



The behavioural implications of sustainable service design in the fashion industry

Cynthia Tze Keng Ko
MSc. Design for Interaction

Master thesis

*Re:Create - The behavioural implications
of sustainable service design in the fashion industry*

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Preface

Sustainability must be one of the most complex and pressing issues of our era. My mind has certainly been spinning in whirlwinds whilst analysing this subject from a psychological and behavioural perspective. Whether it was about sustainable food consumption in previous projects, or encouraging sustainable fashion behaviour in this master thesis... I couldn't help but wonder: is changing someone's behaviour truly possible?

As a designer, there's only one way to find out: by digging through people's minds, countless academic papers, prototypes... anything to continue weaving this expansive web of research, until the dots can finally be connected. To me, design is an interdisciplinary profession that turns this web into silk fabric: the way human, business and technological needs merge together seamlessly. This is both exciting and challenging, but doing something you love does make things better.

I have been lucky in my project, since I could combine my two main passions: social science and sustainability. Seeing the knowledge and skills that I have gathered over the years come to fruition was a true joy. My academic journey from Delft to Sydney, Aachen and London led me to where I am today. Because of this, numerous brilliant people have crossed my path. These people have shaped the way I am today, and this project is the best example of how someone with multiple interests and struggles still manages to pull it all together collaboratively.

Specifically, I would like to thank my supervisors, Nynke Tromp and Vivian Tunn. These women have helped me think outside the box, see clarity in my chaos, and get comfortable with myself as a designer as opposed to just a researcher. On the other hand, my lovely professors at UCL (Leslie Gutman, Danielle D'Lima & Susan Michie) have certainly widened my view on what a 'rigorous' researcher should look like. Without them, my project would not have its behavioural foundation.

This project would also not be possible without the support of King Louie. Especially my mentor, Diane van Ieperen, along with numerous lovely colleagues in the marketing/e-commerce department and beyond, have made coming to the office a joy (even though the last two months were spent in lockdown).

I would like to give special thanks to the external experts that contributed to this project: Emma van de Ven (Rabobank/Circl Economy), Irene Maldini (Hogeschool van Amsterdam), Jan Konietzko (TU Delft), Nanette Hogervorst (The sustainable fashion giftcard), Georgia Parker (Fashion for Good), Coen Baars (Giftomatic), Danielle D'Lima (University College London), Rachel Gray and Sarah Gray (WRAP).

Most of all, I would like to thank my parents, siblings and friends for giving me the strength and comfort to finish this marathon. Infinite thanks go to my university peers, from those that contributed to this project (Ragna, Irene & Diego) to the crazy creative geniuses that spent multiple evenings with me at the faculty, eating pizza, finishing design projects. Not to forget my UCL-mates in the United Kingdom, who motivated me to keep running, and who kept me sane even from abroad.

Cynthia Ko

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0.1 Executive summary

Due to emerging climate concerns, a growing pressure is put on the fashion industry to adopt circular business models which encourage sustainable usage of clothing. The clothing supply chain is currently both complicated and polluting. Paired with rising quantities of clothing sales, technological solutions will only temporarily tackle the symptoms of a deeply rooted issue, namely mass-consumerism and underutilisation.

How can fashion companies encourage their customers to use their current clothes more often whilst consuming less, in a way that's also attractive from a business perspective?

This project investigates the behavioural implications of creating such a sustainable clothing service. Research is conducted in the context of King Louie: a Dutch, vintage-inspired womenswear brand.

In-depth interviews and surveys focussing on women around their 30s have revealed the following:

- Clothes can be appreciated due to functional needs (practical value or monetary/material value) or psychological needs (the value of self-expression, social levelling, having a hobby or aesthetics).
- Regardless of their age or lifestyle, most women have a 'bi-annual wardrobe re-organisation' moment. This causes them to reflect on their clothes.
- Friends and relatives can highly influence how clothes are valued and when new clothes are sought.

For most of these women, having and using clothes is part of a hobby, because they enjoy matching clothes together and digitally interacting with their peers about this. Clothes are also a part of their identity, which increases the desire to own more clothes. These 'Experiential clothing users' would benefit from a clothing service that renews their clothes' self-expression value through a social, qualitative experience... starting with a wardrobe re-organisation.

Based on this, Re:Create was developed: a digital wardrobe and peer-to-peer styling app. This service was designed by using an interdisciplinary method, combining service design with behavioural science (using the Behaviour Change Wheel approach).

The behavioural science behind Re:Create focusses on the use of 'Persuasion', 'Modelling' and 'Training'. Furthermore, it taps into women's sense of identity ('The woman I want to be', 'The woman I am most of the time', 'The woman I fear I could be') and takes them on an emotional self-discovery journey that emphasises on the value of self-expression.

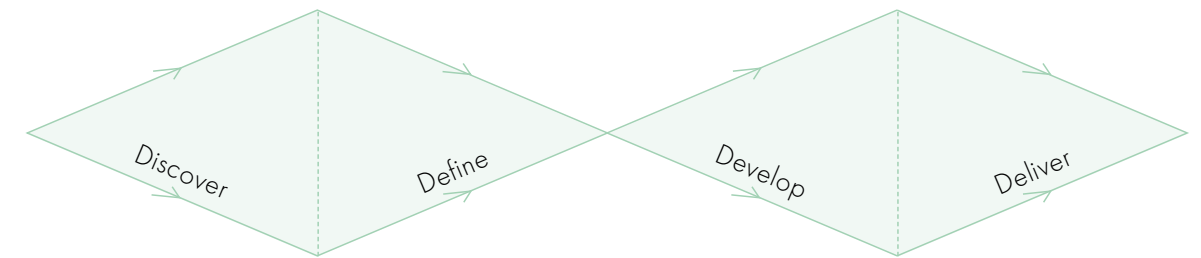
The sustainability vision behind Re:Create is that women can 'shop in their own wardrobe' before shopping for something new; this stimulates product-life extension and the reduction of consumption. If 'new' garments are needed, Re:Create's second-hand webshop encourages re-using someone else's clothes as a means of collective product-life extension.

The business value of Re:Create is that it helps a cluster of high-quality, sustainable brands gain brand exposure and possibly meet new consumer segments through its 'network effect'. In the future, revenue from a self-controlled second-hand market can elevate circular business model implications.

