



CHALMERS
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Scooch Over, There's Room for Us Too

Inviting Consumers into the Design of Digital Product Passports
for Furniture

Master's thesis in Interaction Design and Technologies

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DEPARTMENT OF INDUSTRIAL AND MATERIALS SCIENCE

CHALMERS UNIVERSITY OF TECHNOLOGY
Gothenburg, Sweden 2026
www.chalmers.se

MASTER'S THESIS 2026

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Master's Thesis 2026
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Typeset in L^AT_EX
Printed by Chalmers Digitaltryck
Gothenburg, Sweden 2026

Abstract

As the European Union drives the transition toward a circular economy through frameworks like the Ecodesign for Sustainable Products Regulation (ESPR), the Digital Product Passport (DPP) has emerged as a vital infrastructure to ensure product traceability. While macro-level initiatives like the FRANCESCA project establish the technical data requirements for high-impact sectors such as furniture, a critical knowledge gap remains regarding how end-consumers interact with this information.

This thesis addresses the prominent intention-behavior gap that prevents well-meaning consumers from executing sustainable choices at the point of purchase by investigating how user interface design can transform raw lifecycle data into actionable behavioral prompts.

Guided by a Research through Design (RtD) framework, the project progressed through three iterative macro-phases: pre-design, generative, and evaluative. Current consumer behavior was first mapped using exploratory user interviews. These insights informed a co-design workshop where participants utilized physical generative toolkits to translate their mental models into future interface requirements, focusing heavily on the two distinct contexts: acquisition and long-term ownership.

The final outcome of this process is a mobile DPP prototype. Empirical evaluations of the prototype reveal that successfully catering to user needs requires a careful balance between rapid interaction and data verification. The prototype successfully bridges the cognitive gaps prevalent at the point of purchase by translating complex environmental data into tangible product value. It supports the user in navigating dense regulatory information and allows sustainable trade-offs to be evaluated without inducing decision fatigue.

Keywords: Digital Product Passport (DPP), Intention-Behavior Gap, User Experience (UX) Design, Circular Economy, Sustainable Consumption, Furniture Industry, Research through Design (RtD)

Acknowledgements

I would like to express my deepest gratitude to my supervisor at Chalmers University of Technology, Karin Aasa, for her support and highly valuable insights throughout the project.

My thanks also go to Chalmers Industriteknik for providing the opportunity to conduct this study and for the support received during the process. A special thanks to my supervisor at Chalmers Industriteknik, Karolina Kazmierczak, for her guidance and expertise. I would further like to thank Maria Hammar, Sophie Charpentier, and Marie-Louise Lagerstedt Eidrup at Chalmers Industriteknik for their feedback and help in recruiting study participants.

Finally, I want to thank all participants who took part in interviews or workshops, your input has been invaluable for the project!

Elias Pedersen, Gothenburg, June 2026

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1

Introduction

This chapter outlines the structural framework of the thesis. It provides a background to the research area, details the aim and research questions of the project, and establishes the study's delimitations.

1.1 Background

The European Union (EU) has identified significant challenges in the current lifecycle of consumer products in multiple sectors. To investigate and facilitate incentives for producers to go from linear production models to a more circular model, the EU drafted the Circular Economy Action Plan (CEAP) (European Commission, 2020). The CEAP serves as a comprehensive framework establishing concrete initiatives to promote sustainable product design, reduce resource consumption, and ensure that materials are retained within the economy for as long as possible. Moreover, to ensure widespread adoption of these strategies, the EU has drafted the Ecodesign for Sustainable Products Regulation (ESPR), driving regulatory frameworks compelling companies to adopt circular practices and transition towards a Circular Economy (CE) (European Commission, 2022). Implementing these circular practices at scale, rather than just in theory, fundamentally relies on digital infrastructure to track and manage complex product information (Voulgaridis et al., 2024).

For a circular economy to flourish, stakeholders (e.g. producers, consumers, and recyclers) across the value chain require detailed knowledge about a product's composition and history to effectively repair, reuse, and recycle it. High levels of transparency and reliable data sharing therefore act as crucial enablers for this system. To achieve this, technologies such as the Internet of Things (IoT) are key for connecting physical products to the digital realm, enabling traceability throughout the product's lifecycle. Furthermore, to ensure trust and prevent data manipulation between stakeholders, technologies like Blockchain are often proposed as the infrastructure for secure data exchange, hindering attempts at altering data stored on the network. The integration of these digital technologies to drive circular strategies has led to the emergence of the Digital Circular Economy (Digital CE) (Voulgaridis et al., 2024).

Within this digital framework, the Digital Product Passport (DPP) is identified as a key enabler (European Commission, 2025; Voulgaridis et al., 2024). Defined by

the ESPR, the DPP is a structured collection of product-related data accessible via a unique identifier, designed to ensure traceability and transparency throughout the product's lifecycle. The ESPR regulation requires that the passport contains information regarding the durability, reparability and recycled content of the product, as well as instructions for maintenance, disassembly, and recycling (European Commission, 2022). As mandated by the ESPR, access to this data is facilitated through a mandatory data carrier physically attached to the product, such as a QR code, or through a direct digital link in e-commerce environments.

DPPs will be gradually implemented in sectors, starting with high-impact sectors where furniture is identified as a priority group by the EU's Joint Research Centre (JRC) (European Commission, 2025). To support this, initiatives such as the EU-funded FRANCESCA have been launched (Chalmers Industriteknik, 2025). This project focuses on the potential circularity of furniture and is one of several aimed at establishing data requirements—defining what information must be disclosed—and the technical infrastructure for its delivery to DPPs. While these larger projects focus on the technical data needed by manufacturers, the actual success of the DPP depends on the final users. Raw technical data alone is not enough to change current buying habits; to truly drive the transition to a circular economy, this complex information must be made easy to understand and act upon specifically for the end-consumer.

Current research indicates that there is an intention-behavior gap prevalent in consumers' purchasing habits regarding furniture (Xu et al., 2020). Multiple factors can influence an intention-behavior gap in regard to ethical consumption, but ultimately the point of purchase is the decisive moment (Carrington et al., 2014). In this context, Xu et al. utilize the Theory of Planned Behavior (TPB) (Ajzen, 1991), identifying Perceived Behavioral Control as a decisive factor in bridging the intention-behavior gap. While consumers often possess the willingness to purchase sustainably, a lack of accessible information limits their perceived ability to act. Consequently, the DPP has potential to serve as a vital tool to enhance this control by empowering consumers with verifiable data to enable sustainable behavior when buying furniture.

Whilst other sectors have been more thoroughly researched, for example, the clothing industry and batteries, the furniture sector remains comparatively unexplored in terms of the DPP. Moreover, across all industries developing DPPs, the vast majority of existing research focuses heavily on manufacturers and supply chain logistics rather than the final user, thus leaving an important knowledge gap regarding the end-consumer. Consequently, if the DPP is to successfully enhance perceived behavioral control and bridge the intention-behavior gap, it is crucial to explore how consumers actually perceive, process, and act upon this digital information.

1.2 Aim

The primary aim of this Master’s Thesis is to bridge the existing knowledge gap regarding end-consumer needs and requirements for a DPP in the furniture sector. To achieve this, the project seeks to investigate the drivers for consumer adoption of this emerging digital tool, as well as to evaluate its potential to support sustainable decision-making. Consequently, the first research question is formulated as follows:

RQ1: How can the information architecture and interface design of a DPP facilitate sustainable purchasing decisions regarding new furniture by communicating its future circular value?

Furthermore, a secondary aim of the project is to explore how the DPP can, through design, convey sustainability value in the second-hand market. By extending the focus beyond the initial point of purchase, the study aims to identify design qualities that truly promote circular behavior throughout the product’s lifecycle. This leads to the second research question:

RQ2: How can the design of a DPP facilitate product maintenance and care during the ownership phase, thereby retaining the value of the furniture and establishing trust for the second-hand market?

To achieve these aims, this project utilizes an iterative, user-centred Research through Design (RtD) approach. This empirical framework facilitates the development of a high-fidelity design concept, which will ultimately generate actionable insights for producers and designers regarding consumer-facing DPP interfaces.

1.3 Delimitations

The study is geographically confined to Gothenburg, Sweden, which implies that cultural attitudes regarding sustainability and purchasing habits may influence the result, and the findings may not be applicable or generalizable to other markets.

This project focuses solely on the end-consumer (Business to Consumer, B2C) purchasing furniture for private use. Commercial buyers (B2B) and other stakeholders are excluded from the study. However, the resulting insights of the study are intended to support SMEs in the design of their DPPs to align with consumer needs.

Finally, the project is limited to the front-end user experience and interface design of the DPP. The technical implementation of the DPP, such as blockchain integration, is outside of the scope of the thesis.

2

Theoretical Framework

This chapter presents the theoretical foundation necessary for understanding both the problem space and the chosen research approach. It begins by introducing the circular economy and the regulatory frameworks driving the implementation of the Digital Product Passport (DPP).

2.1 Circular economy and the potential of the DPP

As established in the introduction, the EU is heavily pushing the furniture sector to transition from a linear “take-make-dispose” model to a circular economy through frameworks like the ESPR. At its core, a circular economy replaces the linear extraction of resources with closed material loops, prioritising product life extension (Ellen Macarthur Foundation, 2022). Strategies aimed at slowing down resource loops, such as maintenance, repair, reuse, and refurbishment, are the primary mechanisms to achieve this, where maintenance and reuse are seen as especially important. For the furniture industry, this means preserving the economic and functional value of a product as long as possible.

The DPP acts as a theoretical and practical bridge for the transition from a linear to a circular economy. By systematically cataloging a product’s material composition, origin, and repair instructions, the DPP provides the data transparency needed to optimize and scale circular loops. However, providing technical data alone is insufficient to ensure that a product’s lifespan is actually extended; the consumer must also be psychologically willing to maintain and keep it. To understand how to successfully postpone product replacement, Mugge et al. (2005) outline seven distinct design strategies. While strategies such as creating a classic design or increasing physical durability are determined during manufacturing, others can be directly supported by a digital interface. Specifically, it is crucial that the DPP leverages strategies like providing easy maintenance and repairs and highlighting modular or adaptable options. By digitally empowering the consumer to engage in these actions, the DPP actively fosters the strong person-product relationship necessary for circular behaviors.

Transitioning to a circular economy is not solely a matter of design and consumer psychology; it also presents significant economic challenges, especially during the initial transition phase. Bocken et al. (2016) discuss various business models proposed for adapting to this circular landscape. Among these, *the long life model* aligns most closely with the objectives of the ESPR by placing product longevity as its absolute highest priority. The value capture for this business model, how the company generates revenue, is typically reflected in a premium upfront price. Consequently, although a circular piece of furniture might offer a lower Total Cost of Ownership (TCO) over its extended lifespan due to its repairability and resale value, this higher initial retail price can become a substantial barrier for the everyday consumer. This economic friction, combined with the reliance on user behavior, highlights the challenge of translating sustainable intentions into actual purchases.

Although pressure on companies to adopt circular strategies is needed, the actual transition to a circular furniture economy heavily relies on consumer behavior throughout the product’s lifecycle. Ultimately, critical circular choices such as maintenance, repair, and refurbishment are always decided by the individual consumer who purchases the product. Although consumers may interact with this circular system through various physical channels, such as second-hand markets or repair workshops, the DPP is highlighted as a primary digital touchpoint to facilitate these behaviors both at the point of acquisition and during ownership. When used for acquisition, be it in a high-stimulus physical retail environment via a QR code, or in an e-commerce setting, the large amounts of data within the DPP risk creating an overwhelming cognitive load, making decision-making more difficult. Furthermore, the tool must remain relevant and accessible long after the initial purchase to support maintenance and repair, creating the need for an interface that is intuitive and friction-free across all these distinct user contexts.

To understand how such an interface might be received, previous studies on DPPs for the battery sector highlight the different attitudes between participants with high environmental concern and those without (Popowicz et al., 2025). When divided into groups, stronger correlations could be found between certain categories and the group with the greatest environmental concern. Furthermore, the study shows that 60% plan to use the DPP after having been introduced to it, 10% say no, and 30% answered maybe. In the context of this project, these statistics underscore the importance of designing a furniture DPP that is accessible and engaging to all potential consumers, thereby supporting higher adoption rates.

2.2 Consumer behavior and the intention-behavior gap

While the DPP offers a technical solution for data transparency, translating sustainable intentions into actual purchases relies heavily on human psychology. As Carrington et al. (2014) observe, consumers possess varying levels of knowledge and prioritize ethical concerns differently, ranging from environmental impacts to social rights. Compounding these varied priorities is the cognitive load induced by everyday life and stressful retail environments. Consumers frequently lack the mental bandwidth to process comprehensive sustainability data, causing them to either act solely on their primary ethical concern or abandon their sustainable intentions entirely. To combat this stress, predefined plans and shopping habits are crucial. Recognizing that not all consumers plan their purchases, the study identifies three distinct shopping modes that dictate behavior: pre-meditated shopping, effortful decision-making at the point of purchase, and spontaneous purchasing. During pre-meditated purchases, consumers retain the cognitive capacity to evaluate ethical data. Conversely, effortful decision-making at the point of purchase requires sifting through large amounts of information, quickly leading to decision fatigue. Finally, spontaneous purchases are highly susceptible to immediate retail triggers, such as upfront price and aesthetics, which significantly widens the intention-behavior gap. Although Carrington et al. primarily base these observations on fast-moving consumer goods, this thesis argues that the underlying cognitive states provide a highly relevant theoretical lens for high-involvement purchases such as furniture.

In the context of the furniture sector, these cognitive states highlight distinct design challenges for the DPP. A pre-meditated mode implies that a consumer enters the retail environment with a plan, retaining the cognitive bandwidth to evaluate complex ethical data. In contrast, effortful decision-making occurs when consumers lack a clear plan and become overwhelmed by the myriad of choices at the point of purchase. In these cognitively demanding scenarios, a well-designed DPP must act as a filter to reduce friction and guide the user. Conversely, while large furniture is rarely a purely spontaneous purchase, emotional or aesthetic triggers can easily override ethical intentions if the sustainable choice appears too complex or demanding to verify.

To understand the psychological mechanisms behind this intention-behavior gap—the discrepancy between a consumer’s desire to act sustainably and their actual purchasing behavior—this thesis utilizes the Theory of Planned Behavior (TPB) (Ajzen, 1991). Specifically, it focuses on the concept of perceived behavioral control. In this context, perceived behavioral control relates to the consumer’s perception of how difficult it is to verify a product’s true sustainability or repairability. When environmental information is inaccessible or overwhelming, consumers feel a lack of control and default to simpler metrics, such as upfront price. Therefore, bridging this gap requires returning control to the user by empowering them with transparent, actionable data through tools like the DPP.

For transparent data to successfully generate behavioral control, it must be inherently trusted. Torma and Thøgersen (2021) emphasize that the design and presentation of sustainability labels significantly influence their perceived credibility, introducing meta-labeling as a potential solution to counter greenwashing and help consumers more easily identify sustainable products. This underscores a critical vulnerability: if consumers doubt the validity of the data presented within the DPP, they will not feel empowered to act upon it. Consequently, the information architecture and interface design of the DPP must not only minimize cognitive load but actively reinforce trust, thereby enabling the consumer to confidently execute sustainable purchasing decisions.

Ultimately, alongside the consumer's personal willingness to maintain or repair a product, technology adoption remains a crucial prerequisite; the consumer must actively choose to scan, read, and engage with the interface. To evaluate how interface design influences this initial adoption of digital tools like the DPP, this thesis incorporates the Technology Acceptance Model (TAM), originally developed by (Davis, 1989).

The model proposes that user acceptance of a new technology is primarily determined by two key variables: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). In the context of a DPP for furniture, PU refers to the consumer's belief that using the passport will enhance their shopping experience and assist them in making a smart, sustainable, or economically sound decision. PEOU relates to the cognitive effort required to navigate the interface. If a DPP is cluttered or difficult to comprehend, the high cognitive load will negate its usefulness, causing the user to abandon the tool in favor of habitual purchasing behaviors.

