bæredygtigt"	(FBM: we associate the trigger with a target behavior)	Sissel præsenterer de forskellige udsagn Mia styrer afstemning og forklarer, hvordan de skal afstemme samt ud fra hvilket perspektiv

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4 min	**3,2. Step: Yderligere idegenerering** Forklaring: En trigger skal vække associationer til den ønskede adfærd. Til dette vurderer vi, at det ikke er nok blot at visualisere CO2 aftrykket - men vi mangler en "call-to-action". Brainstorm: "Andre ideer til, hvordan vi kan skabe en feature eller en call-to-action i vores applikation, som vil sikre at I som brugere ville associere det I ser i med bæredygtig adfærd?"	At finde ud af hvad der skal til for at folk associerer det de ser med en bestemt adfærd. Hvordan giver vi brugeren tanken om at "nårh ja, jeg skal jo lige være opmærksom på dette" uden en streng løftet pegefinger. Til dette har vi selv ide-generet og vil vil gerne have at deltagere evaluere på disse. (FBM: **we associate the trigger with a target behavior**)	Mia
5 min	**Farvel og tak**		Fælles

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Appendix 16 – Screenshots from Ideation Workshop

16.1 Workshop template in MURAL
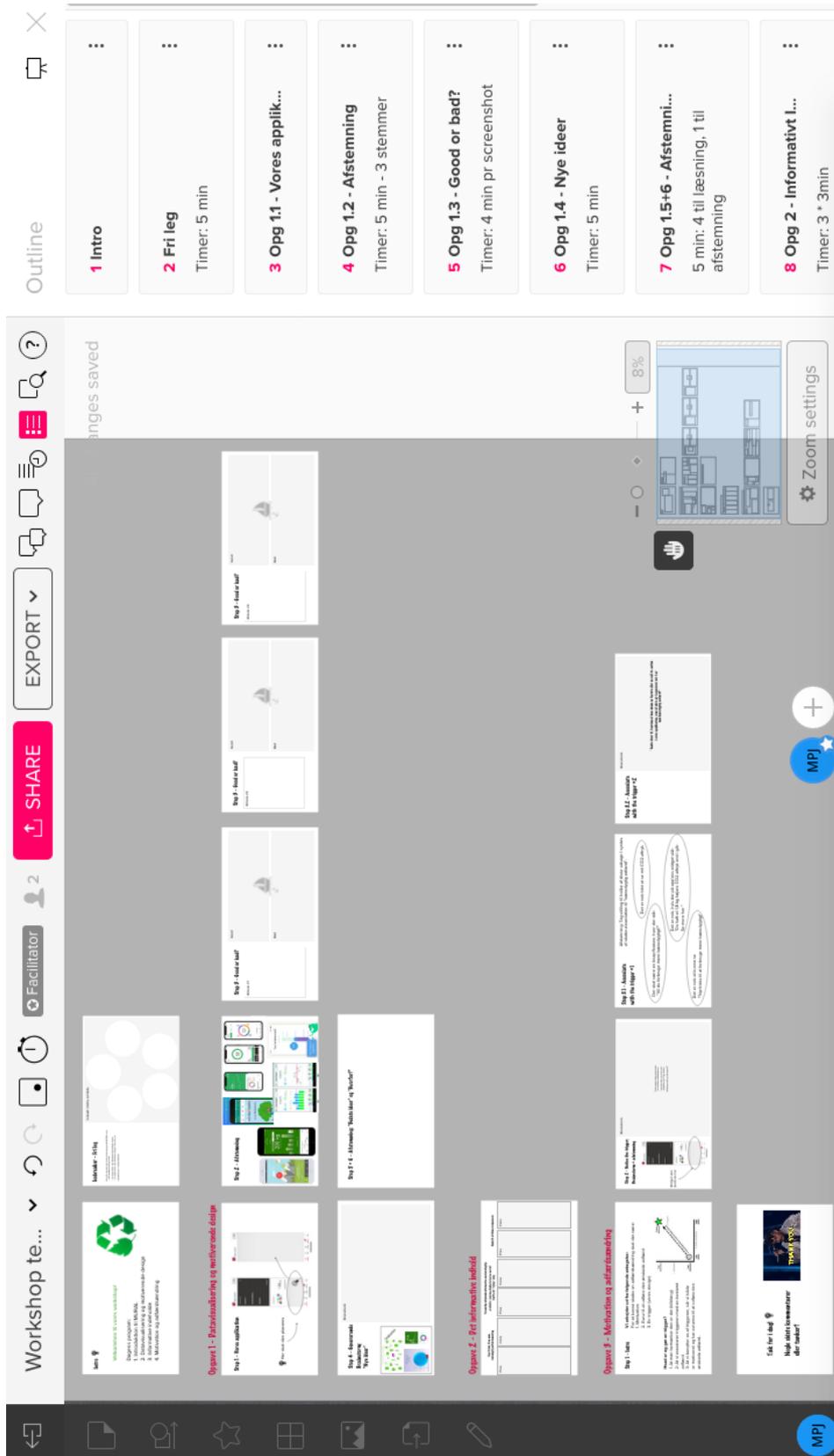
16.2 Assignment 1, step 3: Good or bad?

Step 3 - Good or bad?