Testing the behavioural principles of Re:Create reveals that the app can indeed be an enjoyable and valuable service. Participants learned to re-value clothes they hadn't worn in a while, by matching them in a different way. Although digitalising one's wardrobe requires effort, women were willing to do this again in retrospect because the experience with Peer Stylists has given them a new perspective on their own wardrobe.

From a business and sustainability point of view, more research must be done in terms of viable partnerships that could help raise Re:Create to a fully sustainable yet financially-attractive level.

Process summary



Chapter 1:

- Literature research (behaviour, business & sustainability)
- Methodological frameworks

Chapter 2:

- Marketing Mix
- Social media research
- KL sustainability research

Chapter 3:

- Literature research
- Surveys (n=78; n=163)
- Interviews (n=10) and COM-B analysis
- Intervention Functions

Chapter 4:

- Design guidelines
- Design goal (target group & creative territories)
- Design rationale

Chapter 5:

- Influencer research
- Expert conversations
- Ideation
- Conceptualisation

Chapter 6:

- KL colleague test (n = 2)
- Sustainability exploration
- Peer design test (n = 4)
- Wardrobe app comparison

Chapter 7:

- Value proposition model
- Business model canvas
- Circular economy business model framework
- Customer journey mapping
- Behaviour Change Techniques

Chapter 8:

- User interface prototyping

Chapter 9:

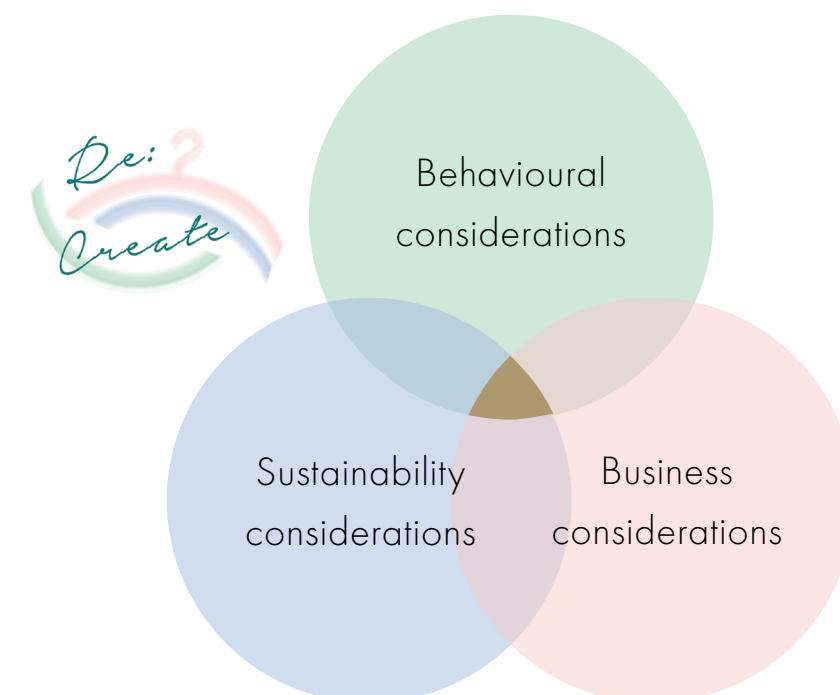
- Customer tests (n = 6)
- Expert conversations (n = 7)
- Design and research recommendations

Chapter 10:

- Implementation roadmap
- Service blueprint

Chapter 11:

- Reflection



0.2 Concept overview of the Re:Create app

1. Re-organise your wardrobe

Create peace in your wardrobe chaos by sorting your clothes bianually.

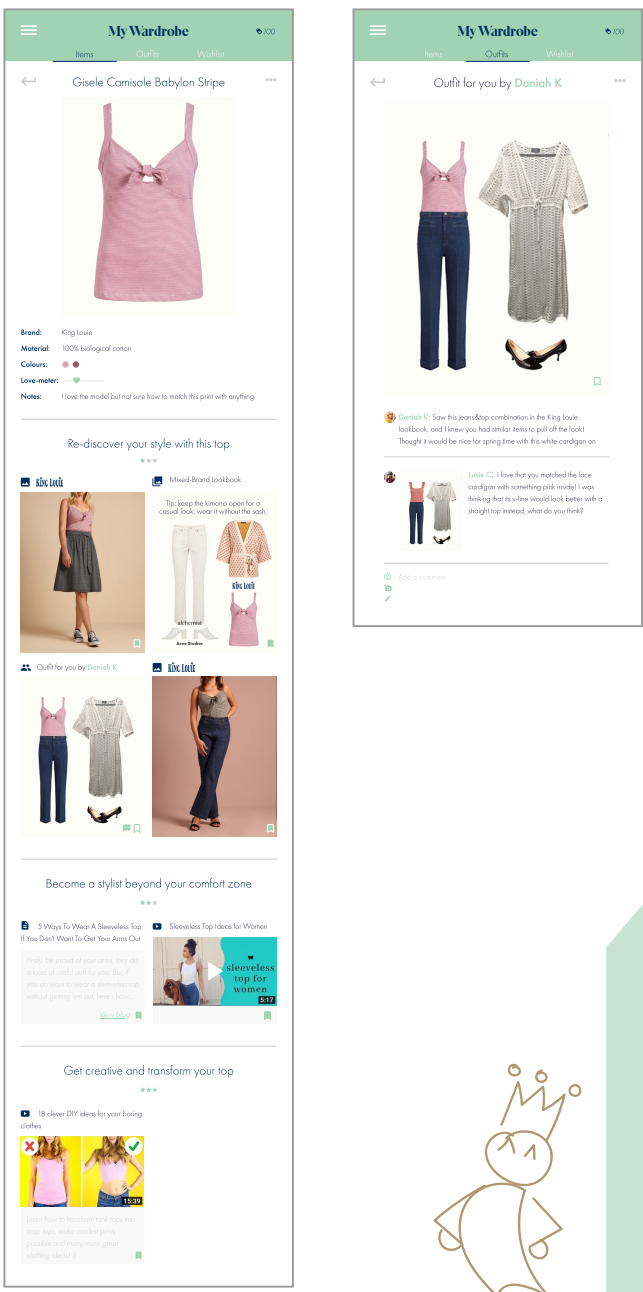
2. Create your digital wardrobe

A step-by-step journey of self-discovery: the more items you upload, the more tailored content you get.