More recent research expands on these core principles by contextualizing TAM within the realm of sustainability. Zhao and Liu (2025) applied TAM to investigate consumer adoption of future DPPs in the textile industry, examining the factors that drive acceptance of the DPP in ethical consumption contexts. They highlight that (PU) is highly dependent on value alignment. When consumers perceive that the sustainability information provided by a DPP aligns with their personal ethical goals, their intention to adopt the tool increases significantly. For this thesis, this finding is crucial. It dictates that to achieve a high intention of use, the interface of a furniture DPP must not only be easy to navigate (PEOU) but must strategically highlight circular values, such as longevity and repairability, to instantly establish this value alignment with the user.

In summary, these theories together reveal that transitioning fully to a circular furniture economy is highly dependent on user adoption, and thus becomes a user experience challenge rather than a purely technical or regulatory one (Bocken et al., 2016; Zhao & Liu, 2025). While frameworks such as the ESPR mandate data infrastructure, human psychology acts as the final gate for circular loops to become as efficient as possible (Ajzen, 1991; Ellen Macarthur Foundation, 2022).

Combining Carrington et al.’s shopping modes with the Theory of Planned Behavior establishes that bridging the intention-behavior gap requires design choices that lower the consumer’s cognitive load during effortful decision-making, thus returning a sense of perceived behavioral control to the user at the point of purchase (Ajzen, 1991; Carrington et al., 2014). Furthermore, from the TAM perspective, the long-term adoption of DPPs relies on balancing PEOU with PU (Davis, 1989). To achieve this, the interface must translate complex ecological indicators into actionable, trusted value propositions, such as economic returns and accessible repair guidance, that instantly establish value alignment with the user’s goals (Mugge et al., 2005; Zhao & Liu, 2025).

Consequently, this theoretical synthesis directly shapes the project’s process and methods. Rather than treating the DPP as a static product, it is approached as a dynamic interaction tool across two distinct contexts: fast, validation-driven acquisition, and long-term ownership. Making both of these contexts as intuitive and friction-free as possible establishes the foundational design requirements for the upcoming generative workshops and prototyping phases.

3

Design Process and Methods

This chapter outlines the research strategy and details the specific methods applied throughout the project. It explains the overarching structure of the thesis and how the chosen methods were adapted to successfully navigate the specific design challenge.

Quantitative data has been collected in the shape of broad surveys in previous macro-level projects. What is primarily lacking in the field of DPPs is in-depth qualitative data regarding the cognitive needs and behavioral requirements of the end-user. Thus, this study takes a qualitative-driven approach that utilizes semi-structured interviews, co-design workshops, and usability testing. However, quantitative elements such as Likert scales are incorporated within these methods to triangulate user responses and provide measurable context to qualitative findings.

Because the DPP remains a largely unexplored concept from an end-user perspective, navigating this novel problem space requires an exploratory methodology. Consequently, Research through Design (RtD) is introduced as the overarching framework, demonstrating how the very act of designing serves as the primary method to generate new knowledge about consumer interactions with the DPP.

3.1 Research through Design

This thesis aims to provide a deep understanding of the current consumer purchasing behavior with regard to furniture to match their needs and requirements. To fulfill this goal, this thesis adopts Research through Design (RtD) as its primary research strategy.

RtD is a research paradigm in which the act of design is used as a method to generate knowledge. According to Zimmerman et al. (Zimmerman et al., 2007), RtD is particularly effective for dealing with 'under-constrained' or 'wicked' problems where no clear solution exists. Instead of merely describing a problem, the researcher takes an active role by proposing and evaluating potential futures through the creation of artifacts. In this study, the design of a DPP interface is not the ultimate goal itself, but rather the research instrument used to provoke reactions and uncover deep-seated consumer needs that would otherwise remain hidden.

The act of 'making' plays a pivotal role in the design process, particularly when exploring complex and ambiguous problem spaces. Sanders and Stappers (2014) emphasize its immense value as a collaborative tool for making sense of the future. They segment the design process into four chronological phases: pre-design, generative, evaluative, and post-design, as illustrated in Figure 3.1.

As seen in this framework, the initial phases of a design process are characterized by a 'fuzzy front end', where the problem space is still ambiguous. Sanders and Stappers argue the need for collaboratively working with future users during this phase, utilizing generative toolkits to uncover latent needs before any definitive concepts are created.

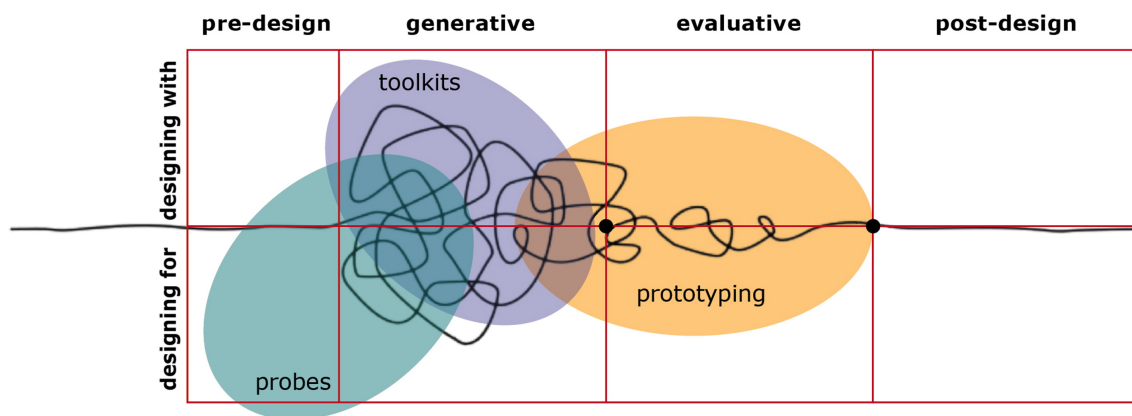


Figure 3.1: A revised framework of three approaches to making. Source: Sanders and Stappers (2014).

This thesis applies this framework, structuring the methodology around the three primary phases shown in the figure. To navigate the fuzzy front end, this project adopts a *designing with* mindset during the generative phase by utilizing toolkits in a co-design workshop, empowering consumers as active co-creators. Subsequently, the project transitions into an evaluative phase with a *designing for* mindset. In this phase, the author assumes the role of the expert designer, synthesizing the collaborative insights into a concrete, high-fidelity prototype. This allows for rigorous usability testing to evaluate how effectively the finalized interface reduces cognitive load and supports sustainable decision-making.

Using RtD, this thesis moves from analyzing existing behaviors to exploring how a designed intervention can alter the decision-making process at the point of purchase. Through this approach, the project integrates the previously discussed theories, namely circular loops, the intention-behavior gap, and TAM, into a tangible prototype. The insights gained through this generative and evaluative process provide the basis for the final design guidelines, offering a bridge between theoretical regulatory requirements and practical user experience.

Because the DPP is still a novel concept in the furniture market, it is inherently difficult for users to articulate their needs for products they have not yet interacted with, and participants often lack the vocabulary to express their future requirements. To navigate this uncertainty and capture latent knowledge, the thesis is structured around the three initial macro-phases proposed by Sanders and Stappers (2014). This approach progresses from a *pre-design phase* aimed at mapping current consumer behaviors regarding furniture acquisition and ownership, through a *generative phase* utilizing a co-design workshop to collaboratively uncover latent needs and ideate future interactions, to an *evaluative phase* where these concepts are validated through high-fidelity prototyping.

Within each of the three macro-phases, the research follows an iterative cycle of divergent exploration and convergent synthesis. For example, initial interviews provide divergent insights into current behaviors, which are then convergently synthesized to structure the generative co-design sessions, a cycle that continues as workshop ideation is ultimately distilled into specific design guidelines.

3.2 Pre-design: Understanding the consumer landscape

The initial phase of the project set out to understand current consumer behaviors, their decision-making processes regarding furniture purchases, and their baseline attitudes towards sustainability data. This phase consisted of semi-structured interviews focused on exploring which DPP functions and design elements consumers find most valuable, ultimately resulting in a prioritized list of content to guide the subsequent design phases.

3.2.1 Semi-structured interviews

The main objective of the initial interviews was to gather information on why or why not participants currently practice sustainable furniture purchasing habits. The interviews were of an exploratory nature, utilizing a semi-structured format which, due to its flexible nature, facilitates the retrieval of participant perspectives and attitudes (Interaction Design Foundation, 2017). Furthermore, the interviews focused more on utility rather than usability. Nielsen (1993) defines utility as whether something provides the features a user needs, and usability as a gauge for how easy and pleasant those features are to use. Since the DPP is not yet available, a focus on utility was prioritized to establish the core requirements and functionalities desired by consumers before refining the interface design.

Participants were recruited through a combination of snowball and purposive sampling via an extended network, and none of the participants had prior knowledge of the concept of DPPs, see Table 3.1. It was important that none of the participants knew the concept, as the goal of the interviews was to receive unfiltered and unbiased comments. Housing situations, income, employment and gender were purposefully diverse to capture a wide spectrum of perspectives. This spread was important to understand needs for people who might be looking into more expensive furniture, as well as consumers with lower purchasing power.

Table 3.1: Initial interview participants.

Participant	Employment	Housing	Age	Gender
1	Parental leave	Renter	31	F
2	Employed	Owner	61	F
3	Employed, two jobs	Renter	31	M
4	Between jobs	Owner	30	M
5	Student	Renter	21	M
6	Employed	Renter	45	F

The interviews lasted approximately 45 to 60 minutes each and were recorded in full to minimize the risk of missing important details. The majority were conducted physically in-office, with some exceptions taking place online via Teams. Participants present in person were able to interact with prototypes on a computer, whereas online participants were presented the interfaces via screen sharing. To simulate a realistic user experience, the online participants were asked to verbally instruct the moderator on where to navigate, mimicking hands-on interaction as closely as possible.

To ensure a logical flow, the interviews were divided into two distinct segments: exploring current behaviors and evaluating future concepts. In the first segment, to triangulate the intention-behavior gap, participants were asked questions about their current behavior regarding purchasing and taking care of furniture, and what a sustainable purchase meant to them. The goal here was to explore existing pain points and establish a behavioral baseline. The interviewer took note of any reflections hinting at a discrepancy between the participants' sustainable intentions and actual habits.

After examining these existing behaviors, the DPP was introduced as a concept and its aims within the furniture sector were explained in detail. Following this, the interviews transitioned into the second segment, structured around two scenarios: buying a new piece of furniture and owning furniture. Within these contexts, participants were aided with two different existing prototypes of a DPP, the first of which is illustrated in Figure 3.2a. The purpose of utilizing two distinct interfaces was not to conduct a direct comparison, but rather to elicit broader reflections. Because the prototypes covered different functionalities and presented varying densities of information, they allowed for a more comprehensive evaluation of the overall DPP concept. Both prototypes were previously untested on end-consumers.

Digital Product Passport

Product name: Decool Vintage Chair
Serial number: 0123 456 789



Height: 80 cm
Seat Height: 40 cm
Max Weight Capacity: 120 kg



38kg CO₂ savings with this circular product

Condition:
Very good

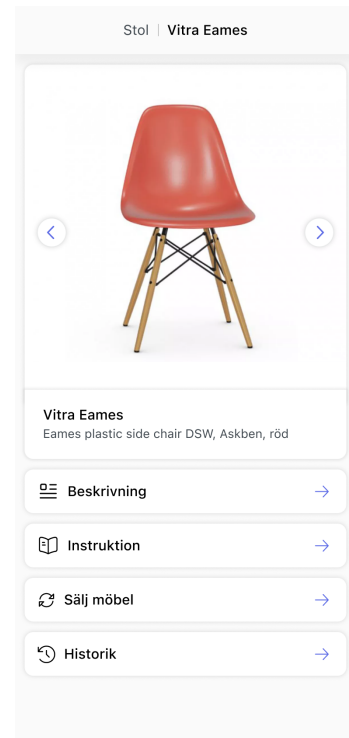
- One minor scratch observed on the leg



Estimated Value:
120€

- Used and refurbished once
- Original retail price: 199€

Product Lifecycle



(a) The interface of a DPP resembling an e-commerce setting, reproduced from (Krüger et al., 2025).

(b) An interface resembling a furniture ownership context. DPP prototype reproduced from within the Möbelpass project (Chalmers Industri teknik, 2024).

Figure 3.2: Two prototypes of DPPs, not yet tested on end-consumers

The first interface contains less information in comparison to what the EU regulations plan to encompass, but rather serves as a conversation starter in the context of DPPs. During the first scenario the user was asked different provocative questions, aiming to understand how the participant would act on the information a DPP might provide, exploring what type of information may alter purchasing intentions. The scenario concluded with three likert-scale questions, asking participants to place a number between 1-6, referring to likeliness of using the DPP in different contexts, all relevant for a smooth DPP implementation. The likert-scale deviated from the most common 1-5 to disengage users from placing a neutral number, forcing them to take a positive or negative stance.

The second scenario followed immediately afterwards, placing users in a context of having bought the furniture of the first scenario and now acting as if they owned it and was scanning the data-carrier on the furniture from home. This scenario took place multiple years after the initial purchase. A second prototype of a DPP interface was introduced, this one designed for the owner phase and offering more details on how to maintain the furniture; see Figure 3.2b.

This scenario aimed to further explore the circular behavior of consumers, more specifically how inclined they are to repair, maintain, and extend furnitures life by selling them.

To conclude each interview, participants engaged in a prioritization exercise using physical notes, ranking what they felt was most necessary to see when opening a DPP. After the placements were made, these choices were questioned to uncover the underlying motivations and requirements for the future design of the DPP.

3.2.2 Analysis

The analysis aimed to uncover behaviors and underlying needs that participants might not explicitly articulate. As highlighted by Sanders and Stappers (2014), accessing tacit and latent knowledge requires looking beyond what people simply state during an interview. Therefore, the analytical approach was specifically adapted to explore contradictions, hesitations, and nuances hiding in the details of the participants' reflections. Because empirical data regarding consumer perspectives on DPPs is scarce, this analysis focuses on establishing an initial behavioral baseline, directly translating the raw interview data into the foundational themes required to structure the subsequent co-design sessions.

The data gathered from the interviews was both quantitative and qualitative, consisting of both measurable data points, such as Likert scales, as well as insights from participants own behavior. The quantitative data was structured in different graphs and placed in comparison to what the person expressed during the interviews, to uncover differences in what the participants say versus what they do.

Initially, the data gathered from the interviews was transcribed using Microsoft Word's transcription tool to accelerate the process. These transcriptions were double checked for errors simultaneously as comments of interest were placed onto post-it notes in the digital tool Figma, in the creation of a KJ-analysis. A KJ-analysis, also known as *Affinity Diagram*, is a method that sorts large amounts of data into themes, in order to easily get an overview of the data gathered (Beyer & Holtzblatt, 1997).

In the context of this study, the extracted data points were iteratively sorted into specific themes that corresponded to the participants' latent needs and expectations regarding furniture consumption. Through multiple iterations, the categories were continuously refined, ultimately distilling the raw data into actionable design requirements to inform the upcoming generative co-design sessions.

The result of this phase was insights into how consumers currently act in the context of buying furniture, and how the implementation of a DPP might change their behavior. Furthermore, it resulted in an overall understanding of the difference between personalities, and how different types of personalities might use the DPP differently. It brought valuable data for both research questions of the thesis and provided a basis to start the next phase on.

3.3 Generative phase: Co-designing the DPP experience

Building on the insights gathered during the previous phase, the project transitioned into phase two, the generative phase. This stage is characterized by what Sanders and Stappers (2014) describe as the “fuzzy front end” of the design process, a space of uncertainty where the goal is to explore latent needs and future possibilities rather than evaluating existing solutions.

While the first phase focused on *designing for* users by observing their current behaviors, this second phase adopted a *design with* mindset. By involving consumers as active co-designers in a workshop setting, the process aimed to tap into their creative potential and collective experience. This participatory approach was essential to move beyond surface-level requirements and instead uncover the deeper values and functionalities that would make a DPP truly meaningful in a real-world context.

3.3.1 Co-design workshop

To convert spoken words and desires from the initial interviews into tangible guidelines, a co-design workshop was conducted. The only prerequisite of the workshop was to have bought furniture once, ensuring that all participants possessed relevant lived experience. In contrast to the interviews, the workshop began with an introduction to the DPP as a concept, ensuring that all participants were knowledgeable enough of the possibilities of their own design.