carbon footprint today
79 lbs CO2

day | week

travel 46

food 12

you've saved
3 lbs CO2 today so far

footprint   CO2 saved

Home | Progress | Actions | Profile

Good

Jeg kan godt lide visualiseringerne med bjergene og træerne

Baggrunden er flot og skaber liv

Godt med target - skaber motivation at have mål

Jeg synes, kategoriseringerne er gode

Gode visualiseringer af forbrug eller milepæle

Flot design, mere spændende baggrund

Kan godt lide idéen om, at man kan se hvordan forbruget er fordelt på rejser, mad osv

Fint med muighed for at se dag/ uge

<- enig, der skulle måske også være måned?

<-- é, é!

Teksten fokuserer på det positive og brugerens "accomplishments"
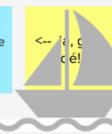
Bad

Der sker for meget - ikke nødvendigvis for meget info, men baggrunden er meget forstyrrende

Der foregår meget, det skaber forviring omkring hvor mit fokus skal være som bruger

Den røde farve bliver meget negativ ift. det grønne (forstår godt hvorfor, men man vil hellere have råd til at gøre noget andet end en løftet pegefinger)

Det bliver lidt rodet - for mange ting på én gang

Kan være svært at skælne mellem baggrund og forgrund

<- Enig

der sker for meget i form af anvendte elementer og farver

jeg ved ikke, hvor jeg skal kigge hen eller starte

Den røde farve virker lidt "shamende" på en måde. Sådan som om at det er "farligt" højt eller "alarmerende" forbrug

Jeg mangler et fokuspunkt i forhold til at jeg ikke ved, hvor jeg skal kigge - om der er noget, der er mere vigtigt end andet fx

de anvendte måleenheder er svære at forholde sig til.

16.3 Assignment 1, step 4-6: Brainstorm & voting session

16.4 Assignment 2

Tips/tricks til en nem bæredygtig adfærdsændring

Pros

- Det er godt, fordi det er ting som er nemme at gøre
- Det tager ikke så lang tid og kan forekomme sidelobende med andre informationer på andre sider
- det bliver svært at redde hele verdene på én - men man kan starte i det små
- simple tips i hverdagen, der kan have stor indflydelse (stof til eftertanke)
- Det er noget som alle kan finde ud af
- Viden er godt, hvis det formidles korrekt
- Hvor stor en effekt vil disse ting kunne have
- det virker lidt som den dovne løsning

Cons

- Det kan gå hen og blive irreterende hvis tips bliver fordummende
- Viden er knap så godt, hvis det ikke er konkret

- Vigtig med troværdig kildehenvisning
- Hvad har dette af relevans i en mobilbank - Der skal også være et økonomisk perspektiv
- ^^ Enig!
- Hvad så efter de tips og tricks, man har fulgt, hvad gør man så?

Troværdig uddybende information om bæredygtige produkter, som kan hjælpe brugerne med at træffe det "rigtige" valg

Pros

- God sik med relevant info - er dog ikke sikker på, at jeg synes det er min bank der skal give mig de informationer --> men kunne måske henvise til et sted hvor man kan læse mere
- Det er godt fordi det skaber noget viden hos brugeren
- tror det er godt i forhold til de mange der søger hjælp og anbefalinger
- tror det er relevant med denne viden, dog skal man være opmærksom på/ overvejje om at stå med skuld eller om man kan finde køe
- Rigtig god ide, har altid haft problemer med at afgøre hvad der er bedst, så troværdig information er godt

Cons

- Bank perspektiv: Banker er meget konservative, og vil måske ikke gå ud og sige vælg dette produkt frem for et andet
- Tror man skal passe på med at formulere det som værende "det rigtige valg". Hvis man ikke følger rådende, er man så bare puuhaaa det er ikke godt nok
- Banker skal være neutrale i mine øjne og ikke anbefale specifikke varer, adfærdsmønstre med mere. Så de ikke tager "parti" eller lignende
- Jeg ville ikke synes at banken var dem som skulle komme med den slags råd
- Tror måske meget information bliver for meget hvis det er en underside på en mobilbank. Måske links til andre troværdige sider i stedet for?
- Der er mange der ikke gider at læse så meget - især på mobilen
- <- super enig