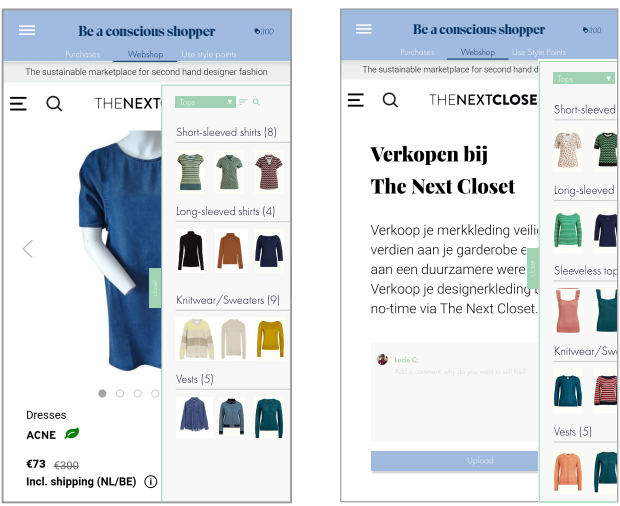
3. Rediscover yourself through peers and tailored content

Gain personal outfit suggestions from peers, browse through general mix & match ideas from brands or use creative content to get crafty.



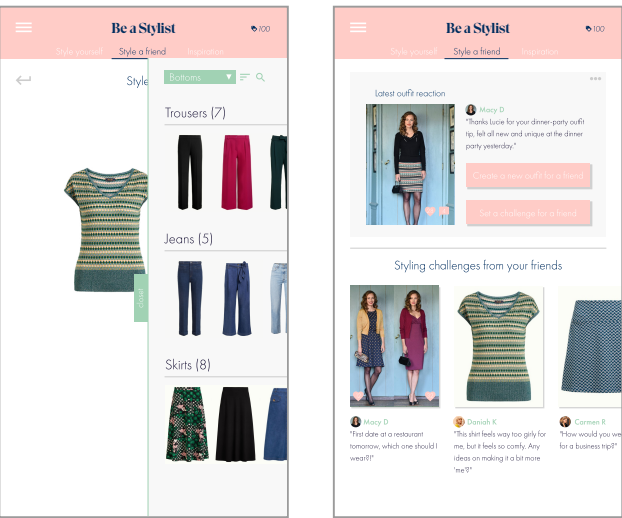
4. Sell or buy pre-loved items by matching these with your digital wardrobe

If nothing works out: buy or sell pre-loved items. Take responsibility of your wardrobe.



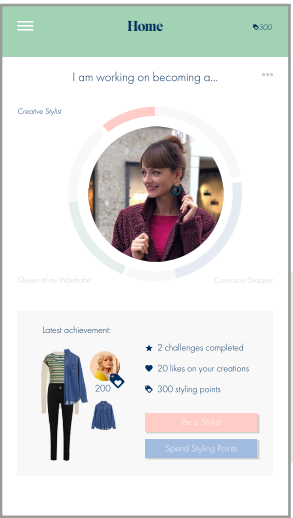
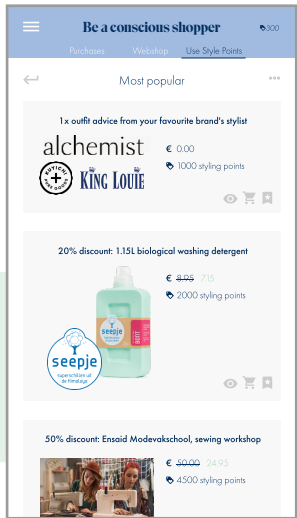
5. Become a creative Peer Stylist

Use items from your peer's digital wardrobe and help them love their clothes by suggesting new outfit combinations.



7. Use Style Points to continue your journey

Exchange your points for a product, service or experience that helps you become more sustainable.



6. Work on your own fashion identity

Become a Queen of your Wardrobe, a Creative Stylist or a Conscious Shopper.



0.3 Glossary

COM-B: Capabilities-Opportunities-Motivation behavioural theory (associated with the BCW approach).

B2C: Business to Consumer.

BCW: Behaviour Change Wheel, an approach for behavioural intervention design by Michie and colleagues (2012).

BCT: Behaviour Change Technique; active ingredients that have been used in other behavioural interventions before with empirical evidence of their effectiveness (associated with the BCW approach).

FWF: Fair Wear Foundation

GHG: Greenhouse gas

GOTS: Global Organic Textile Standard

IF: Intervention Function; broad categories in which to design behaviour change interventions (associated with the BCW approach).

KL: King Louie

MVP: Minimum Viable Product

P2P: Peer-to-Peer

USP: Unique Selling Point

This marks the beginning of a sub-chapter.

0.4 Reading guide

An explanation

Admittedly, doing an interdisciplinary project can result in an ocean of information. The author has tried her best to be as concise as possible and use visuals in nearly 50% of these pages, but mixing various tools and methodologies has still resulted in many research insights to be shared. A couple of reading aids throughout the report can hopefully make these 170 pages less overwhelming.

Read this if you are interested in a small story.

Hi, I am an Anecdote.

This is a small story that might make some of the research insights more (verbally) visual.

Read through these bits of texts if you're in a hurry and have no time to go through the whole report.

Main takeaways:

- Each sub-chapter contains this green rectangle of bite-sized information.
- That is, if it makes sense to synthesise the sub-chapter; most of Chapter 8-9 are detail-heavy chapters about the design which wouldn't make sense if summarised.
- If any of the bullet-points interest you, you can always decide to read the sub-chapter in question for more details.

This marks the end of a sub-chapter.

1 Introduction

This project focusses on the behavioural implications of service design and circular business models in the fashion industry, from a service designer's perspective. The state of sustainable fashion is first explored from an industry perspective through literature research, and then narrows down into the scope of this project, namely consumer behaviour.

This chapter provides the industrial, psychological and sociological background information of a polluted industry. Using this, the problem is defined and the relevant theoretical models are highlighted.