A total of eight participants were recruited for the generative workshop and divided into two distinct groups focusing on different contexts: new furniture acquisition and long-term furniture ownership. The recruitment utilized a convenience sampling approach, drawing from the researcher’s immediate network. Regarding their prior expertise, six of the participants had no experience in design, the furniture industry, or DPPs. The remaining two possessed a background in design, though none of the eight participants had any prior knowledge of the DPP framework. While convenience sampling introduces certain limitations regarding broad demographic representation, it was deemed highly appropriate for this specific phase due to the collaborative nature of co-design. Generative sessions require a high degree of psychological safety for participants to feel comfortable expressing unconventional thoughts, interacting with design toolkits, and uncovering latent needs. A baseline of familiarity helps rapidly establish this necessary trust. Furthermore, the objective of the workshop was not to map demographic differences, but rather to access cognitive models and creative ideas regarding the specific situational contexts of buying and owning furniture.

The participants were divided into two evenly sized groups; see Table 3.2. One team was assigned the context of acquiring new furniture and the other was given the context of already owning the furniture. While the overall recruitment was based on convenience, the division of the teams was purposeful. To foster dynamic discussions and diverse perspectives, the groups were drafted to be behaviorally heterogeneous. Specifically, care was taken to ensure that neither team consisted solely of consumers who exclusively buy new furniture nor only those who buy second-hand.

Table 3.2: Workshop participants distributed in two groups.

Group	Participant	Employment
Acquisition	1	Student
	2	Employed
	3	Employed
	4	Employed
Ownership	5	Student
	6	Employed
	7	Employed
	8	Employed

The co-design workshop was hosted in office and the session lasted 75 minutes. It was structured into three main segments: a brief warm-up, a generative team exercise, and a concluding cross-presentation. To prepare the participants for the creative tasks, the session began with a rapid individual ideation exercise. Adapted from the established 'Crazy 8s' design sprint method, this 'Crazy-4' format required participants to rapidly respond to four consecutive prompts under strict time constraints. These prompts ranged from word associations regarding a successful furniture purchase to sketching visionary DPP concepts, see Appendix A.2. This individual exercise served to prime the participants, transitioning their cognitive state from verbal reasoning to visual ideation, while also revealing their intuitive mental heuristics regarding sustainability.

Following the warm-up, the participants were divided into their respective groups (Acquisition and Ownership) for the main generative task. Each team was instructed to collaboratively design their ideal DPP interface tailored to their specific scenario. Specifically, the Acquisition group was prompted to explore and design an interface that ensures a furniture purchase feels like a secure, long-term investment. Conversely, the Ownership group was tasked with designing a DPP that makes keeping, maintaining, and fixing furniture the most viable and intuitive choice. To facilitate this, they were provided with a physical generative toolkit consisting of blank, low-fidelity wireframe templates, icons, and basic drawing materials, see Figure 3.3 for the workshop environment and Appendix A.3 for full toolkit contents. The low-fidelity nature of the materials was deliberately chosen to lower the threshold for participation, encouraging conceptual exploration over aesthetic perfection (Sanders & Stappers, 2012). During the design phase, the researcher acted as a facilitator, actively probing the teams to articulate the reasoning behind their intuitive design decisions.



Figure 3.3: The setup of the Co-design workshop, one team in each end of the table

The workshop concluded with a presentation phase, where each team showcased and defended their DPP concepts to the opposing group. This setup naturally encouraged peer-questioning and constructive critique. Finally, a moderated discussion was held to cross-validate the findings. Topics and pain points identified during the initial the pre-design phase interviews were brought up to see if they resonated with this larger group after having discussed between themselves.

3.3.2 Analysis

The primary objective of the analysis in the generative phase was to synthesize the co-created concepts and cross-validate them against the findings from the initial interviews. To achieve this, both the audio recordings and the physical artifacts generated during the workshop (such as wireframes and sketches) were thoroughly reviewed and integrated into the existing affinity diagram established in the pre-design phase. Data points and design features that aligned with previous findings were added to the established clusters, strengthening those insights. Meanwhile, novel ideas and requirements that emerged from the co-design exercises formed new thematic groupings. Unlike the first phase, no quantitative data was collected. Instead, the analysis focused entirely on interpreting the qualitative reasoning behind the participants' design decisions and mapping the functional elements of their proposed DPP interfaces.

With the combined KJ-analysis of the pre-design phase and the generative phase, design requirements were drawn from the thematic groupings. These requirements were later used to shape the design artifact for the final evaluative phase.

3.4 Evaluative phase: Prototyping and usability testing

The final phase of the project was dedicated to evaluating the design artifact developed from the insights of the previous stages. In alignment with the Research through Design (RtD) methodology (Zimmerman et al., 2007), a high-fidelity prototype was utilized as a vehicle for inquiry rather than merely a final product to be validated. By letting participants interact with a tangible representation of a DPP, the objective was to move beyond abstract discussions and instead trigger spontaneous reactions and behavioral insights in a simulated usage context.

While the primary focus remained on the qualitative experience and the perceived value of the information provided, the sessions also incorporated elements of usability testing. This dual approach was necessary to validate if the proposed design requirements successfully bridged the gap between the participants' expressed sustainability intentions and their practical needs during furniture acquisition and ownership.

3.4.1 The making of the design artifact

With all data gathered conveniently in one place, prototyping of the design artifact commenced. The development of the prototype builds on crucial insights gathered from the two previous phases. From the analysis of the pre-design phase and the generative phase, three different parameters were identified as especially interesting. To systematically evaluate the design artifact, the prototyping process was structured around these three parameters, serving as a testing vehicle for them. The parameters are as following:

- **Trust and Transparency:** Evaluating how well the interface communicates the provenance and sustainability metrics of the furniture.
- **Sense of Investment:** Assessing whether the interface successfully shifts the user's cognitive model from seeing furniture as a consumable to a long-term asset.
- **Usability and Efficiency:** Testing the ease of access and the speed at which users can navigate to relevant information.

Each one of those three were iterated upon with the use of sketching and research, while constantly being cross-checked with the design requirements derived from earlier phases. To better capture the emotional responses of the participants, such as perceived trust and sense of investment, a high-fidelity prototype was designed (Sauer & Sonderegger, 2009). By integrating these specific dimensions into the high-fidelity prototype, subsequent testing sessions could focus on measuring behavioral responses rather than generic usability feedback. The prototype was constructed using the digital design tool Figma. Rather than developing an exhaustive system, the prototyping effort was strategically scoped to focus on critical user journeys.

The prototype provided sufficient navigational depth within these core flows, allowing participants to explore the logic of the system and accurately derive the complete information architecture of the proposed DPP.

The design of the prototype drew upon established research on consumer behavior and sustainable design. To address the parameter of trust, the design adapted conceptual insights from Torma and Thøgersen (2021), specifically their findings regarding the need to re-evaluate how sustainability data is presented to consumers. Furthermore, to foster a sense of investment, the prototype incorporated factors to strengthen the relationship between the product and the person (Mugge et al., 2005). Finally, the general usability and efficiency of the prototype was ensured through the application of established UX heuristics and the researcher’s own expertise in interaction design.

The prototype designed in the evaluative phase was intentionally structured to match the scenarios in which the participants participated during the pre-design phase. Specifically, two distinct interfaces were created within this prototype: the first detailing an acquisition context in an e-commerce setting, and the second covering the view a consumer might see when scanning the QR-code at home (the resulting interfaces are presented and detailed in Section 4.3).

3.4.2 Implementing the artifact in evaluation testing

For the final evaluation tests, a new set of participants was recruited. These sessions were structured as semi-structured interviews. While the scenarios mirrored those from the pre-design phase, participants in this phase were required to navigate the prototype independently using a concurrent think-aloud protocol (Nielsen, 1993). Participants were given specific tasks and instructed to continuously verbalize their thoughts and actions as they interacted with the interface. To observe navigation and assess usability without obstructing the participant, the moderator positioned themselves at a slight angle, allowing for simultaneous observation and note-taking.

Moderator intervention was strictly limited during the tasks. If a participant asked a question, the moderator employed neutral responses or redirected the inquiry to maintain an open-ended environment. For instance, if a participant asked, “Should I make a decision now?”, the moderator would simply reply, “If you feel you have all the information you need to make a decision, sure.”

Consistent with the initial exploratory phase, the sample consisted of six individuals. These participants were purposefully selected to ensure an even distribution across gender and occupation, see Table 3.3. As in previous phases, this group was recruited through convenience sampling from the author’s extended network.

All of the interviews in this phase were conducted in-office, with each lasting between 45 and 60 minutes. Similarly to the first interviews, participants were initially asked questions about their current habits regarding furniture purchases and ownership.

Table 3.3: Evaluative interviews participants.

Participant	Employment	Housing	Age	Gender
1	Employed	Owner	37	M
2	Student	Renter	27	F
3	Student	Renter	27	M
4	Student	Renter	26	M
5	Employed	Owner	61	F
6	Employed	Owner	40	F

This was done to invite participants into the theme of the upcoming test, as well as to generate a comparative point to explore potential intention-behavior gaps.

Like in the pre-design phase, participants were presented with context-specific scenarios. In this phase, in order to evaluate the concepts, tasks were given for the participants to complete. The first task placed participants in a simulated e-commerce environment, presenting an interface with two different sofas available on a retailer website. To mitigate the influence of personal financial bias, participants were given a set fictional budget. This constraint acted as a baseline, ensuring that the participants' personal economic situations did not skew their interaction with the interface. In this first scenario, participants were asked to explore the provided DPP data for both sofas to whatever extent they wished, and subsequently make an informed purchasing decision.

To test what factors influenced purchasing decisions, the two sofas had different price tags. The cheaper sofa was set at 6000 SEK, matching the budget given to the participants. The more expensive sofa had a price tag of 10, 000 SEK. In the enacted scenario, participants were told that it would be possible to extend their budget, but that it would hurt economically to choose the more expensive sofa at the point of purchase.

To justify the higher price and test the participants' willingness to prioritize circularity, the more expensive sofa was given superior DPP metrics. Specifically, its interface displayed a higher repairability score, transparent material provenance, and clear documentation supporting a strong resale value. The cheaper sofa, in contrast, offered a standard product profile with limited circular information. This distinct contrast allowed the evaluation to measure how participants weighed upfront economic friction against long-term circular value.

During the second scenario, where participants had chosen a sofa, they were asked to navigate the view detailing the ownership of the chosen sofa. During this scenario, tasks were given to the participants regarding maintenance and repair acts.

To conclude the evaluative interviews, the Likert-scale questions originally introduced in the pre-design phase were readministered. The primary rationale for reusing these specific questions was to enable a direct comparative analysis against the empirical baseline established in Phase 1. By contrasting the initial data with the post-interaction responses, it became possible to quantitatively assess any shifts in the participants' attitudes, perceived trust, or behavioral intent resulting directly from their engagement with the high-fidelity prototype.

3.4.3 Analysis

The quantitative data provided by the readministered Likert-scale questions were compiled and compared with the baseline data established in the pre-design phase. This comparison was made to see if the interaction with the high-fidelity prototype had shifted the participants' perceived trust and behavioral intent.

The recordings from the think-aloud sessions and semi-structured interviews were transcribed and thematically coded. The qualitative data was structured using the three core parameters presented in Section 3.3.1 (Trust and Transparency, Sense of Investment, and Usability and Efficiency) as a coding framework to evaluate the overall user experience and usability of the interface.

4

Results and Design Outcomes

The results are divided into three segments, each corresponding to one of the previous phases. The first section presents the findings from the initial interviews, which utilized existing DPP prototypes to map baseline consumer needs and behaviors regarding sustainable furniture consumption. The second section covers the co-design workshop and the design generation by participants, as well as comparisons to the results of the initial interviews. Finally, the third section presents the results from the usability testing and evaluative interviews conducted on the custom-designed interface of a DPP.

4.1 The current state and the Intention-Behavior Gap

To effectively ground the upcoming design work, a crucial initial objective was to map how consumers actually navigate the process of buying and owning furniture. The initial interviews revealed that furniture acquisition is rarely a straightforward, linear journey. Instead, it is a personal and financially significant process where consumers balance long-term desires against immediate practical limitations. While almost all participants expressed a strong narrative of wanting to make thoughtful, high-quality, and sustainable choices, their actual behavior in retail environments often told a different story. When asked to conceptualize sustainability in the context of furniture, participants frequently associated the term with high-quality materials, durable construction, and ethical production methods. However, these values are consistently overshadowed by factors such as price, comfort, and aesthetics.

Unlike everyday consumer goods, furniture acquisition is inherently defined by a highly personal aspect of consumption. The interviews highlighted that the choice of furniture acts as an extension of the participant's personality. A consumer's baseline personality, whether predominantly aesthetic or highly pragmatic, colors all their purchasing decisions. For instance, a person with a strong preference for a certain style will place high demands on appearance even when buying a piece of furniture aimed at filling a specific functional need. Likewise, a highly pragmatic consumer will actively seek functional value even within furniture intended mostly as decoration.

Through a thematic synthesis of these implicit patterns and reasoning observed during the interviews, this underlying personal complexity was found to primarily manifest into three primary motivational drivers, depending on the specific type of furniture being considered. The first driver is strictly functional, characterized by the need to fill a practical gap within the household. This essentially means acquiring an item that the consumer currently lacks to fulfill a fundamental need. The second driver revolves around lifestyle enhancement; in these instances, the purchase is not driven by acute necessity, but rather by a desire to elevate the overall comfort or quality of the living environment. Finally, the third driver is purely aesthetic, where furniture is acquired primarily for its decorative value and visual expression, rather than its practical utility. These three drivers bring with them different prioritizations for the acquisition of furniture, adding to the complexity of the mental models of consumers at the point of purchase.

Furthermore, the empirical findings from the interviews strongly align with the framework established by Carrington et al. (2014), confirming that consumers operate within distinct, shifting 'shopping modes'. Interestingly, while Carrington et al. primarily developed their framework within the context of everyday fast-moving consumer goods, the interview data in this study demonstrates that these dynamic cognitive modes also translate to high-involvement durable goods such as furniture. Despite the vast differences in price and purchase frequency between groceries and furniture, the participants described a similar tendency for well-planned intentions to unravel at the actual point of purchase, but for different reasons. Because furniture consumption is so deeply personal, the data showed that even the most meticulous consumers, who typically desired comprehensive information and actively sought out sustainability labels, ultimately justified recent purchases based on immediate comfort and low cost.

All in all, these factors blend together to shape a highly variable context, highlighting the need for DPPs to cover a wide variety of needs in their design.

4.1.1 The acquisition mindset

Building upon the identified motivational drivers, the interview dynamics demonstrated that a consumer's information prioritization is heavily dependent on the specific active driver at the time of purchase. For strictly functional purchases, consumers appeared to primarily seek objective data regarding spatial dimensions, durability, and practical utility. In contrast, discussions surrounding lifestyle-driven purchases were observed to shift the focus toward tactile comfort and material quality, whereas the purely aesthetic driver naturally prioritized visual expression and personal taste.

Further synthesis of the interviews revealed that the influence of shifting 'shopping modes' could severely disrupt these initial prioritizations. For instance, a pragmatically-inclined consumer may rigorously plan a purchase to find the ultimate deal, becoming well-read on all available information. However, when placed in a physical store, the immediate availability of a functionally identical but cheaper alternative frequently overrides the initial plan. During that shift in purchasing intention, the person reads much less information regarding the new piece of furniture, instead acting solely on the more accessible cost. As consumers transitioned from an aspirational planning phase to the pragmatic reality of the retail environment, many metrics, including sustainability metrics, were consistently marginalized. Regardless of the initial motivational driver, immediate personal factors, specifically upfront price, immediate aesthetic compatibility, and comfort, emerge overwhelmingly as the final deciding factors. Ultimately, the choice of furniture remains highly personal, and this deeply individual aspect of purchasing behavior is frequently what obstructs the execution of a more sustainable choice.