Hjælp til at klima-kompensere

Pros

- Jeg synes, det virker super godt med muligheden for at klimakompensere - også med små beløb
- Ideen med at gøre noget godt når man også gør noget dårligt er god, men måske i et andet format

Cons

- Jeg kan være bekymret for, at klima kompenserende adfærd ikke kommer til at ændre på vores almindelige varer, der skader klimaet.
- For mig er det ikke motiverende, før at jeg reelt kan se, hvilken effekt det har.
- Kan godt frygte at folk for mentaliteten "nå, men hvis jeg bare betaler de her 200 kr, så kan jeg fortsætte med at svine rundt og anvende plastik som jeg plejer"
- Er skeptisk overfor at opfordre til at kompensere fremfor at undgå udledning i første omgang. Synes måske ikke det er banks arbejde at hjælpe med dette
- Jeg vil helvere tænke klimakompensation som i det kan godt være jeg svøre en flaske, men tilgengæld købes jeg jo en genbrugstøj. Det andet bliver lidt køb væk og fej det ind indt zukkerfrøst
- Jeg ved ikke hvor meget der faktisk bliver kompenseret
- Hvad bliver kompenseret og hvordan? Må indrømme, at jeg finder konceptet lidt underligt. Gør som du plejer, men betal ved kasse 1?

16.5 Assignment 3, step 2 + 3.2

Appendix 17 – Workshop Notes

Facilitatorer:
- Mia: Primær facilitator; og moderator
- Sissel: Sekundær facilitator og observatør

Deltager:
- Alle i 20'erne - 30'erne med forskellig demografier og livsstatus/beskæftigelse
- Med forskellige niveau af motivation og interesse for bæredygtighed
- 5 deltagere: Louise, Freja, Asvinirajarajan, Mikkel og Anton

Observationer/primære holdninger i forbindelse med visualisering:
- Det er ikke nok, blot at visualisere forbrugsadfærden i forhold til CO_2-aftryk, der skal være supplerende info i form af "læs mere" eller generel uddybning.
- Det er vigtigt, at der også vises noget som gør CO_2-aftrykket håndgribeligt; vise hvor meget XXkg CO_2 reelt er.
- CO_2 skal sætte i relation til hverdags ting.
- Det skal være enkelt og pænt.
- Det er motiverende, hvis man kan se fremskridt (fx. lifesum).
- Der er behov for specifik viden om, hvad de de visuelle elementer/grafer står for/betyder (hvad er hvad).
- Det er okay, at visualiseringen ikke ligefrem er grafer eller diagrammer. Det kan også visualiseres som fx. træer, bjerge osv fungerer også.
- Overblik er vigtigt: Dag/uge/måned.
- Der er behov for milepæle/målsætninger/delmål/targets for at holde motivationen.
- Teksten i applikationen skal fokusere på det positive, og ikke det negative.

Noter/observationer til Opgave 1 - Step 6:
En diskussion om de udvalgte (bedste) visuelle elementer;
"Hvorfor fungerer noget bedre end andet?" (Deltagernes egne ord).

"Man skal kunne forstå det med CO_2'en! Det er vigtigt, at det sætte i relation til noget konkret - eller at det vises som noget andet en blot CO_2."

"Den måde elementerne præsenteres på er vigtigt; specielt grønne farver, bløde figurer/kanter og et moderne look gør det genkendeligt og skaber et lækkert design, der forbindels med miljø og bæredygtighed."

"Når tingene bliver konkretiseret er det nemmere. For mig (Mikkel) er det med CO_2 meget uspecifikt - Sæt det i relation til handling og situation."

"Lad os skabe en ny målenhed i hverdage; fx. "Nu har du sparet XXkg CO_2 som svarer til 38 gange opvask."

"Jeg vil sige, at Mål = Motivation. Og disse mål skal både kunne være personlige mål eller generelle mål."

"Jeg syntes, at Gamification er motiverende. Fx. at man kan konkurrere både internt/mellem venner."
(40% af deltagerne var enig i dette - 60% af deltagerne var uenige).

"Konkurrence kan fungere godt - MEN kan hurtigt blive skidt, fordi vis konkurrence bliver vi ofte sammenlignet med andre - og hvis de er bedre kan vi føle os shamet".

Generel snak om målsætning: Målene skal på en eller anden måde være personlige = customization skal være muligt. Men kun med fokus på "DU HAR NU GJORT DETTE" og ikke "Du har i forhold til gennemsnittet gjort dette."

Appendix 18 – Inspirational designs