1.1 The state of (un)sustainable fashion

An industry of waste and pollution

Ever since the industrial revolution, consumerism has risen. From 2000 to 2015, clothing production has almost doubled, whilst clothing utilisation has decreased by 36% (Figure 1). Clothes are designed and used with a linear “take, make, dispose” system in mind, which puts tremendous pressure on the environment (Figure 2). Currently, clothing contributes to 2-10% of the environmental impact in EU consumption (European Parliament, 2019). This continues to grow, as European apparel companies release more collections each year: in the year 2000 these companies released ~2 collections a year; in 2011 this has risen to 5 collections, with big players such as Zara offering 24 collections (McKinsey, 2016)

The fashion industry is a complex system which urges responsibility from manufacturers, suppliers, fashion brands, designers, retailers and consumers. The life of a garment goes through several stages that contribute to the release of greenhouse gases (Ecochain, 2019):

- Fibre production (12% GHG emissions)
- Yarn preparation (22%)
- Fabric preparation (9%)
- Dyeing and finishing (28%)
- Assembly (5%)
- Distribution (1%)
- Use phase (23%)

Most of these GHG emission are attributed to energy usage. In 2015, this amounted to 1,715 million tons of CO₂, which is predicted to rise by 63% by 2030 (BCG & GFA, 2017). Besides the release of GHG gases, the production and usage of clothing taxes the environment through:

- **Water usage:** this is vital in the cultivation of natural fibres and the processing of fabrics.
- **Chemical usage:** fertilizers, pesticides, certain dyes and processing agents can cause health hazards and water pollution.
- **Waste creation:** overproduction is not uncommon, as 73% of the world’s clothing becomes waste (Ecochain, 2019). Only 20% of garments are recycled, with mixed impacts on quality due to inadequate technology.

Aiming for a technological reduction in either water consumption, energy emissions, chemical usage or waste creation would only result in a solution that tackles the symptoms of a deeply-rooted issue: namely mass-consumerism and underutilisation. These are results of a general consumer-attitude that clothes are disposable/replaceable, which undermines the time and material that goes into the production of clothing.

An UK study by WRAP (2012) has revealed that the environmental impact of the production process can be partially prevented if consumers use their existing clothes longer, whilst reducing the need to buy more new clothing (thus reducing the production of clothing). Currently, 30% of clothes are left unused in a wardrobe. If the life of a garment is extended by 3 months, this could result in an overall reduction of the carbon footprint by 7.7%, a water footprint reduction of 10%, and waste reduction of 8.8%.

This project will therefore focus on encouraging pro-environmental behaviour by targeting consumerism through product-life extension of clothing.

Main takeaways - Chapter 1.1:

- The clothing supply chain is complicated and highly polluting in terms of greenhouse gas emission, water usage, chemical usage and waste creation. Paired with rising quantities of clothing sales, technological solutions will only temporarily tackle the symptoms of a deeply rooted consumerist issue.
- 30% of clothes are left unused in wardrobes. Extending the usage of a garment by 3 months can already have tremendously positive environmental effects.
- This project will investigate the behavioural implications of creating a service that decreases mass-consumerism and underutilisation of clothes.



1.2 Our (un)sustainable behaviour

The socio-technological roots of (unsustainable) fashion behaviour

A visit to the Fashion for Good experience and the Victoria & Albert Museum (Figure 3) reveals that the root of our unsustainable fashion behaviour can be traced back to the late 1800's. This period brought the Industrial Revolution to Europe, introducing technological innovation which fuelled the production of textiles. Notable innovations that drove mass production include the sewing machine (1830), the first modern department store (La Ben Marché, 1852) and advancements in chemistry such as the creation of artificial dyes (1850-1970). After World War 2, mass production escalated and made affordable and diverse clothing accessible to the average consumer. Then came the swinging 60s, which marked clothing as a means of self-expression rather than a necessity. This was further fuelled in the 1990's as a result of fashion magazines and fashion exposure through the internet. At the same time, Board of Trade agreements and globalisation motivated western fashion to move their production to developing countries in South and East Asia, where labour was cheap and less regulated. Since 2008, clothing production has grown tremendously whilst prices continue to fall as a result of outsourced production at lower working wages and intensive competition between retailers. By now, the Fast Fashion 'epidemic' has been integrated in contemporary culture for decades already.

These wider technological trends are only one part of the story. Our continuous need for new clothing can also be attributed to sociological trends. Clothing is a personal product that fulfils deeply-rooted psycho-social needs, such as the establishment of identity. The way we dress communicates information about our own character and personality, where inappropriate clothing may communicate negative qualities and the manipulation of dress can communicate positive qualities (Laver and Laver, 1979). Congruence between the symbolic meaning an individual attaches to a garment and their self-concept can also affect an individual's evaluation of a garment (Jacobi and Walters, 1957). Throughout history, clothing has also

served to communicate information about whether one accepts or rejects the social order; one's status and one's nation (although this is currently less relevant in western mass-consumerism).

From a sociological perspective, clothes also contain cues which negotiate identities in a specific context, and communicate what kind of social situation people are in. For instance, it is socially established that one does not wear pyjamas to an office environment, since pyjamas denote a sleeping situation rather than a working situation. Clothing therefore influences the dynamics of social interaction through an understanding of mutual symbolic cues (Kaiser, 1983).

In summary, it is not that individuals are intentionally choosing what they wear or how often they purchase new clothes: this kind of behaviour has inherently been stimulated by socio-technological context factors that cannot be explained by just looking at the individual.

The psychological roots of unsustainable fashion behaviour

Social and environmental awareness is accelerating among the general mass, especially younger generations. A report by McKinsey & Company (2019) reveals that 9/10 Generation Z consumers believe that companies should address environmental and social issues, compared to generation Y that remains more interested in green issues. 2/3rd consumers worldwide also admit they would act based on a company's stance in critical issues.

However, even if individuals are environmentally conscious, this may not be enough to stimulate sustainable fashion behaviour. Several studies in other sectors have pointed out that there is a growing consumer appetite for sustainability, which does not necessarily translate to sustainable behaviour: this is the so-called 'intention-behaviour' gap (Young et al, 2010). In the context of eco-fashion (clothing made of sustainable materials), this intention-behaviour gap has been attributed to the high importance of aesthetics