As seen by the responses to the first two likert scale questions, see Figure 4.1, there is a clear decrease in interest in using the DPP in a retail environment compared to an e-commerce environment. When asked why, the most frequently used argument for this was the aspect of time. It was obvious that pre-existing mental models of information being served to you in a retail-setting heavily skewed this result. Additionally, participants argued that the physical retail environment provides haptic reassurance; physically feeling the sturdiness of the furniture acts as an experiential guarantee of its longevity, rendering the digital DPP data somewhat redundant. Consequently, from the consumer's current perspective, the motivation to actively engage with a product passport is heavily restricted to high-involvement purchases. This highlights a critical behavioral barrier: while transparency is arguably most needed to expose unethical practices in low-cost, mass-produced furniture, consumers currently lack the intrinsic drive to consult sustainability data when the financial stakes are low.

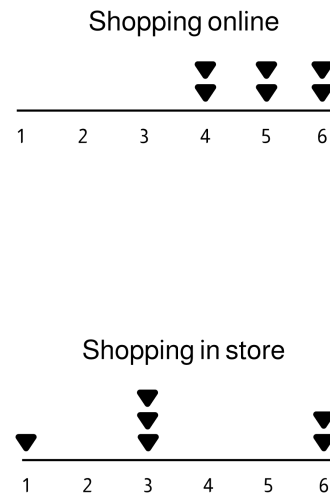


Figure 4.1: Participant ratings indicating the likelihood of using the DPP in an online environment versus a physical retail environment.

This hesitance to use a DPP in retail environments was closely linked to a deeper skepticism about its capacity to actually change behavior. Data from the third Likert scale question revealed that no participant could say with certainty that the DPP content would affect their purchase. This indicates that sustainable ambitions are easily sidelined; even for meticulous consumers, pragmatic factors like aesthetics, function, and price remain the ultimate tiebreakers. When prompted to explain this disconnect between sustainable intent and actual decision-making, participants reasoned as follows:

“I’m not sure actually. It wouldn’t affect my decision entirely if I’ve fallen in love with it. In that case, sustainability would become secondary. The aesthetic is the most important factor”.

Another participant on how financial reality often trumps sustainability data:

“It would affect me little bit, yes. If the carbon footprint is really bad or if the materials are subpar. But it’s hard to say, because it completely depends on the final cost. It is very dependent on how much money I’m supposed to pay for it. So I would say a three out of six.”

Although both previous Likert placements each saw two people guaranteeing that they would use the DPP in an online-setting or in-store, no participant indicated the maximum likelihood (6 out of 6) that the information presented would affect their decision, see Figure 4.2. The most frequent reasoning highlighted how emotional attachment overrides data: “If I find a piece of furniture that I love and fits my need, I will buy it regardless.” Nevertheless, a significant behavioral paradox emerged during follow-up inquiries. While participants downplayed the general

influence of a DPP, every single individual admitted that specific negative data points would act as absolute dealbreakers. These dealbreakers were exclusively situated within the realm of social sustainability; unethical production, poor working conditions, and specifically child labor were universally cited as reasons to abort an otherwise desired purchase. Interestingly, while participants opposed such practices in theory, none actively verified the absence of child labor when buying furniture. This disconnect is cited as largely due to the difficulty in obtaining such data in current retail environments. However, it connects strongly with the concept of perceived control, where consumers tend to act more sustainably when transparent information is easily accessible. Ultimately, these findings suggest that if a DPP can effectively surface these critical individual dealbreakers, it has a strong potential to disrupt habitual buying patterns and guide consumers toward more sustainable choices. This insight directly informed the design of the evaluative phase, where

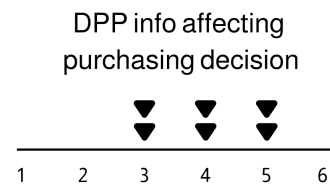


Figure 4.2: Participant ratings indicating the likelihood of DPP information affecting purchasing decisions.

two contrasting product profiles were developed to test which visual elements and information density would trigger these critical 'dealbreakers' in a live interface.

These complex mindsets became highly concrete during the physical information-prioritization task. When tasked with screening and selecting data labels specifically for a new purchase, participants consistently prioritized immediate validation metrics. Information regarding country of origin, warranties, and certifications was universally ranked highest. Noticeably, detailed technical repair data was actively marginalized at this stage. Despite participants previously stating a desire for long-lasting furniture, presenting maintenance information at the point of purchase induced negative associations of product failure or impending labor, rather than an indication for the furniture being maintainable.

This specific need for validation over maintenance was further reflected when participants evaluated the existing DPP prototypes. Even though the initial interviews were conducted as exploratory sessions with little focus on usability, participants still gave valuable reactions to the existing prototypes of DPP interfaces. The first interface, which was designed to cover the setting of purchasing furniture, received mixed remarks. The conciseness of the interface was regarded as positive, as one user said:

"It feels like it was very easy to understand, clear, kind of"

This interface also displayed comparisons next to their carbon emission infographic, which was appreciated by all participants, as heard by one:

"That makes it so that I can grasp the numbers"

However, the negative remarks outweighed the positive ones, and comments indicated a major lack of trust in the interface. Quotes such as "It feels like a very easy thing for a company to just throw together to increase sales" and "How do you calculate that? Or rather, who decides that?" were given regarding information that could increase sale price. More doubts similar to these arose, indicating that transparency as to where this information stems from is an absolute necessity for the consumer to trust it. Certificates and well known indexes were given as examples for raising trust. Another detail mentioned as lowering trust was the visual hierarchy and typographic sizing. Important information was kept unusually small, which two participants pointed out as annoying, whilst adding a question whether this was purposefully done to steer the consumer away from this information. In other words, there was a desire from participants that this information becomes more prominent, since those are factors where trust can be instilled.

The key takeaways from evaluating this interface were that while consumers prefer a clear and easily navigable overview, this simplicity must be balanced with verifiable, trust-instilling data; otherwise, the interface loses all credibility. Furthermore, the visual design must convey a high degree of professionalism and polish to reinforce that trust.

4.1.2 The realities of furniture ownership

When exploring the ownership phase, participants were asked how they currently care for their furniture and how they act when a piece breaks. All participants reported making at least some attempt to repair broken furniture, indicating a strong theoretical desire for product longevity. However, this desire was directly contradicted during the earlier information-prioritization task, where four out of six participants marginalized repair information as a non-essential feature for a DPP. This discrepancy suggests that at the point of purchase, the participants may overlook long-term product lifespans or the eventual risk of product failure in favor of immediate validation metrics. This mindset contradicts how consumers frequently reason about their purchases; while they claim to buy furniture based on sentimental value and aesthetics with the intention of it lasting a long time, they actively reject information related to future care necessary to ensure that longevity.

This contradiction deepened when discussing the extension of product lifecycles. While the majority of interviewees expressed strong positive emotions towards extending a product's life by purchasing it second-hand, this enthusiasm completely vanished when discussing the proactive life-extension of their already owned furniture. The findings suggest that the act of acquiring a product, even a used one, elicits a stronger positive emotional response than spending the equivalent time or money on maintaining existing possessions. Furthermore, participants exhibited a noticeable lack of trust regarding the outcome of repairs, doubting whether a restored piece could offer the same functional lifespan as a newly purchased item. Consequently, even when a piece of furniture held significant sentimental value, the required maintenance was perceived as an insurmountable burden.

Beyond these emotional barriers, a clear distinction emerged between reactive repair and proactive maintenance. While reactive repair was reported as highly prevalent, proactive maintenance was almost universally viewed as an undesirable chore. However, this negative attitude shifted dramatically when the concept of Return on Investment (ROI) was introduced. When asked if they would log maintenance in a DPP provided it verifiably increased the resale value of the furniture, all participants responded positively. This indicates that consumers rarely consider the financial resale value of their furniture until explicitly prompted. Once maintenance is reframed from an obligatory chore to a financial investment, the user's willingness to engage with it increases significantly.

The second prototype, which illustrated an interface tailored for the ownership phase, was well received overall regarding its structural layout. Participants felt it provided sufficient perceived control to navigate the system easily. However, multiple participants experienced the interface as highly information-dense, leaving little tolerance for what could be perceived as unnecessary, unclear data. The exact phrasing of the menu items caused significant friction; users quickly felt cognitively overloaded when the large volume of information failed to guide them effectively, and vague terminology re-triggered the negative associations tied to proactive maintenance. The first list item, "Description", was immediately questioned, with one user stating:

“I don’t open the passport just to read a description of a furniture I have at home”.

More notably, the menu item labeled “Instructions” was criticized for being vague and invoking a sense of unguided labor. Comments regarding this included:

“Nothing in this list indicates where I can find information regarding repair,”

and

“If I were to fix something, I would like a button that says ‘repair’ or something along those lines. Description, Sell Furniture and History is clear enough, but Instructions? What does that mean, for what?”.

The primary insight drawn from the evaluation of the ownership interface is that textual information must be unambiguous and highly task-oriented. Information architecture in a DPP cannot rely on broad, generic terms; it must be deeply contextualized to reflect the user’s specific goals, such as reactive repair or financial resale, rather than reminding them of general maintenance obligations.

In summary, the empirical insights from this exploratory phase mapped the specific parameters of the intention-behavior gap in furniture purchasing. Immediate economic friction, cognitive overload, and emotion clearly suppress sustainable intentions. The precise barriers identified, specifically the tension between upfront costs, complex ethical data, and the desire for functional adaptability, highlighted that the core challenge is not a lack of consumer ambition. Rather, it is a lack of actionable interface design. The way consumers naturally choose to resolve these specific tensions therefore became the central focus of the subsequent generative phase.

4.2 Co-designing the DPP: Translating values into interfaces

To translate the behavioral insights from the initial interviews into tangible design elements, a co-design workshop was conducted. The session progressed from individual ideation exercises, designed to capture abstract associations with sustainability, into focused group design tasks targeting either the acquisition or the ownership phase. Rather than evaluating technical feasibility, the objective was to uncover how consumers naturally structure and prioritize information when given absolute creative freedom.

4.2.1 Acquisition design: Emotional security and the “Am I a bad person?” threshold

During the individual ideation phase, participants were asked to document factors associated with a successful furniture purchase, deliberately omitting the word “sustainability” from the prompt. The responses revealed that consumers naturally prioritize metrics inherently tied to a circular economy, specifically quality and lifespan. Interestingly, when the group later discussed the concept of sustainability, their linguistic framing shifted the definition away from ecological metrics and toward personal attachment. To the participants, a sustainable product was essentially one that retains its value and interest to the owner over an extended period.

Guided by this emphasis on lasting relevance, the generative design phase for the acquisition interface focused heavily on establishing emotional and financial security. Before sketching any data points, the group formulated three fundamental questions that a DPP must implicitly answer to validate a purchase:

1. *“How can this fit my current living space, and adapt to it some years into the future?”*
2. *“Can I afford this?”*
3. *“Am I a bad person for buying this?”*

By comparing the individual sketches, which focused on sturdy materials and physical lifespan, with the group’s resulting first question, a significant thematic shift appears. Initially, the group had lively discussions about how a piece of furniture becomes a smart long-term investment, focusing heavily on material composition and warranties. Ultimately, the final phrasing of the question reveals that consumers evaluate these investments more through the lens of sustained relevance and adaptability. This suggests that the desire to keep a piece of furniture is driven less by its physical invulnerability and more by its functional flexibility over time, a finding that aligns closely with established theories on emotional durability and person-product attachment (Mugge et al., 2005).

While participants emphasized product longevity during the initial discussions, the economic evaluation quickly reverted to immediate financial realities. The question of whether a consumer can afford the item demonstrates that despite long-term circular ambitions, the upfront cost remains the primary gatekeeper for acquisition. To overcome this barrier, the group engaged in extensive discussions regarding a product's secondhand value, expressing a strong desire to see this future financial return explicitly visualized within the interface. This demand aligns perfectly with the empirical baseline established during the pre-design interviews, reaffirming that cultivating a clear "sense of investment" is crucial to altering purchasing behavior. Economic sustainability in the DPP must therefore clearly display this long-term investment value, providing the consumer with the necessary financial data, such as cost-per-year and projected resale potential, to justify a higher initial purchase price.

The final question regarding ethical values initiated the layout of the interface itself. Although the group spent significant time debating complex ethical supply chains, they ultimately condensed these intricate moral dilemmas into a binary psychological threshold: *"Am I a bad person for buying this?"* This specific phrasing signals that consumers require a rapid filtering mechanism rather than dense ethical reports during the purchasing phase. Translating this need into their final sketch, the group visualized these filters as three large, highly visible front-page icons representing Social, Environmental, and Economic Sustainability, designed to act as a rapid screening tool before giving access to deeper data layers; see Appendix A.4.

During the concluding cross-presentation phase, this design rationale was pitched to the opposing "Ownership" group, expanding the discussion to how the DPP would operate in a real-world retail environment. One participant highlighted a need for asynchronous information retrieval, stating: *"Use it? Definitely, but I would scan all the interesting furniture first and read the information later."* This reaction indicates that the interface must support a flexible user journey, allowing consumers to quickly collect data on-site without feeling pressured to process complex metrics under stressful retail conditions.

Furthermore, the peer critique exposed the situational boundaries of DPP utility. When discussing impulse buying and low-stake purchases, another participant noted: *"If it's an impulse purchase... there's a lower chance. I'm in the heat of the moment. [...] A small table at a flea market, I don't think so."* This distinction strongly aligns with the pre-design interviews, confirming that the perceived value of a DPP is highly dependent on the financial risk of the purchase. For high-involvement products like a new sofa, the DPP provides essential security, whereas for cheap, secondhand items, the cognitive effort of evaluating product history is perceived as redundant.

To bridge this gap and engage more spontaneous shoppers, the group discussed how to trigger a behavioral shift, placing focus on the need for an engaging and immediate overview. Rather than completely eliminating large amounts of regulatory data, this demand highlights the necessity for a layered information architecture. Combined with the earlier insight regarding the emotional aversion to moral guilt, this establishes a vital design requirement for the upcoming prototyping phase: the interface must implement a strategy of progressive disclosure. By placing clear, low-friction visual indicators on the primary interface layer to offer immediate reassurance, the DPP can satisfy impulsive behaviors on the surface while still preserving the comprehensive, text-heavy documentation required within deeper data layers.

4.2.2 Ownership design: Visual real estate and user empowerment

During the individual ideation phase, several forward-looking concepts emerged regarding how users could seamlessly interact with a product’s digital identity over time. A prominent idea was the integration of image recognition technology—similar to tools like Google Lens—where an owner could simply take a photo of their furniture to instantly retrieve its digital product passport. Interestingly, this emphasis on fluid, physical-digital interaction was immediately mirrored in the early stages of the group discussion. When tasked with designing an interface that makes maintaining and repairing furniture the most viable choice, the participants quickly connected this scanning concept with a specific choice of medium, opting to design their DPP layout within a desktop frame rather than a mobile interface.

This deliberate architectural decision highlights a distinct user requirement for the ownership phase: the need for substantial visual space. The group argued that while the initial acquisition phase is characterized by rapid, on-the-go screening in retail environments, post-purchase management demands a different cognitive space. Tasks associated with long-term ownership—such as diagnosing wear, sourcing compatible spare parts, or following technical troubleshooting guides—are inherently more complex. Consequently, consumers express a strong preference for transitioning from a quick mobile scan to a larger screen, allowing them to navigate the interface in the comfort of their home, with their hands free to perform maintenance tasks.

Within this desktop layout, the group prioritized a clean information hierarchy, employing large content cards for instructional videos and a prominent, central display of the physical item. Interestingly, this design language closely mirrored the acquisition group’s preference for scannable, image-heavy layouts. A particularly notable synergy emerged regarding interactive product visualization; both groups independently suggested a feature where users could click directly on specific components of the furniture to retrieve data. While the acquisition group envisioned this as a tool for material exploration, the ownership group expanded it into a dynamic exploded-view drawing to facilitate part identification and maintenance troubleshooting.

While such highly interactive, component-level mapping represents an idealistic best-case scenario that may stretch the technical limits of standard DPP implementation, this demand carries a significant underlying implication. It highlights that consumers reject traditional, hierarchy-driven text menus. Instead, they expect contextual, object-focused navigation where the digital interface directly mirrors the physical geometry of the product. Consequently, while a fully interactive exploded-view was outside the scope of the final prototype, this insight established a vital UX requirement: the interface must remain strictly visual and intuitive, ensuring that maintenance documentation feels directly tethered to the physical object.

A highly significant synergy also emerged regarding how both groups envisioned the DPP interacting with the wider circular ecosystem. Independently of each other, both the acquisition and ownership teams expressed a strong desire for the interface to feature a direct, built-in gateway to the secondhand market. Prospective buyers wanted the ability to instantly compare a new product's data against available secondhand listings of the exact same model, while current owners sought a streamlined method to track active market demand. While embedding cross-platform secondhand listings may challenge traditional, closed-loop corporate business models, this shared demand highlights that consumers view the DPP as an open infrastructure rather than a static manufacturer catalog.

This desire to bridge current ownership with the secondary market directly informed the group's layout requirements. Specifically, the ownership team argued that the interface should allow users to preview the furniture's 'buyer profile', essentially viewing their asset through the lens of a future owner. This feature would enable current owners to instantly see how their product's verified history, maintenance record, and projected resale value would appear to a buyer. Visualizing this transition acts as a powerful circular incentive; by making the future economic return tangible and transparent within the app, the DPP actively encourages long-term maintenance and elevates the furniture from a depreciating purchase to a trackable financial investment. See the interface sketches in Appendix A.5.

Beyond the physical layout, the group prioritized user empowerment by addressing the psychological barriers to product repair. Discussion quickly ensued regarding maintenance data, specifically emphasizing the necessity of step-by-step video tutorials integrated directly into the core UX to guide unsure users through fixing basic damages. Participants argued that a lack of practical confidence, rather than a lack of willingness, often triggers the premature disposal of furniture. This insight strongly reinforces the empirical baseline from the pre-design interviews, confirming that consumer engagement with circular behaviors increases substantially if the DPP acts as a tool that heightens the user's practical self-esteem.

During the concluding cross-presentation phase, this design rationale was pitched to the opposing 'Acquisition' group. The peer critique strongly validated the Ownership team's focus on clear, visual guidance, with participants agreeing that large video cards and a prominent component layout would lower the threshold for initiating repairs. This consensus established a clear direction for the upcoming prototyping phase: for an ownership interface to be successful, it must prioritize highly visual, reassuring, and step-by-step instructions that transform a potentially intimidating repair process into a manageable and empowering user experience.

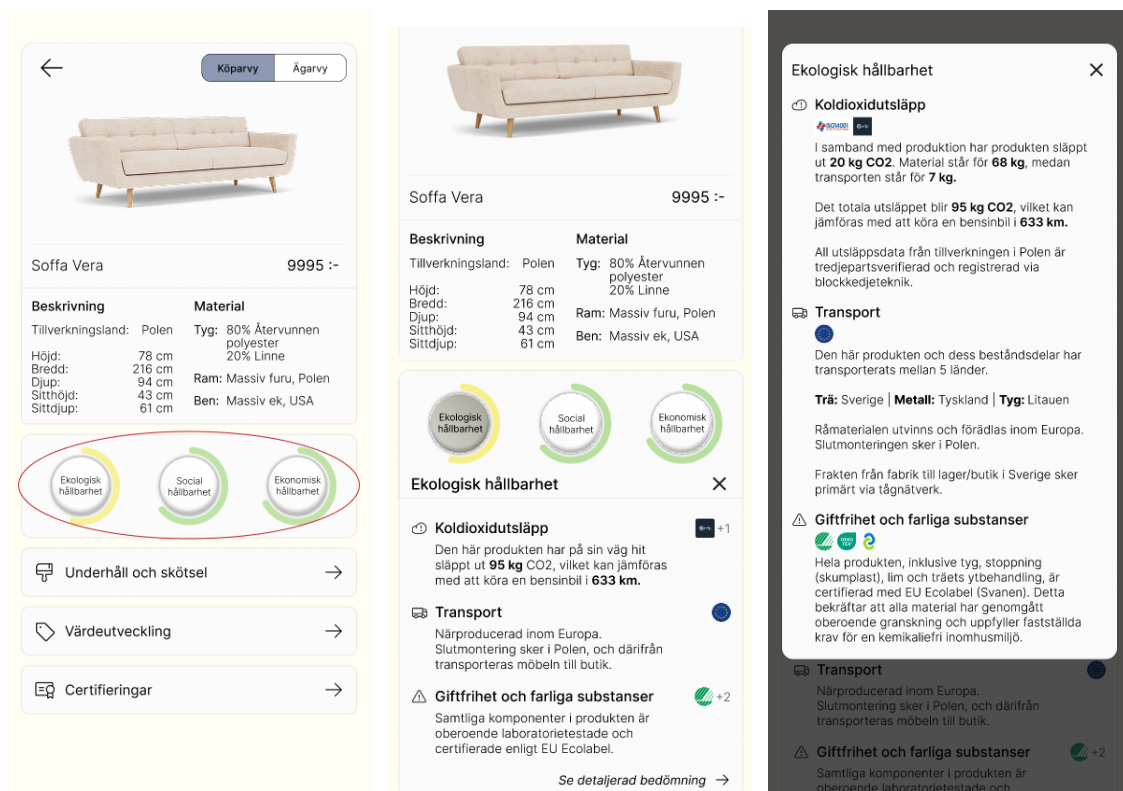
4.3 The final DPP prototype: Design and evaluation

This chapter presents the design of the final DPP prototype and the rationale behind the underlying design choices. All in all, the empirical insights from the pre-design interviews combined with the user requirements from the co-design workshop provided a concrete blueprint for this final stage, translating the users' demand for highly visual, step-by-step reassurance into specific interface mechanisms. Based on this cumulative foundation, the prototype was developed to address three major themes: Balancing Speed and Trust, Creating a Sense of Investment, and Exploring the Intention-Behavior Gap through design. Each theme is divided into two distinct sections: the first detailing the design rationale, and the second presenting the empirical evaluation and results of that specific theme.

4.3.1 Designing for balance: Quick scanning and building trust

Across both the pre-design and generative phases, two critical themes consistently emerged: deep-seated skepticism toward data authenticity—highlighting a need for verifiable, trustworthy data—and a demand for a frictionless user experience. Participants explicitly noted that the widespread adoption of the DPP depends on its efficiency, as consumers are ultimately unwilling to compromise on time. These two themes are inherently correlated; instilling higher trust through information depth may reduce scanning efficiency, and vice versa. To resolve this tension, the design draws on the concepts of meta-labeling discussed by Torma and Thøgersen (2021), condensing extensive data into categories that remain easily scannable. Integrating this theoretical approach with insights from the co-design workshops, three core categories were established: Ecological, Social, and Economical Sustainability; see Figure 4.3a. Each category features a performance index visualized by a surrounding circular progress line, serving as an immediate indicator of the product's performance within that specific sustainability pillar. Alongside these sustainability indices, a strong consensus emerged from the empirical data that baseline product attributes must remain continuously accessible; consequently, elements such as price, material composition, country of origin, and general product specifications were also integrated permanently into this primary landing page view.

To accommodate varying user preferences, ranging from a desire for brevity to a need for granular data, the interface utilizes a progressive disclosure architecture across three distinct layers. Activating a category card unveils a secondary layer containing brief descriptions of the underlying factors influencing the initial index, see Figure 4.3b. Within this view, users are presented with visual indicators of third-party certificates and an explicit directional arrow, serving as signposts that guide them toward the tertiary layer where all comprehensive data and verification details are fully revealed; see Figure 4.3c. The circular indices, initially rendered in white, function as interactive buttons to access this secondary layer. The visual design of these buttons was intentionally minimalist, partly to optimize screen real estate, but also to evaluate user discoverability and observe how participants would react if the interactivity was not immediately apparent.



(a) Primary landing page showing the three core categories. (b) Secondary layer revealing index factor descriptions. (c) Final screen revealing all detailed information.

Figure 4.3: The progressive disclosure architecture of the DPP interface, demonstrating the three levels of information depth designed to balance quick scanning and deep trust verification.

4. Results and Design Outcomes

To further mitigate the risk of cognitive overload, the information ecosystem for a single piece of furniture was divided into two separate domains: the buyer's view and the owner's view, see Figure 4.4a. Based on empirical data, this design choice caters to two distinct types of users: transactional users and analytical users. For transactional users, who often operate in retail settings or spontaneous shopping modes, the buyer's view provides rapid visual feedback, such as the sustainability indices, to validate choices without inducing decision fatigue. For analytical users aligning with a pre-meditated shopping mode, the dual-view architecture offers an intuitive pathway to deeply cross-reference data and evaluate long-term circular value prior to financial commitment. By separating these domains, the interface balances the quick screening needed at the checkout moment with the rigorous transparency required for holistic lifecycle screening. Activating the owner's view toggles the interface to mimic the interface a user would encounter when scanning a product code from home on an already owned piece of furniture; see Figure 4.4b. In this view, users would be able to see detailed information about repairing and maintaining the furniture, with informational videos to guide them. This intentional inclusion allows prospective buyers to engage with the long-term realities of furniture ownership prior to financial commitment.

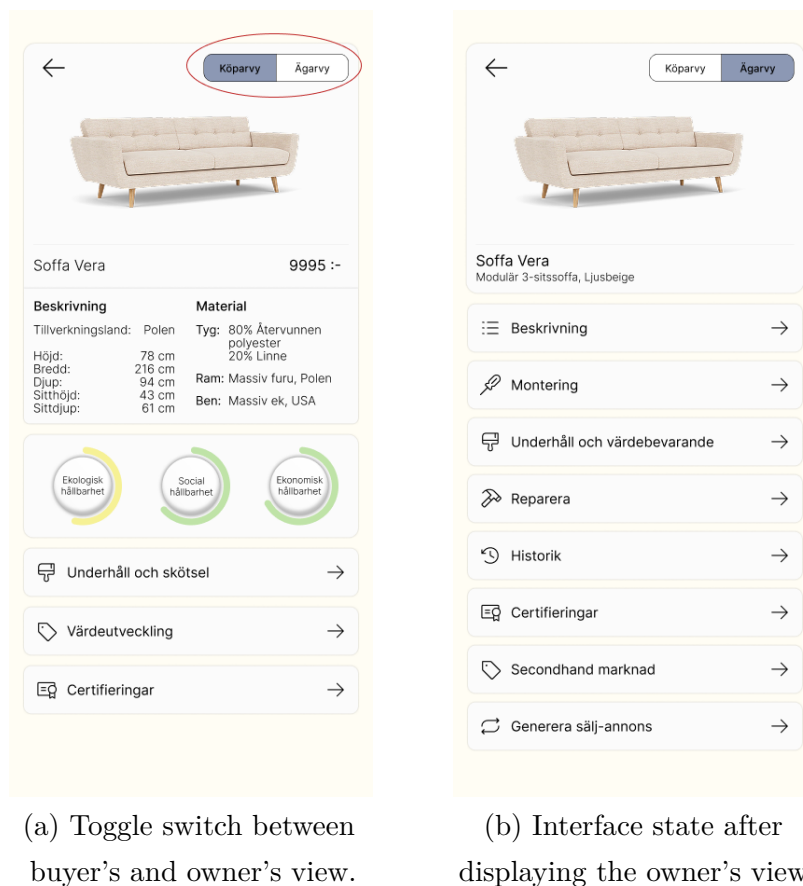


Figure 4.4: The interface mechanism for toggling between the transactional Buyer's view and the lifecycle-oriented Owner's view.

The primary objective of exposing users to the owner’s view during the pre-purchase phase is to provide concrete transparency regarding maintenance and repairability. Although the baseline buyer’s view features a high-level repairability score, the owner’s view expands on this significantly by embedding instructional videos, maintenance schedules, and structural repair guides. Finally, the number of categories under the three indexes was restricted to three critical ones as shown by empiric data, namely: Maintenance and care, Value development and Certificates.

4.3.2 Can speed and trust coexist?

The empirical evaluation revealed that the inclusion of high-level baseline attributes was universally well-received, with all six participants appreciating the space allocated to the product imagery and its immediate structural description. However, regarding the discoverability of the progressive disclosure layers, an interesting split in user behavior emerged. Four out of six participants successfully discovered that the sustainability category indices functioned as interactive elements.

The think-aloud protocol captured the exact moment of this interaction. One participant initially noted: *“Then I also notice these sustainability indicators here.”* When subsequently asked by the moderator what those indicators communicated, the participant initially replied: *“Nothing really, I would have liked... Oh, wait. When I press them, I can see more information.”* Upon exploring the deeper layers, this participant, along with the other three who discovered the feature, emphasized that without the supporting granular data underneath, high-level aggregate indices risk becoming perceived as arbitrary or useless.

However, the specific information requirements varied among these four analytical users. One participant expressed concern regarding the visual density of the secondary layer; see Figure 4.3b, noting: *“It becomes a little hard to parse with this amount of text... I am thinking about my mother, whether she would be able to easily find where to read.”* Conversely, other participants requested even more refined information scaffolding, suggesting that text-heavy categories like ‘Transportation’ could benefit from synthesized infographics, such as interactive maps illustrating the exact supply chain routes of the raw materials.

The two participants who did not discover the hidden interactivity split into two entirely different behavioral pathways. The first immediately accepted the high-level indices at face value, confidently declaring that they would abort any purchase where a product performed poorly on those metrics alone. The second participant, distrusting the unclickable score, actively sought verification elsewhere, navigating the lower sections of the landing page and the owner’s view to find alternative data points.

When evaluating the integration of the ownership view within a pre-purchase context, user reception was overwhelmingly positive. One participant, who predominantly purchases furniture online, noted that previewing repair videos provided highly actionable data, as it allowed them to visualize the furniture within different domestic contexts. Another participant reflected on how the pre-purchase exposure to ownership data fundamentally shifted their mental framing of the transaction:

“Okay, owner’s view. Wow, suddenly it feels like: ‘Oh, I actually have to think about how to repair this,’ or something like that. It almost acts like a checklist, which I don’t like. In that sense, I totally agree that separating the two views is a good thing.”

In summary, when reflecting on the total information density, the participants agreed unanimously that the volume of data provided was sufficient. Crucially, even those participants who felt that the total data volume exceeded their personal preference highly praised the layout’s architecture. They noted that the progressive disclosure structure allowed them to skim the surface efficiently without feeling overwhelmed or explicitly forced to engage with the underlying technical documentation.

4.3.3 Designing for a sense of investment

Empirical insights from the initial interviews and co-design workshops revealed that a perceived lack of long-term investment frequently prevented participants from engaging with the DPP or being influenced by its data. Specifically, a strong correlation emerged between a low initial purchase price and a decreased willingness to care for or maintain the furniture. To counteract this behavioral pattern, the interface was intentionally designed to cultivate a sense of value and ownership, encouraging long-term product maintenance regardless of the initial financial cost. This design rationale was primarily operationalized within the ‘Economic Sustainability’ category, specifically through the integration of a ‘Value Development’ feature.

When a user interacts with the Economic Sustainability category, they are presented with high-level metrics regarding product maintenance and estimated lifetime value, see Figure 4.5a. To deepen this engagement, selecting the *See more details* prompt, or clicking directly on the Value Development card, navigates the user to a dedicated graph. As illustrated in Figure 4.5b, this view features an interactive graph mapping the estimated financial value of the furniture over time, explicitly visualising the economic benefit of proper maintenance and repair. The graph illustrates three distinct trajectories: value retained through professional maintenance (green line), value retained through user-led maintenance (blue line), and the baseline depreciation if no maintenance is performed (red line). To anchor the data more in reality, a view was created showing recent sales of similar furniture completed on the second hand market; see Figure 4.5c.