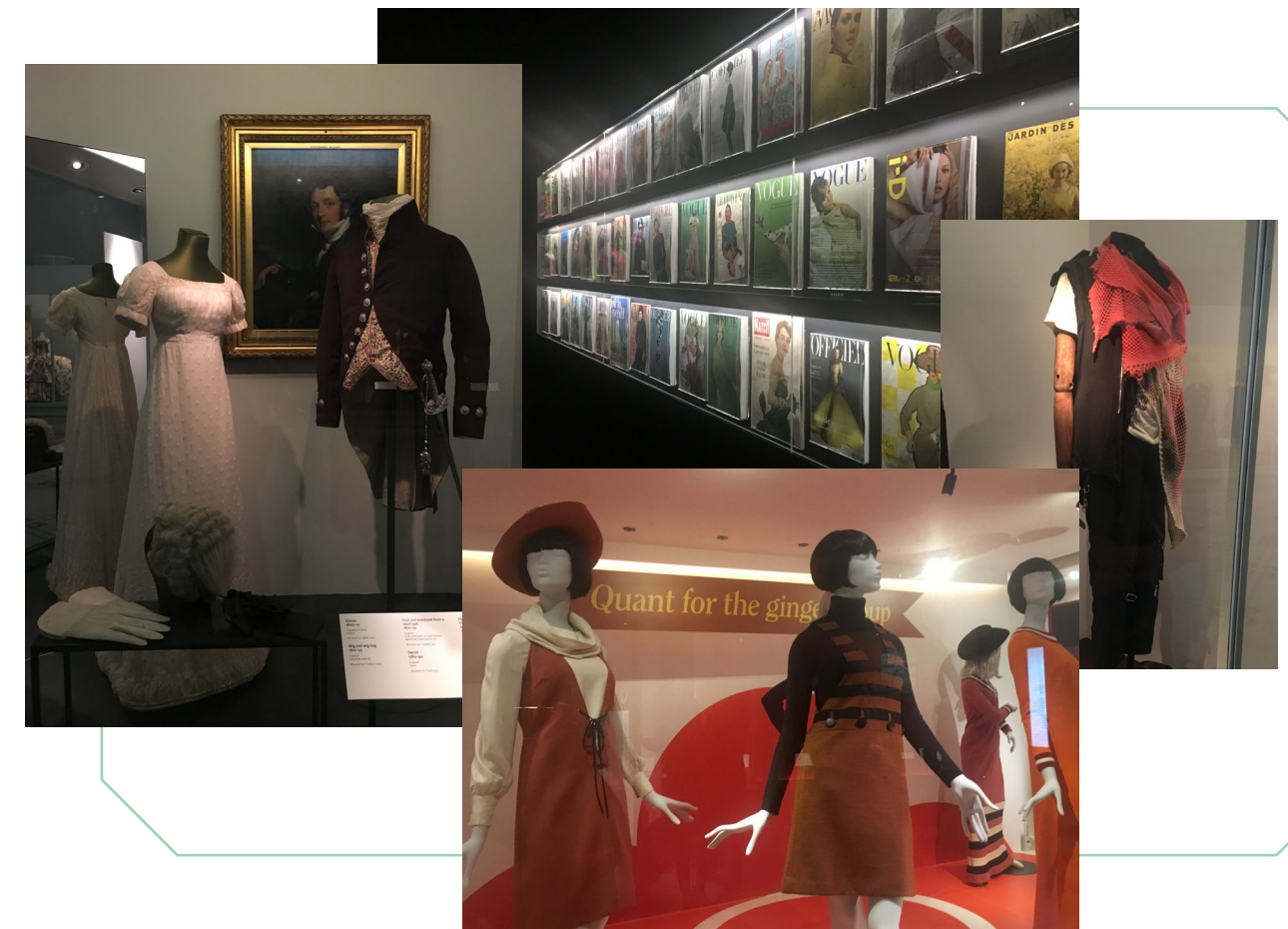


Figure 3: from pre-industrial, tailor-made courtyard fashion to a post-industrial, mass-produced fashion emporium of self-expression (pictures taken at the Victoria & Albert Museum, 2019)

when purchasing clothes. Furthermore, consumer do not want eco-friendly consumption to cause inconvenience, such as higher prices or uncomfortable materials (Joergens, 2006). Present trends in eco-fashion do not adhere to consumer needs (Niinimäki, 2010): clothing should first and foremost still adhere to a person's self-image and identity. Style, colour, fit and quality are predominantly in the foreground in terms of purchase decisions, rather than ethicality. This mindset can be seen in disposal behaviours as well, which is mainly driven by "changes in garments, size and fit issues, taste-related unsuitability, situational reasons, functional shortcomings and fashion or style changes" (Laitala & Boks, 2012).

Such an intention-behaviour gap exists because behaviour does not happen in a vacuum. Previously mentioned socio-technological factors are prominent in fashion behaviour, which sets the case for analysing fashion behaviour from a contextual perspective (i.e. beyond the individual).

Main takeaways - Chapter 1.2:

- The roots of mass-consumerism can be attributed to historical, technological trends starting from the industrial revolution. This is further stimulated by sociological needs; e.g. using clothes to establish identity and communicate socio-economic/context cues.
- The interest in sustainable fashion has increased with Generation Y and Z, but an 'intention-behaviour' gap exists, which is widened by the perceived inconvenience of eco-fashion. This prevents pro-environmental attitudes from translating into pro-environmental behaviour.
- To encourage behaviour change, both an individual, psychological perspective and a context-wide, socio-technological view must be considered.

1.3 Towards a circular fashion economy

Shifting away from a linear economy

Contrary to a linear “take-make-dispose” economy, a circular economy replaces the ‘end-of-life’ with restorative or regenerative efforts. The Circular Economy Butterfly Model (Figure 4) illustrates this with the circular flows of biological ‘nutrients’ (on the left) and technical ‘nutrients’ (on the right). In this model, waste is essentially designed out of the system through ‘the superior design of materials, products, systems, and, within this, business models” (Ellen MacArthur Foundation, 2017). The tighter the circle, the more environmental savings are made with minimal energy efforts.

According to the Ellen MacArthur foundation and its model, the prolongation of usage can be achieved by going through a cycle multiple times (e.g. constant re-use between different users) or spending more time within a cycle (e.g. making a user hold onto their product longer). Which approach is used will inevitably influence how a garment should be designed. Extending the lifespan of a product is also known as design for product longevity. Looking at the Circular Economy Butterfly Model, product longevity can be achieved through product maintenance/ prolonging and/or reuse/redistribution. This is the scope in which this project will take place.

For the technical nutrients, the concept of a consumer is replaced with that of a user. This conceptualisation urges us to move away from today’s ‘buy-and-consume’ economy, towards a fashion industry where clothes or its materials cycle through multiple users, for example by leasing, renting or sharing. In the Butterfly Model, these efforts are results of product reuse, i.e. “the use of a product again for the same purpose in its original form or with little enhancement or change”. If products, their components and materials can be used multiple times, virgin material inflows will be substituted to counter material outflow.

Towards circular business models based on consumer needs and behaviours

The relationship we have with clothing is complex and needs different approaches depending on the type of consumer we are dealing with. Motives may be present at purchase or when clothing is worn; distinguishing between practical motives, emotional motives and social motives (Ellen MacArthur Foundation, 2017). Furthermore, a consumer may belong to a different consumer type(s) depending on the situation.