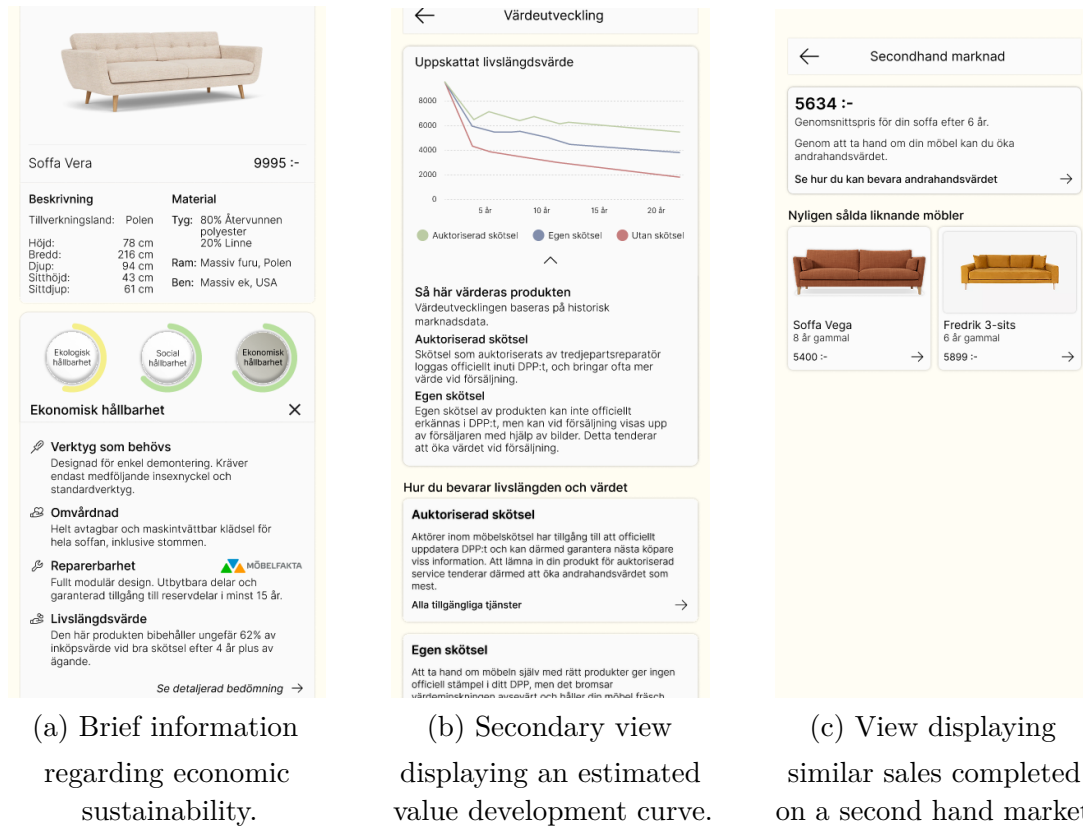


Figure 4.5: Design elements implemented within the DPP interface to encourage long-term furniture maintenance and foster a sense of investment.

4.3.4 Economic value as a driver for maintenance

Observing the participants as they interacted with the economic sustainability design elements revealed that financial metrics are deemed highly relevant. The data displaying different estimated value developments based on the user's level of care, see Figure 4.5b, yielded some of the most definitive behavioral insights in the study.

The evaluation showed an unambiguous consensus among participants: professional repair services were to be avoided at almost all costs. Third-party intervention was consistently dismissed as financially unjustifiable, an attitude that persisted even when imagining smaller, less capital-intensive furniture pieces than a sofa. While some participants initially expressed interest when noting that professional servicing yielded the highest long-term resale value, they quickly deduced that the net financial return would be too low for it to be worth it. This resistance was driven by two primary factors: the perceived friction of logistics—such as transporting the furniture or coordinating service appointments within the home—and, most critically, the constraint of time. Participants overwhelmingly favored autonomous, user-led maintenance due to the flexibility of executing repairs at their own convenience.

Crucially, when asked whether the inclusion of this lifecycle graph would influence their future behavior, the participants agreed in unison that it would actively motivate them to perform self-maintenance to preserve the asset’s financial value. This finding represents a significant shift from the data gathered during the initial pre-design interviews, where participants routinely expressed reluctance toward furniture maintenance. Introducing a quantifiable return on investment (ROI) within the DPP interface effectively flipped this mindset. Furthermore, the majority of participants noted that third-party servicing would only become viable if the total transaction costs were heavily subsidized or guaranteed to net a clear profit, with margins, upon resale.

This user resistance highlights a critical tension within the ongoing regulatory development of the Digital Product Passport. While the European Union has yet to finalize the mechanisms for data updates, current policy discussions suggest that update privileges might be restricted exclusively to certified third-party professionals to maintain data integrity and prevent fraudulent transparency. However, the empirical data from this study reveals a profound reluctance among consumers to be legally or structurally “forced” into third-party ecosystems for furniture care. Instead, this study demonstrates that providing economic transparency directly to consumers fosters a strong intrinsic motivation for self-maintenance, which ultimately achieves the core environmental objective of extending product lifecycles.

4.3.5 Designing for exploration: Where to find the intention-behavior gap?

The empirical findings from the initial interviews and co-design workshops provided the foundational requirements for developing the final high-fidelity prototype in Figma. To explicitly investigate the intention-behavior gap, the prototype features two contrasting product profiles: Sofa A (Sofa Henry) and Sofa B (Sofa Vera). These profiles were architected to provoke active user engagement with varying levels of sustainability data, see Figure 4.6b and c. The interfaces intentionally differ across several critical data points to isolate which factors most heavily influence consumer purchasing choices; most notably, their aggregate indices differ in color-coding and percentage completion. To simulate an authentic digital retail environment, participants commenced the evaluation within a mocked e-commerce storefront, see Figure 4.6a, from which they could navigate to each product’s respective DPP.

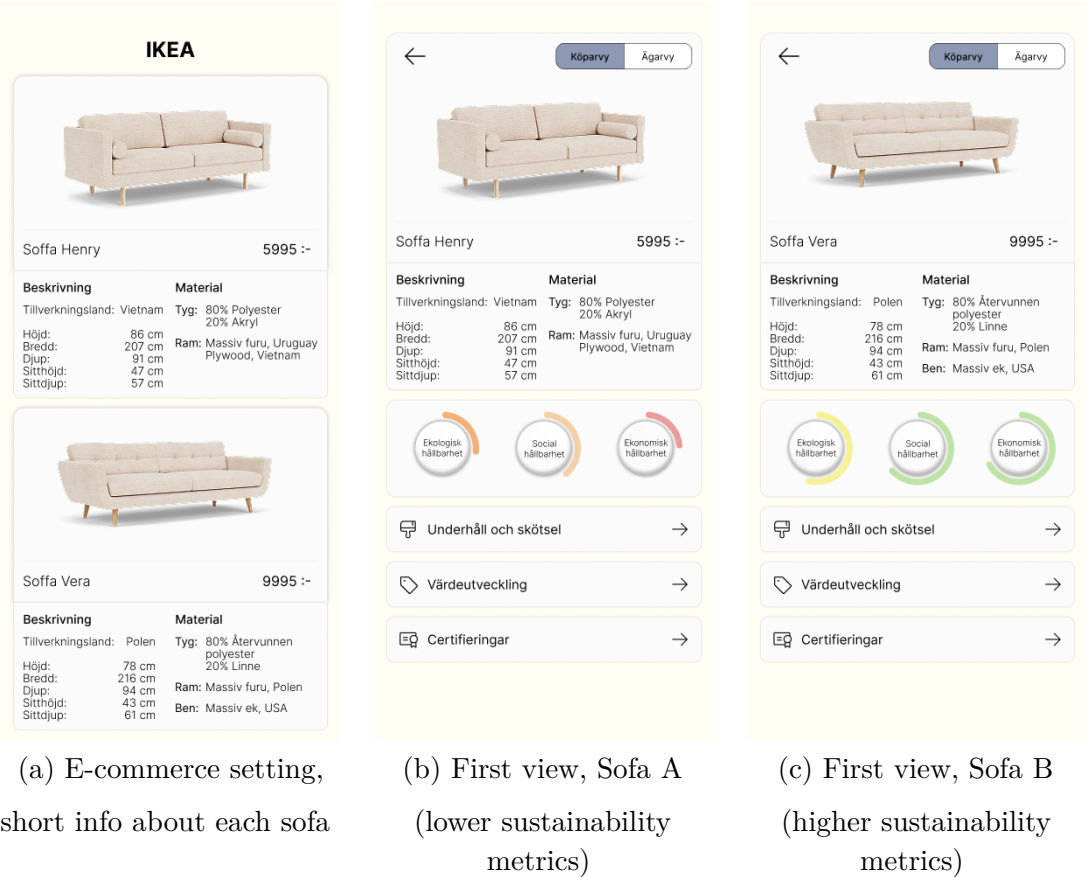


Figure 4.6: High-fidelity prototypes of the DPP interface, featuring two product profiles with contrasting sustainability performance.

The primary variance between the two product profiles lies within the data granularity surfaced by the three core sustainability pillars. These categories utilize immediate color-coded grading scales to establish an instantaneous visual comparison for the user. Upon expanding each category card, as illustrated in the comparative matrix in Figure 4.7, the textual information maintains an objective, neutral tone to avoid inducing skepticism regarding data authenticity. Instead, the differentiation is driven by the structural completeness of the data.

Sofa Henry, representing the lower-cost baseline, systematically reflects data constraints, explicitly stating that the manufacturer has not obtained specific data points. It lacks the extensive certification portfolio of its counterpart, displaying only the baseline verifications available for each respective category. Conversely, Sofa Vera prominently displays comprehensive data lifecycle information, such as verified wage equity audits within its social sustainability pillar; see Figure 4.7e. Furthermore, the interface for Sofa Vera incorporates supplementary visual hints when a product holds extensive certifications, signaling to the user that additional documentation is available for verification within the deeper layers.

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Figure 4.7: Comparative overview of the DPP interfaces for Sofa Henry (top row, a–c) and Sofa Vera (bottom row, d–f). Comparisons seen column-wise.

The final sections containing large differences between the two concepts were the Value Development graphs, as well as the second-hand market section, see Figure 4.8.

To deliberately stress-test the green intentions of consumers against economic realities, these features introduce a stark economic asymmetry between the two profiles. For Sofa Henry, the graph and second-hand metrics illustrate rapid financial depreciation and low resale value driven by poor material transparency and lack of maintenance support; see Figure 4.8a and b. For Sofa Vera, the interface displays high asset retention and a thriving secondary market value facilitated by verifiable data logs; see Figure 4.8c and d. This deliberate imbalance provides the necessary design levers to evaluate whether the inclusion of explicit future financial penalties can successfully bridge the intention-behavior gap, shifting user priorities from minimizing initial transactional costs to maximizing long-term circular value.

4. Results and Design Outcomes

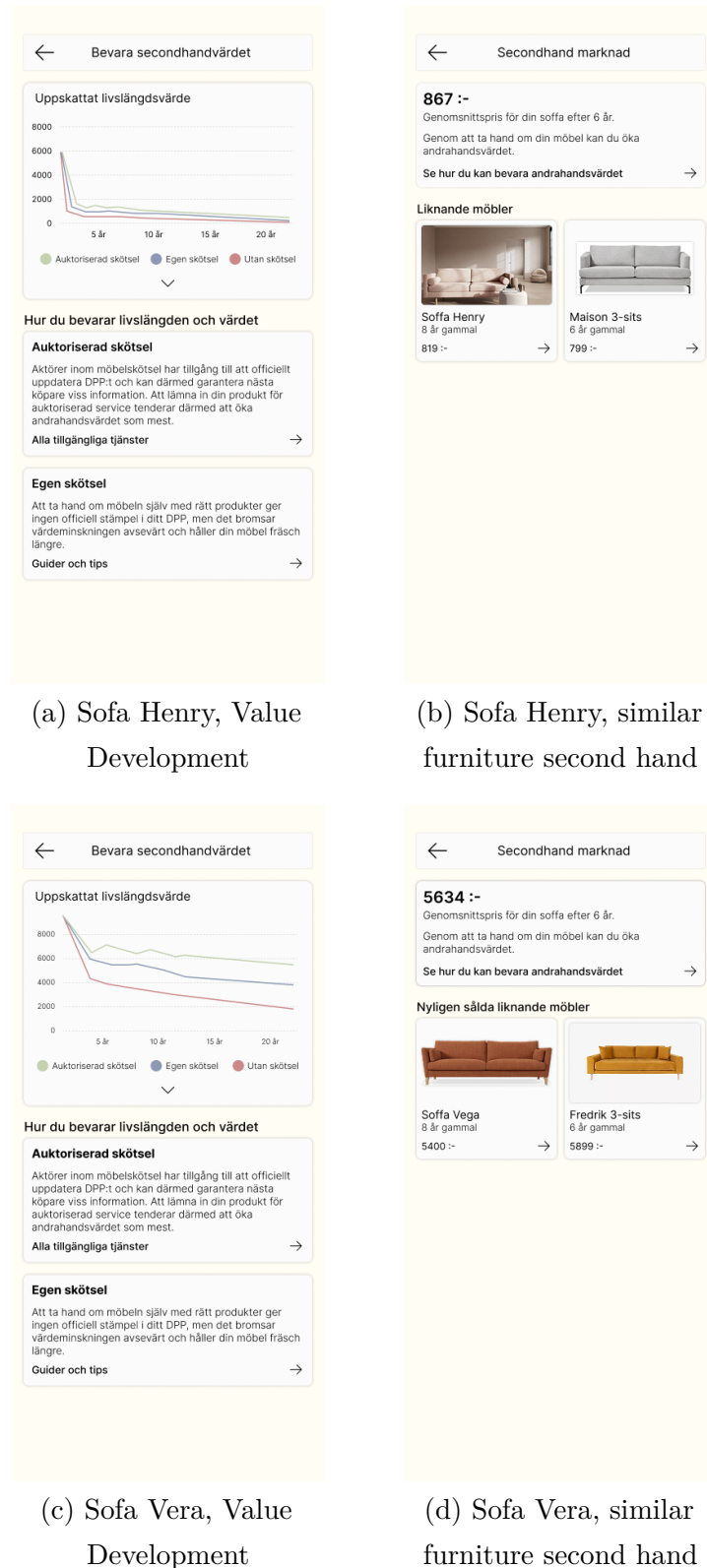


Figure 4.8: Comparisons between Sofas Henry's and Vera's value development.

4.3.6 Overcoming the Intention-Behavior Gap

The summative evaluation yielded a highly homogenous and notable outcome: despite the explicit price premium attached to Sofa Vera, all six participants ultimately elected to “purchase” the more expensive, higher-performing product profile. This uniform behavior indicates that the high-granularity data and visual heuristics embedded within the DPP successfully managed to mitigate the traditional intention-behavior gap, overriding the initial economic incentive to minimize upfront transactional costs. To understand the underlying psychological mechanisms behind this shift, the users’ qualitative data was analyzed through two distinct dimensions: initial motivators and the final deciding factors.

When analyzing user motivations, the primary catalysts for engagement with the higher-priced asset were heavily anchored in material transparency and long-term product longevity. Participants frequently noted that comprehensive material disclosures—specifically regarding non-toxic, certified chemical treatments—fostered a strong sense of safety and intrinsic value. Furthermore, the explicit presentation of maintenance requirements shifted the consumer mindset from short-term consumption to long-term asset stewardship; clear maintenance pathways were identified as an enabler of product longevity. Additionally, strong risk aversion was triggered by the interface design of the low-performing alternative (Sofa Henry). The presence of low red-coded performance indices acted as a powerful negative visual heuristic, actively deterring participants from choosing the cheaper option.

The final tipping points, the specific deciding factors that justified the financial sacrifice, revealed how structural transparency can alter consumer trade-offs. For several participants, the decision was driven by the “holistic picture” provided by the structural completeness of the DPP, noting that the ecological and social pillars carried the most significant ethical weight. Geopolitical and manufacturing origins also surfaced as critical levers, with participants expressing an explicit preference for European production, even if it necessitated a higher financial commitment. Most notably, the stark divergence within the Value Development graphs, see Figure 4.8, served as a primary decisive tool. Witnessing the rapid financial depreciation of the poorly documented alternative contrasted against the high asset retention of the transparent profile allowed participants to rationalize the higher initial purchase price as a sound long-term economic investment. Every participant explicitly used the term “justification” as a reason to choose the more expensive sofa. The way this justification was shaped differed slightly, but the two main drivers were economic incentives and facilitation of ownership, such as being able to change the upholstery yourself.

When comparing the results from the likert scales, there is a clear difference in attitudes after participants got their hands on the design artifact; see Figure 4.9. This time, five out of six participants confirmed the maximum likelihood that the content of the DPP would affect their purchasing intentions, a significant shift from the pre-design phase where emotional attachment and upfront costs left participants hesitant about the passport’s real-world impact. Also notable was the behavioral shift regarding physical retail environments; while initial interviews showed a reluctance to scan QR codes in-store due to perceived time friction, post-interaction scores showed a shift, with all participants scoring their likelihood as a 4 or higher. This quantitative triangulation confirms that when a user interface successfully minimizes cognitive load while maximizing perceived usefulness, it effectively overcomes the behavioral friction points inherent in both digital and physical retail spaces.

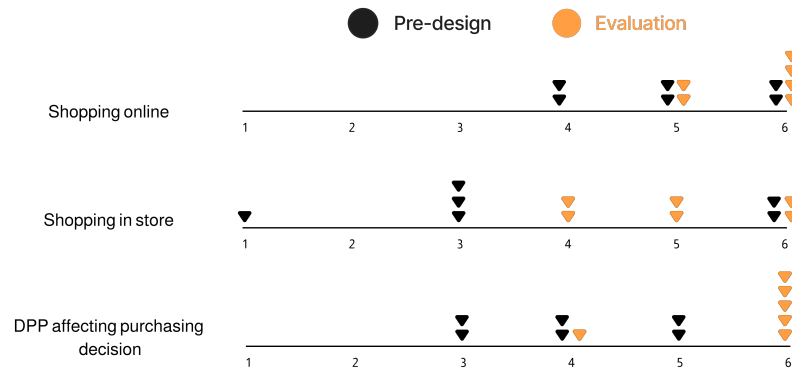


Figure 4.9: Comparisons between Likert scales responses from the pre-designing phase (black) and the evaluative phase (orange)

In summary, the empirical evidence gathered across the pre-design, generative, and evaluative macro-phases shows that the intention-behavior gap is not an impossible barrier at all, but an adaptable user experience challenge. By synthesizing the functional requirements gathered in the initial interviews and co-creation workshop with the behavioral insights validated during the high-fidelity usability testing, a clear framework for a consumer-centric DPP design emerges. To translate these empirical findings into actionable knowledge for future interaction designers and circular furniture manufacturers, the following section consolidates these insights into six core design guidelines.

4.4 Design guidelines

Based on the iterative synthesis of consumer requirements from the co-design workshops and the empirical validation of the high-fidelity prototype, six core design guidelines have been established. These guidelines provide an actionable framework for interaction designers and circular manufacturers looking to develop consumer-centric DPPs for the furniture sector.

1. **Progressive Disclosure:** Layer information architectures to allow both quick scanning and rigorous data verification. Interfaces must prioritize a clean, low-friction primary layer for quick validation, while providing intuitive interactive pathways to deeper text-heavy layers for analytical users seeking empirical evidence.
2. **Visualizing Return on Investment:** Explicitly show the long-term financial value of product care, maintenance, and resale metrics over time. Reframing proactive maintenance from an obligatory chore into a financial investment directly counteracts the intention-behavior gap by shifting the consumer's cognitive model from short-term consumption to asset retention.
3. **Fostering User Autonomy:** Provide clear, task-oriented visual documentation—such as step-by-step video guides—for self-repair, long-term maintenance, and secondary market selling. Using clear, actionable terminology reduces the psychological threshold for initiating maintenance, thus actively building practical user self-efficacy.
4. **Radical Transparency:** Mitigate deep-seated consumer skepticism by ensuring all data is structurally complete, explicitly verified by third-party certificates, and honest about manufacturing limitations. System trust is established not by presenting flawless metrics, but through transparency regarding data constraints.
5. **Negative Visual Indicators:** Utilize clear, high-contrast warning cues or color-coded performance scales to highlight low sustainability or poor ethical performance. These explicit visual “dealbreakers” act as an immediate psychological heuristic at the point of sale, successfully disrupting habitual, cost-driven buying patterns.
6. **Highlighting Circular Features:** Showcase practical, physical design benefits that aid the user in their furniture ownership. Highlight removable, machine-washable upholstery or modular, replaceable components directly within the interface. Tethering digital DPP metrics to visible, physical product utilities reinforces the user's justification for a higher upfront purchase price.

5

Discussion

This chapter discusses the results of the thesis, as well as the design recommendations that have followed. Thereafter, the execution of the methods will be discussed in relation to the research done. Lastly, the limitations and ethical considerations of this project will be discussed. This chapter also discusses potential future work.

5.1 Results

The primary objective of this thesis was to explore how a future Digital Product Passport (DPP) can engage consumers, support informed decision-making, and provide circular producers with a competitive advantage. In addressing these goals, this project placed emphasis on exploring and challenging the existing intention-behavior gap in consumer purchasing habits. The findings clear up two distinct phases of the consumer lifecycle: the initial point of acquisition (RQ1) and the long-term ownership phase (RQ2). By prioritizing this lifecycle approach, the design choices lean closer to the systemic and regulatory goals of the EU rather than simply optimizing for a conventional and smooth e-commerce user experience. Consequently, these results should be interpreted as an exploration into how specific DPP design elements can confront and disrupt current consumption patterns, leaving more fine-tuned testing strategies for future research.

A central finding of this evaluation was that fostering a “sense of investment” directly correlates with a consumer’s willingness to maintain their furniture. In contrast, the reverse also holds true: a low initial purchase price often decreases the perceived value of the object, leading to a reluctance to invest time or effort into its long-term care. To explicitly test this dynamic, the lower-cost product (Sofa Henry) was displayed as having a steeper depreciation rate and a lower return on investment (ROI) than its premium counterpart (Sofa Vera). While this design choice successfully prompted all six participants to evaluate their fictional budgets carefully and ultimately choose the more sustainable, expensive option, this uniform outcome might not replicate perfectly in real-world retail environments. There is a risk here: since low-cost items already discourage active maintenance, explicitly displaying a poor long-term financial return within a DPP could paradoxically reinforce a “disposable” mindset. For consumers with limited purchasing power or those more susceptible to the intention-behavior gap, seeing a low future value might simply validate treating the asset as short-

lived rather than inspiring better care. In the context of RQ2, this highlights that communicating long-term economic retention is a prerequisite for behavioral change; without visualizing this lingering residual value, an interface cannot effectively motivate the maintenance behaviors required to sustain a trustworthy second-hand market.

Furthermore, while the evaluative phase indicated highly positive outcomes, it is critical to acknowledge that the data contrast between the two product profiles was intentionally stark. Although the underlying pricing structures and product details were carefully researched to mirror authentic market baselines, the binary presentation of a “highly transparent” product versus a “deeply constrained” one created an idealized decision environment. In an actual shopping scenario, the differences between options are rarely this black and white, meaning that the absolute consensus observed among the participants might overstate real-world behavioral shifts when alternatives are more closely matched.

This idealization becomes especially evident when comparing these findings to the initial pre-design interviews. Originally, participants noted that aesthetic attachment, when simply “falling in love” with a piece of furniture, would likely override any poor sustainability metrics at the point of sale. However, during the final prototype evaluation, this sentiment almost completely vanished. This shift can be interpreted in multiple ways. On the one hand, it could point to the intense psychological impact of presenting explicit, negative data indicators (such as low scores or distinct color-coding), which effectively shocked users out of a purely emotional mindset. Another reason might be the small sample size. With a group of this scale, there is a likelihood that the participants possessed a stronger ethical foundation than the average consumer, or were subconsciously affected by social desirability bias while performing the test under direct observation. The higher fidelity of the prototype, as well as the more elaborate scenario placed on the participants, might also have affected the results. With a higher level of immersion of the task itself, attention might have deviated from the aesthetics of the furniture. If the same test were to be conducted in a real store environment, test results might have differed. Future studies would benefit from expanding the participant base to encompass a broader, more socio-economically diverse demographic. This would verify whether these sustainable design preferences hold true across the wider consumer market or if they are unique to environmentally conscious groups.

Finally, it should be noted that the specific data points shown in the social sustainability category were simulated only for the purpose of creating a functional testing environment. Although the deeper details were fictionalized to highlight the differences between the design variables across the two concepts, the underlying logic remains highly relevant. The participants' interactions demonstrated that the communicative value of a DPP does not rely only on a consumer fully revising absolute scientific metrics. Instead, structural transparency, the honesty of displaying data constraints, and the visual layout itself are what truly empower users to navigate complex lifecycle trade-offs with a high level of critical awareness. This addresses a core aspect of RQ1, proving that system trust is not generated by presenting flawless sustainability metrics, but rather through radical transparency regarding data limitations, which ultimately validates the DPP as a reliable tool for sustainable decision-making.

Another critical design dimension explored in this study was the delicate balance between browsing speed and system trust. Although the evaluation showed that the prototype allowed for rapid navigation without forcing users to constantly parse dense technical details, these high efficiency scores must be viewed critically. A controlled usability test rarely replicates the fragmented attention of real-life consumer behavior. In an actual shopping environment, people are frequently subjected to external distractions and time constraints. Therefore, while the current interface architecture successfully lowered friction in a quiet testing room, future usability evaluations should explicitly test the DPP interface under simulated time pressure to observe whether users still manage to cross-reference sustainability metrics when their cognitive capacity is stretched.

This thesis evaluates the DPP across three core dimensions, beginning with the concept of *Usability and Efficiency*, which is crucial for maintaining consumer engagement. Regarding efficiency, the results validate a progressively layered information architecture as a valid design choice, allowing different types of users to access their desired depth of sustainability data.

At the primary layer, the interface utilized three sustainability indices (environmental, social and economic) featuring a color scale ranging from deep red to dark green. The color red, which signaled a weak performance or a lack of data transparency, successfully acted as a visual “dealbreaker”, a theme identified during the pre-design phase. Multiple participants confirmed that these explicit warnings played a decisive role in their purchasing decision, dissuading them from choosing unsustainable furniture. However, the commercial feasibility of penalizing products so explicitly in a real-world market remains uncertain. While clear warnings benefit environmental decision-making, they create tension with retail profitability. Since the EU has not yet finalized the design mandates for the DPP—specifically whether interfaces will be globally standardized or open to individual store branding—future research should investigate this exact tension. Specifically, studies need to explore whether a uniform, standardized EU template commands higher systemic trust among consumers compared to brand-customized interfaces, requiring close collaboration with the retail sector to balance regulatory transparency with commercial viability.

This thesis contributes to a deeper understanding of the intention-behavior gap within the furniture sector. The empirical results indicate that a primary driver of this gap is the lack of easily accessible sustainability data at the point of purchase, reinforcing the theoretical framework of Perceived Behavioral Control. Providing immediate negative visual indicators, rather than relying solely on positive reinforcement, serves as an effective mechanism to dissuade consumers from purchasing low-cost, unsustainable alternatives. In contrast, for consumers to respond to favorable product data, sustainable options must effectively mediate long-term value. In summary, while immediate red warnings are highly effective at preventing unsustainable acquisitions, more premium products require interface elements that clearly demonstrate long-term financial or personal utility to justify the higher investment.

5.2 Methods

First, it is worth noting that some misunderstandings occurred across all testing phases. Because the DPP is such a novel concept, even interacting with realistic prototypes occasionally led to incorrect deductions in the testing environment. For instance, during the evaluation phase, where the goal was to capture unfiltered thoughts and actions, the open setup sometimes caused participants to drift off-track and jump to conclusions that were not entirely true. Complex scenarios, such as navigating the second-hand market with the help of a DPP, need to be designed and communicated with care, as presenting too much unfamiliar data at once can easily lead to information overload.

Reflecting critically on the experimental setup, a significant limitation lies in the selection of the price differential between the two product profiles, which may have been too small to thoroughly challenge the intention-behavior gap. As the researcher establishing the testing parameters, opting for a relatively forgiving price premium meant that the financial friction required to simulate a true real-world sacrifice was minimized. Although a majority of the participants noted that the financial line was “almost crossed,” the uniform outcome where everyone still chose to purchase the premium sofa suggests that the chosen price difference did not push users past their actual breaking point. Consequently, using an overly accommodating price gap, the evaluation may have led to the choice being too easy to make. Future research could introduce a larger number of items to browse for, with multiple price tags in a larger price range. This could help identify more factors that serve as thresholds for consumers in their sustainable purchasing decisions, further helping companies design a DPP that really speaks to consumers.

The choice to implement Likert scales provided highly valuable data, mainly because of the follow-up discussions that each statement triggered. The final evaluation phase generally yielded higher and more positive scores than the initial pre-design interviews. However, it is important to note that the setup of these interviews differed. The earlier sessions focused heavily on the raw utility of a DPP, with the Likert questions asked on-the-go throughout the conversation. In contrast, the final evaluation summarized the testing session by presenting all the questions back-to-back at the very end. This difference in context might have affected both the numerical ratings and the participants' overall opinion of the DPP. The increased positivity in the final phase could simply be a result of participants having more uninterrupted time to understand and digest the DPP concept before providing their answers.

From a methodological standpoint, it is critical to acknowledge that participants only interacted with the DPP interface for a maximum of 45 minutes during this study. Consequently, future usability evaluations would yield higher ecological validity if conducted once consumers have already developed a foundational understanding of the DPP's purpose and have gained experience with the interface over time. Rather than relying solely on short, controlled testing sessions, future empirical setups should transition into real-world field studies. Observing how consumers navigate a DPP inside an active retail store under natural time pressure and cognitive load would provide crucial insights into whether the visual “dealbreakers” identified in this thesis maintain their efficacy when user attention is fragmented.

While the sample size across the study's phases was relatively small, the iterative user-centered design methodology was able to ensure a high level of qualitative depth. By structuring the research phases chronologically, subsequent phases acted as validators and built upon the insights of the former ones. For instance, analysis of the co-design workshop indicated that a degree of data saturation had already been achieved, as many core themes resembled the empirical findings from the initial pre-design interviews.

However, the co-design workshop did not only replicate prior findings; it provided crucial generative data regarding how consumers conceptualise the visual hierarchy and information architecture of a DPP. Inviting participants into the designing of DPPs, and to actively co-create the interface, yielded in crucial design insights that purely observational methods would miss. The contributions from the “Acquisition” group directly informed RQ1 by showing a strong user demand for visualising future retaining value already at the point of purchase. Meanwhile, the “Ownership” group addressed key dimensions of RQ2, such as highlighting the importance of personalisation and data adaptability to ensure the DPP remains relevant throughout the product's lifecycle.

5.3 Limitations and Trustworthiness

While the iterative evaluation of the prototypes yielded rich qualitative data, certain limitations regarding transferability must be acknowledged. The evaluation was bound to a controlled testing environment, which inherently isolates participants from the real-world complexities of retail, such as time constraints, financial stress, and marketing distractions. Additionally, the study relied on a specific demographic sample within a limited geographical scope. While this sample size achieved data saturation during the generative workshop phase, future research with a broader and more diverse participant base would be required to verify if these design preferences represent the wider consumer market.

5.4 Ethical Considerations

Implementing a DPP framework introduces certain ethical challenges regarding data transparency and socio-economic inclusion. The findings of this thesis demonstrate that upfront costs remain a friction point for sustainable acquisition. If regulatory DPP requirements result in higher manufacturing costs, there is an ethical risk that sustainable options could become an exclusive luxury for consumers with higher income, leaving lower-income demographics financially restricted to unsustainable alternatives. Furthermore, the transition of furniture into a circular second-hand market raises questions about data privacy; establishing how much historical life-cycle data (such as previous repairs or ownership duration) can be transparently shared without compromising the privacy of past owners remains an essential ethical boundary for future interface designers.

6

Conclusion

This thesis contributes with knowledge about the purchasing behaviors of current furniture consumers, and how the user interface design of a Digital Product Passport (DPP) can bridge the consumer intention-behavior gap and encourage long-term product ownership in the context of furniture. This is done via an early mapping of the current landscape of furniture consumption, user studies and co-design sessions with future consumers that uncovered critical needs for consumers, and evaluating ways of matching those needs with a design artifact. The early findings on behavior supported the shaping of the artifact, which in turn answered the thesis most important questions. The work this thesis contributes with is of interest as it opens up other studies being made with different artifacts, focusing on a different part of the larger issue that is intention-behavior gap in sustainable consumption.