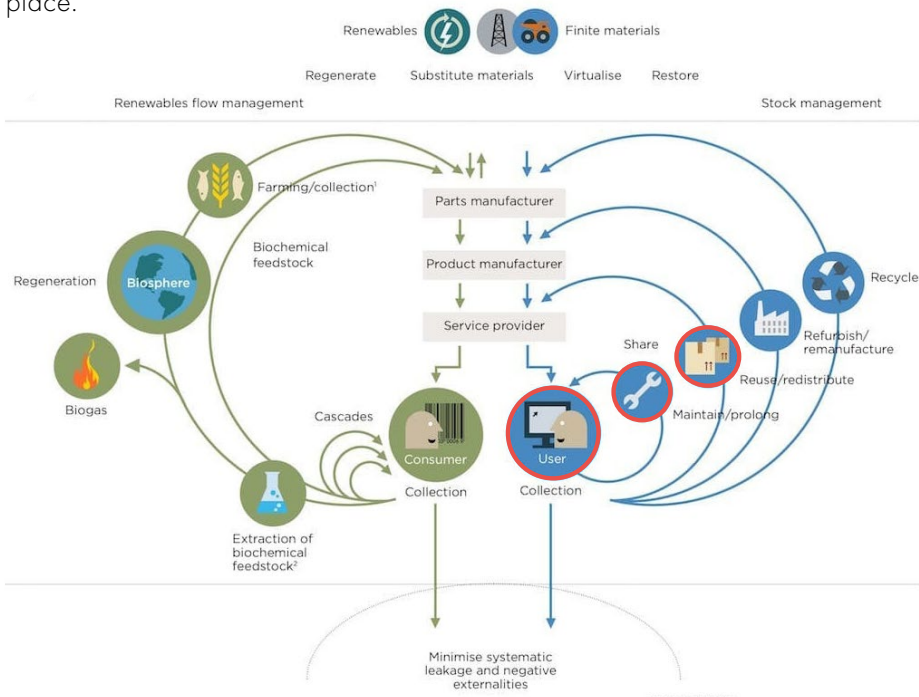


Figure 4: The Circular Butterfly Model (Image source: Ellen MacArthur Foundation, 2017). The technical nutrients through the ‘user’, ‘share’, ‘maintain/prolong’ and ‘reuse/redistribute’ stages are highlighted and encompass the scope of this project.

Figure 5 shows how different types of consumers need different business models:

- **Rental subscription:** a monthly fee is paid to gain access to a fixed number of clothes whenever the customer desires; allowing for frequent outfit change. This model is typically used for ‘fast fashion’ items.
- **Short-term rental:** garments are rent for one-off occasions or specific needs such as maternity wear or sportswear.
- **Sale of highly durable clothes:** high-quality clothes are purchased which come with an additional service to maintain the durability of a garment, such as through repair services. This model is typically used for non-seasonal fashion.
- **Resale:** all types of renewed/refurbished clothing are bought which have been used by others beforehand.

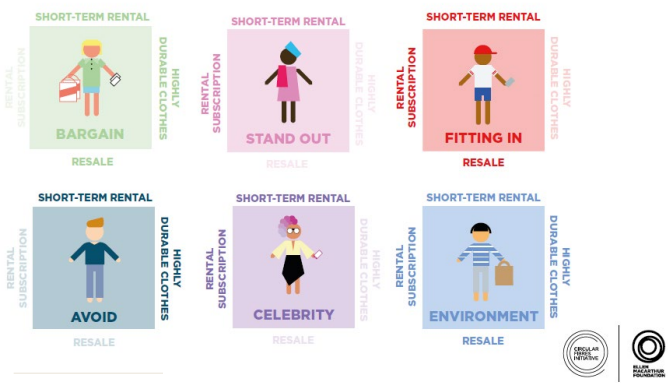


Figure 5: An illustration of how various customer types may prefer different types of access-based clothing services, depending on their needs. (Image source: Ellen MacArthur Foundation, 2017)

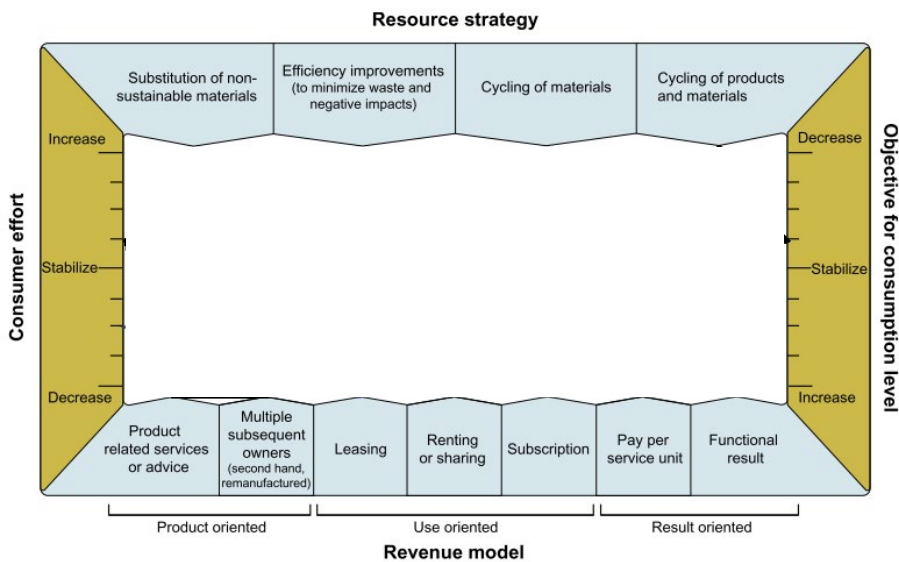


Figure 6: Circular Business Model framework (Tunn et al, 2019); showing how the resource strategy, revenue model, objective for consumption level and consumer effort can have different outcomes depending on the type of business model.

Main takeaways - Chapter 1.3:

- The “take-make-dispose” economy should make place for a circular economy: a fashion industry where clothes or its materials cycle through multiple users, and where clothes are used as long as possible.
- Several business models adhere to the principles of a circular economy, but their success and suitability depends on consumer behaviours. Understanding consumers is therefore the core of designing a new pro-environmental clothing service.

1.4 Methodology

An interdisciplinary approach

This design project will be based on a service design approach due to the author's personal interest in service design, as opposed to product design. Service design is "both broad and deep and necessarily covers many areas and disciplines" (Polaine et al 2013). However, it works best in collaboration with diverse disciplines, which is why an interdisciplinary approach is advocated for this project.

Interdisciplinarity "synthesizes and harmonizes links between disciplines into a coordinated and coherent whole" (Choi & Pak, 2006). It draws from individual disciplinary strengths and is characterised by making these disciplines work together with a shared understanding and goal to generate something new (Whitfield & Reid, 2004).

The project will therefore also include a behavioural science approach and consider circular economy principles (Figure 7) according to this project's problem definition, namely: how can we encourage pro-environmental consumer behaviour in the fashion industry?

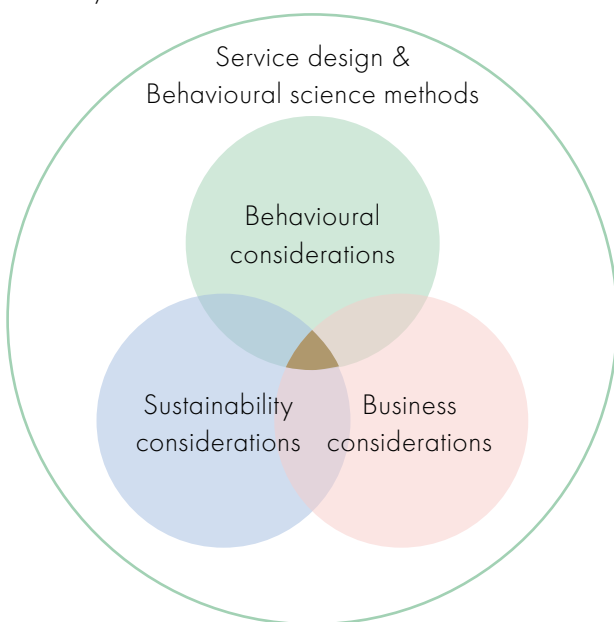


Figure 7: visualisation of the project's scope; focussing on three main pillars (behaviour, business and sustainability) through service design and behavioural science methods.

Service design approach

Service design is a discipline that involves the analysis and design based on multiple touchpoints in a customer journey, rather than one touchpoint (i.e. a product). The design experience might span from an activation campaign to the use of a service (which may include several products).

To ensure a cohesive and well-researched service, this project will use the following tools:

1. Design Council's Double Diamond Method

According to the Design Council, "the two diamonds represent a process of exploring an issue more widely or deeply (divergent thinking) and then taking focused action (convergent thinking)" (Figure 8). The four 'design phases' (Discover, Define, Develop and Deliver) guide a designer through the necessary steps to ensure a tangible design outcome.

2. Customer journey map

Polaine and colleagues (2013) suggest that users "experience services in totality and base their judgment on how well everything works together to provide them with value". A customer journey map visualises this experience from an individual's perspective over time, across channels (Grocki, 2014).

3. Service blueprint

Bridging a service's 'front stage' (the user's actions and experience) and 'back stage' (the service provider's technical or business tools) is vital to ensure user needs can be met and delivered effectively (Glushko & Tabas, 2008). A common tool for this purpose is the service blueprint: "a diagram that visualizes the relationships between different service components — people, props (physical or digital evidence), and processes — that are directly tied to touchpoints in a specific customer journey." (Gibbons, 2017)

Figure 8 shows a simplified version of what a customer journey map combined with the backstage processes of a service blueprint might look like.

Design council's double diamond method

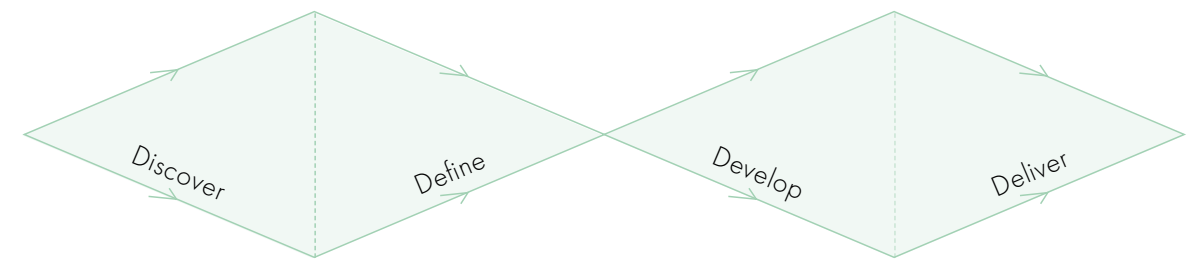


Figure 8: visualisation of a design method that encourages both divergent and convergent thinking throughout the design process.

Combined customer journey map and service blueprint

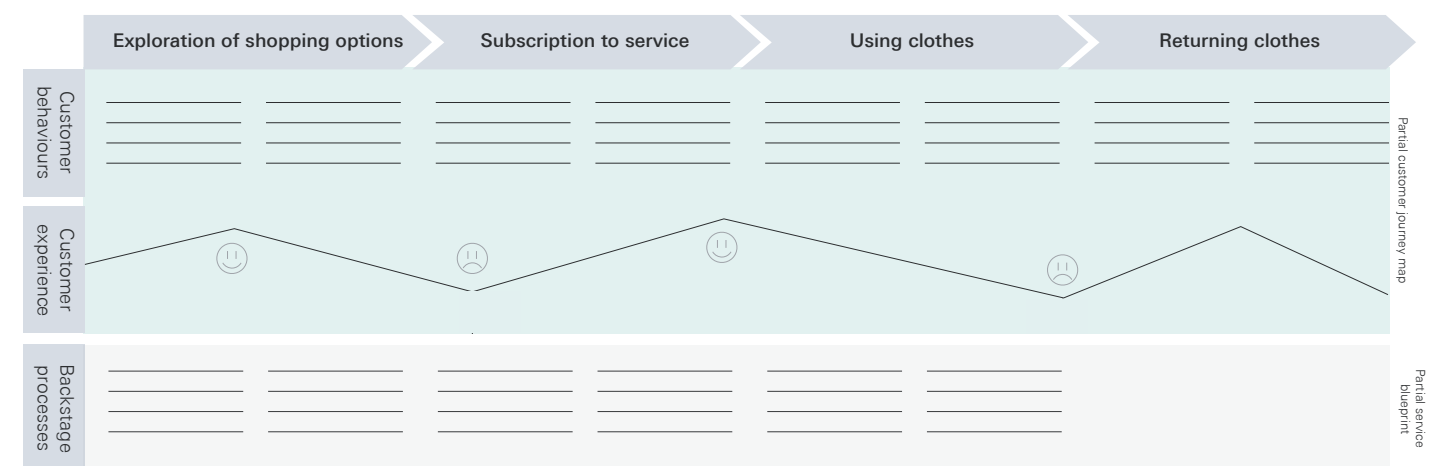


Figure 9: a service design tool that distinguishes between the frontstage and backstage processes in a service.