Based on the qualitative findings from the evaluation of the designed prototype, the following conclusions can be drawn:

The results show that a DPP can guide consumers toward more sustainable choices by structuring the information clearly. Using color-coded indices helps users scan the interface quickly when browsing online, but having deeper data layers easily available is what actually builds trust. Additionally, by turning abstract environmental metrics into clear financial guidelines, like secondary market value and Total Cost of Ownership, the interface manages to shift the consumer's focus away from just the initial price tag and onto the product's long-term value.

When it comes to product ownership, the study shows that people are much more willing to maintain and repair their furniture when those tasks are directly tied to preserving its economic value. By including a dedicated owner's view that highlights value retention and gives simple care guidelines, the DPP can help fight a "disposable" mindset and instead encourage a culture of taking care of products over time.

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A

Appendix

A.1 Interview template 1

Intervjumall 1

VIKTEN AV DERAS OPARTISKHET

Jag vill vara tydlig med att jag inte testat dig eller dina kunskaper, utan jag testat om det här konceptet fungerar. Det finns inga rätt eller fel svar, det är dina ärliga tankar som hjälper mig! Var gärna kritisk, du kan inte sår mig på något sätt. Är något förvirrande så är det viktigt för mitt arbete att jag får veta det, att du säger vad du faktiskt tycker är guld värt.

GDPR:

- Din ålder?
- Vilken sysselsättning har du?
- Vilket kön identifierar du dig med?
- Vilken boendeform har du? (Äga / hyra)
- När du köpte din senaste möbel - var det nytt eller begagnat, och vad avgjorde köpet?

PRAT OM DPP

- Hej ____!
- Innan vi går in på det tekniska så undrar jag: när du ska köpa en möbel och tänker att den ska vara 'hållbar', vad betyder det ordet för dig i det sammanhanget?
- Vad vet du om Digitala Produktpass?
 - "Inom en snar framtid kommer många produkter som säljs i EU komma med en QR kod. Scannar du den här så kommer du kunna se hur produkten är tillverkad, vad den innehåller, hur man tar hand om den osv. Det verktyget kallas Digitalt Produktpass. EU kräver företag att göra så här för att öka transparensen. Jag utforskar hur den här kommande teknologin påverkar individers beslut och tillit gällande möbelköp."

SCENARIO

Tänk att du ska köpa en **ny** stol. Den är ganska dyr, så det är en investering för dig. Du står och väger mellan den här och en billigare variant. Innan vi tittar vidare: vad är den absolut viktigaste informationen du behöver få till dig i början för att motivera det höga priset?

VISA DPP 1

- Föreställ dig att du kollar runt på nätet efter möbler, och du märker att vid varje möbel finns den här knappen. Vad hade fått dig att stanna upp och klicka på den?
- (DPP start) Föreställ dig att fälten under 'historik' är tomma nu, som på en helt ny stol. Vad dras dina ögon mot på den här skärmen? Känns det du dras till relevant?
 - Om inte, vad saknas?
- Låt oss säga att stolen är perfekt för ditt vardagsrum och priset känns bra. Men när du öppnar passet ser du att den får dåligt betyg på hållbarhet (röd färg). Handen på hjärtat: Avstår du köpet då, eller väger något annat tyngre? I så fall, vad?
- Om du istället öppnar passet och direkt ser en stor grön bock eller 'Betyg A' – känner du då att du måste läsa alla detaljer, eller litar du på betyget och går direkt till kassan?
- Vad får dig att lita på att den här stolen kommer hålla i 10 år?
 - Hade det kunnat visualiseras på något sätt tror du?

- 1-6, hur troligt är det att du tar dig in på det här verktyget när du kollar möbler online?
 - Varför satte du den siffran?
- 1-6, hur troligt är det att du orkar ta upp mobilen och skanna en QR-kod i en butik?
 - Varför satte du den siffran?
- 1-6, om du väl har infon upp, hur troligt är det att den påverkar ditt beslut?
 - Varför satte du den siffran?

NYTT SCENARIO - SECOND HAND TA HAND OM

Nu spolar vi fram tiden ett tag och du har nu möbelen hemma. Tanken är att DPP ska kunna förenkla ditt möbeläggande genom att ge dig information om hur du tar hand om möbelen, hur du kan reparera möbelen, etc. Du kan också lägga till information om dina möbler inuti DPPT för att öka trovärdigheten till en framtida köpare. Men först så kollar vi på scenariot att du vill ta hand om möbelen, t.ex. om den gått sönder.

VISA DPP 2

- Här kan du se betydligt mer information och text än på förra sidan. Hur reagerar du spontant på den här mängden data: Känner du trygghet i och med mycket info, eller känner du att det blir för krångligt?
 - Du får kolla runt lite för att se vad som finns tillgängligt
 - Vad i den här sidan tycker du är viktigast att se först?
- I nuläget, om ett ben hade gått sönder på din stol, vad hade du gjort då? Slängt, lagat eller ringt någon?

OM REPARERAR:

- Vad är det absolut jobbigaste med att laga möbler idag?
 - Hur hade det här verktyget kunna hjälpa dig i din reparationsprocess?

OM INTE REPARERAR:

- Om du läser om reservdelar i närheten, tror du ärligt att du hade reparerat den själv då?
 - Om inte, vad hade krävts? Video på hur man gör?
 - Hade info om reparatörer nära hjälpt?
- Om passet skickade dig en notis en gång om året: 'Dags att olja stolen' - hade du gjort det då, eller hade du blivit irriterad och stängt av notiserna?
- På en skala 1-6, hur sannolikt är det att du hade lagat stolen med hjälp av det här verktyget?
 - Varför satte du den siffran?

SÄLJ

- Om du visste att du kunde få ut mer pengar från att sälja möbelen om du uppdaterade DPPT kontinuerligt, hade du gjort det? Eller är det till för mycket besvär?
 - På vilket sätt för mycket besvär?
- 1-6, hur troligt är det att du nyttjar verktyget till försäljning av möbler?

- Varför satte du den siffran?

KÖPA

- När du handlar second-hand möbler, vad får dig att tveka?
 - Hur hade det här verktyget kunna hjälpa dig?
- Så jämfört med en vanlig blocket-annons: får den här datan dig att lita på säljaren, eller känns det rörigt?
- 1-6, hur troligt är det att du skulle använda DPP i den här kontexten?
 - Varför satte du den siffran?

SLUTFRÅGOR

Visa papper där de får placera ut post its kring vad de tycker är viktigt att ha eller bara trevligt att ha. Varför placerar du dom som du gör?

Och till sist: Är det någonting du förväntade dig att detta verktyget gör, som vi inte pratat om idag?

A.2 Co-design workshop structure

Intro - 0 - 10 minuter

- Folk på rätt plats
- GDPR ifyllda - inspelning på borden
- Introducera workshopen och DPP
 - Vad är ett DPP? EU tvingar, jag vill kolla vad konsumenter faktiskt vill ha.
 - Cirkularitet, hållbara köp.
- Agendan kort
- Berätta om vad målet med workshopen är
- Diskutera i par om känslan kring möbelköp, nyköp eller second hand beror på grupp. (timer stopp)

Individuellt, crazy-4 - 10 - 17 minuter

- Bara ord, skriv ner allt ni associerar med ett bra möbelköp!
- Baserat på era ord, rita den första mest logiska layouten ni tänker på!
- Bara ritande, hur visar ni hållbarhet med bara former och ikoner?
- Vildkortet, helt obegränsad budget och teknik, hur ser det ut?

Gruppaktivitet 1 - 17 - 32 minuter

- Nyköp: Designa ett DPP som får dig att känna dig 100 % trygg i att den här möbeln är en smart, långsiktig investering.
- Second hand grupp: Designa ett DPP som gör det absolut enklast och mest lockande att behålla och laga möbeln, snarare än att köpa en ny.

BRYT - Ta kaffe / fika ! 5 min paus

Gruppaktivitet 2 - 37 - 52 minuter (NYA SKÄRMAR)

- Nyköp går över till att tänka nyköp i butik. Tänk alla scenarior och framförallt, tänk utanför QR-koden.
- Second hand grupp designar ett DPP för att köpa möbler second hand. Vad behöver finnas för att ni ska känna är 100% trygga i att den möbeln är en smart, långsiktig investering?

Slutpresentationer - 52 - 75 minuter

- Grupp nyköp presenterar första och andra DPP:t för dom andra, och berättar varför de skiljer sig / liknar varandra.
 - Berätta tankegångar, jag utmanar lite
 - Andra gruppen utmanar
- Grupp second hand presenterar deras två DPP och berättar varför de skiljer sig / liknar varandra.
 - Berätta tankegångar, jag utmanar lite
 - Andra gruppen utmanar

Att ha i åtanke under tiden:

Reparerbarhet / reparationstjänster	Investering
Hierarki på saker och ting	DRIVKRAFT
Att de tänker brett!	

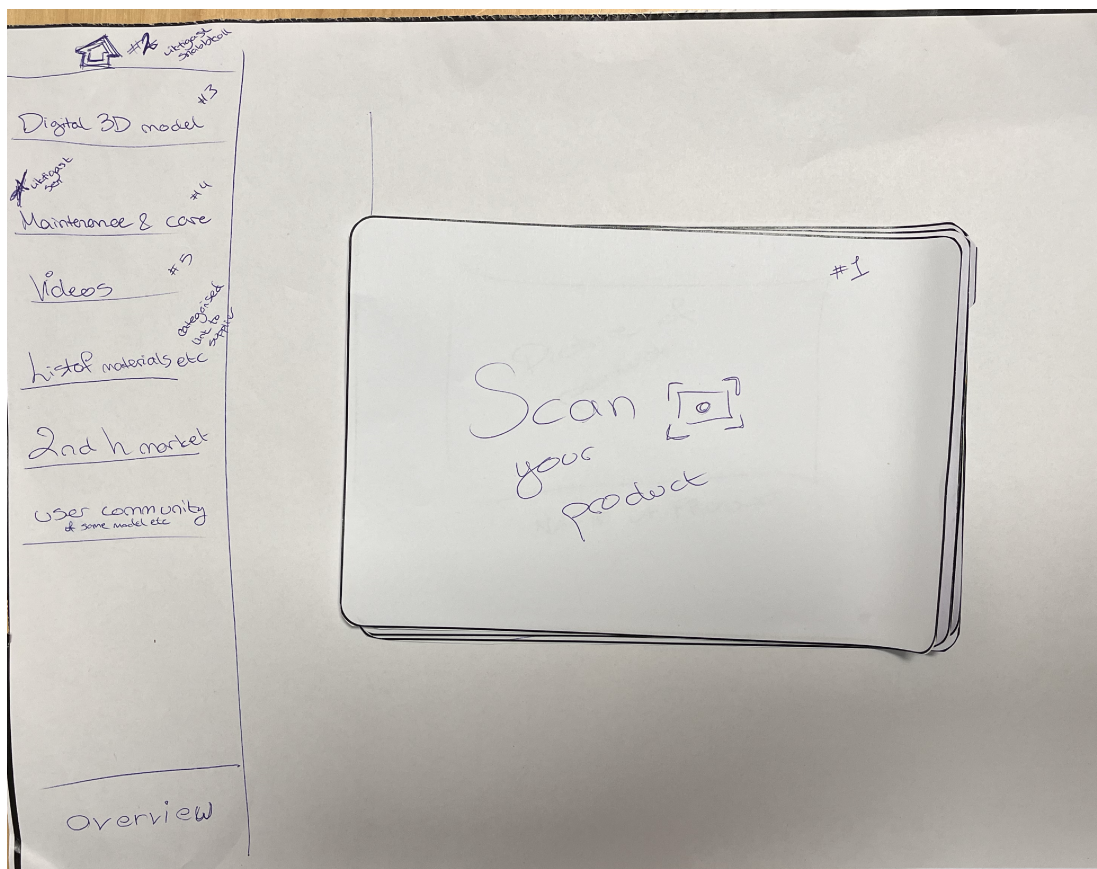
A.3 Co-design toolkit



A.4 Acquisition group interface



A.5 Ownership group interface



A.6 Interview template 2

VIKTEN AV DERAS OPARTISKHET

Jag vill vara tydlig med att jag inte testar dig eller dina kunskaper, utan jag testar om det här konceptet fungerar. Det finns inga rätt eller fel svar, det är dina ärliga tankar som hjälper mig! Var gärna kritisk, du kan inte såra mig på något sätt. Är något förvirrande så är det viktigt för mitt arbete att jag får veta det, att du säger vad du faktiskt tycker är guld värt. Det går inte att navigera till varje del av DPP:t då det är en prototyp.

GDPR

Men först, signera GDPR. SEN KLICKA SPELA IN:

- Din ålder?
- Vilken sysselsättning har du?
- Vilket kön identifierar du dig med?
- Vilken boendeform har du? (Äga / hyra)
- När du köpte din senaste möbel - var det nytt eller begagnat, och vad avgjorde köpet?

PRAT OM DPP

- Hej ____!
- Spännande! --> Vad vet du om Digitala Produktpass?
 - "Inom en snar framtid kommer många produkter som säljs i EU komma med en QR kod. Scannar du den här så kommer du kunna se hur produkten är tillverkad, vad den innehåller, hur man tar hand om den osv. Det verktyget kallas Digitalt Produktpass. EU kräver företag att göra så här för att öka transparensen. Jag utforskar hur den här kommande teknologin påverkar individers beslut och tillit gällande möbelköp."

Först två frågor:

Hur brukar du göra när du köper möbler idag?

Har du någonsin lagat en möbel, eller brukar du slänga/skänka när något går sönder?

Scenario 1: Nyköp

Du behöver köpa en ny soffa och har satt din budget till 6000 SEK. Du letar runt online och landar på två soffor som tilltalar dig, en som kostar 6000, och en som kostar 10 tusen kr. Du har råd med den dyrare, men det svider och innebär att du måste gå över din smärtgräns. Gå in på dessa två soffor och utforska informationen, och berätta sedan vilken av dessa två du hade köpt. Du får gärna tänka högt under tiden du kollar på sofforna.

1. Vilken soffa hade du valt och varför?
2. Var det någon specifik information som fick dig att tippa över till det beslutet?
3. (Om ROI missas helt)
 - a. Kan du ta reda på hur väl möbeln behåller sitt värde över tid?
 - b. (Om grafen): Vad berättar den här grafen för dig?

Scenario 2: Möbelägande och värde

Du har nu köpt den soffan du valde och har den hemma. Vi tittar på hur appen fungerar när du redan äger möbeln.

1. Var i appen skulle du klicka för att se hur du håller soffan i toppskick över tid, så att den inte tappar i värde?
2. Hitta informationen om hur andrahandsvärdet bäst bevaras.
 - a. Vad berättar grafen för dig?
 - b. Alternativen under grafen, vad är du villig att göra för att behålla värdet?

Scenario 3: Reparation

Du har nu möbeln hemma och ett ben har helt gått av från din soffa. Ta reda på hur du kan fixa möbeln med hjälp av DPP:t.

1. Använd DPP:t för att ta reda på hur du kan lösa ditt problem.
 - a. Skulle du vilja fixa problemet själv, eller att en hantverkare fixar det åt dig?

Likertskalar:

- 1-6, hur troligt är det att du tar dig in på det här verktyget när du kollar möbler online?
 - Varför satte du den siffran?
- 1-6, hur troligt är det att du orkar ta upp mobilen och skanna en QR-kod i en butik?
 - Varför satte du den siffran?
- 1-6, om du väl har infon uppe, hur troligt är det att den påverkar ditt beslut?
 - Varför satte du den siffran?
- På en skala 1-6, hur sannolikt är det att du hade lagat soffan med hjälp av det här verktyget?
 - Varför satte du den siffran?
- 1-6, hur troligt är det att du nyttjar verktyget till försäljning av möbler?
 - Varför satte du den siffran?
- 1-6, hur troligt är det att du skulle använda DPP i kontexten av att köpa möbler second hand?
 - Varför satte du den siffran?
 - *Vilken information som DPP:t kan ge får dig att lita mer på ett secondhand köp?*

Vilken mängd info känns rimligt för dina behov?

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