4. Value proposition model and Business model canvas (Figure 9)

"The Value Proposition Canvas is a plug-in tool to the Business Model Canvas. It allows you to describe your Value Propositions and the target Customer Segments in more detail and evaluate the "fit" between the value you intend to create and the expectations your customers have." - Strategyzer

The business model canvas is a generic tool for considering the business value and the resources needed when developing a service. Where a service blueprint covers the logistics of a 'back stage' process, the business model canvas can determine broader, strategic implications.

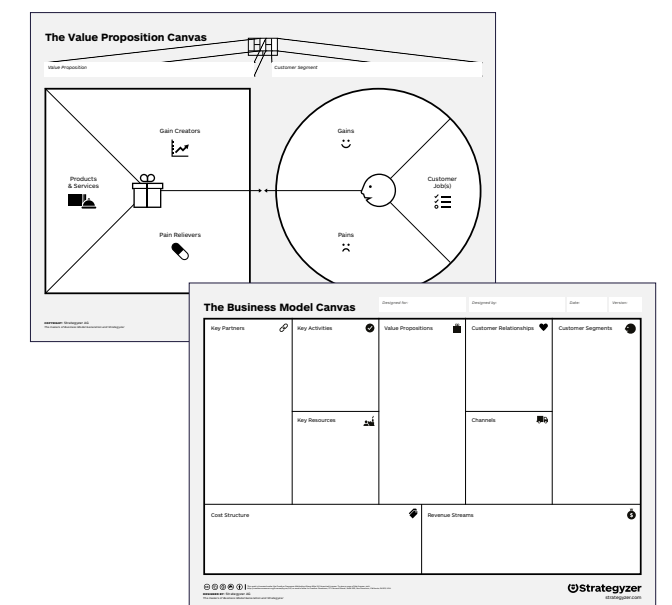


Figure 9: Strategyzer's Value Proposition Canvas and Business Model Canvas templates.

Behavioural science approach

Determining barriers and facilitators of behaviour change helps us understand the problem, but this does not tell us how these factors are related and how they can be used to create an intervention for change. A theoretical framework is needed to do this. In this project, two are chosen.

1. The Behaviour Change Wheel Approach using the COM-B model of behaviour change (Michie et al)

The COM-B model posits that behaviour is driven or halted by an interplay of Capabilities, Opportunities and Motivations (Figure 10). Using this model helps to create a broad understanding of a behavioural problem and pinpoints the most prominent problem factors. Due to the broadness of this model, it is especially useful when a context has not been explored yet. It can support design for behavioural change in one of two ways:

- Using COM-B, an immediate transition can be made to the Behaviour Change Wheel (BCW) approach. The BCW approach allows for a systematic way of intervention development (Michie, Atkins & West, 2014; Michie, van Stralen & West, 2011). It uses the COM-B factors as a starting point to determine possibly effective intervention functions (Figure 11), which then lead to the identification of Behaviour Change Techniques (BCTs, Michie et al, 2013). BCTs are active ingredients that have been used in other behavioural interventions before with empirical evidence of their effectiveness.
- COM-B can also be used as a 'stepping stone' to other behavioural theories. If a problem is obviously engrained in COM-B factors that are prevalent in other behavioural theories, another theory or stream of thought can be chosen to develop design interventions with.

Which behavioural design approach is chosen will depend on design insights, but being aware of factors beyond individual intentions is crucial in the first research phase. After all, a mere intention to become sustainable does not directly translate into pro-environmental behaviour (Young et al, 2010).

2. The socio-ecological model (Bronfenbrenner)

This model (Figure 12) states that there are several system levels beyond the individual:

- A microsystem which includes immediate social connections.
- A mesosystem which is the connection between several microsystems.
- An exosystem which includes wider influences that go through the microsystem first rather than directly involving the individual.
- A macrosystem that includes 'attitudes and ideologies of the culture'

Using this model could help pinpoint which system level is most influential in clothing behaviours, and therefore at which level the design should take place. In this project, it will be used as a scoping tool, whereas the COM-B/BCW will be the main guides of behavioural intervention design.

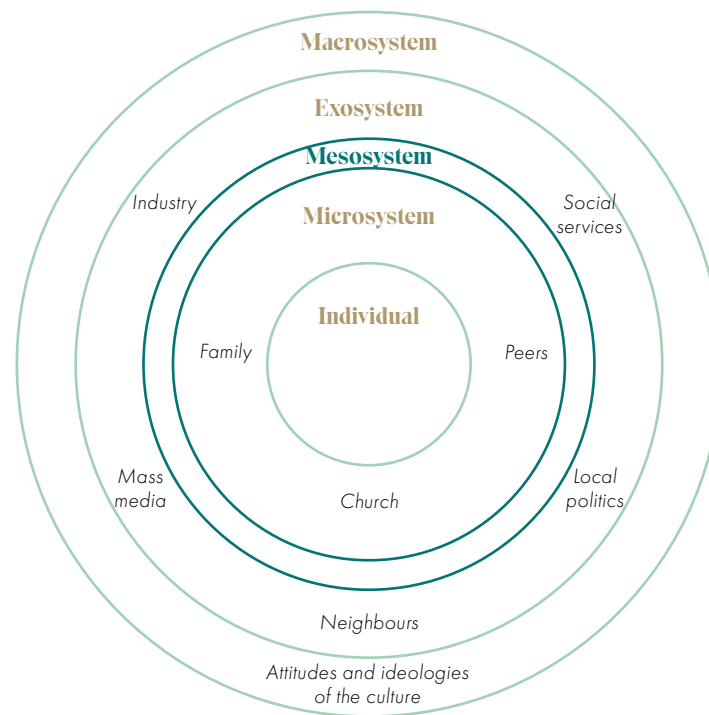


Figure 12: the socio-ecological model by Bronfenbrenner (1977).

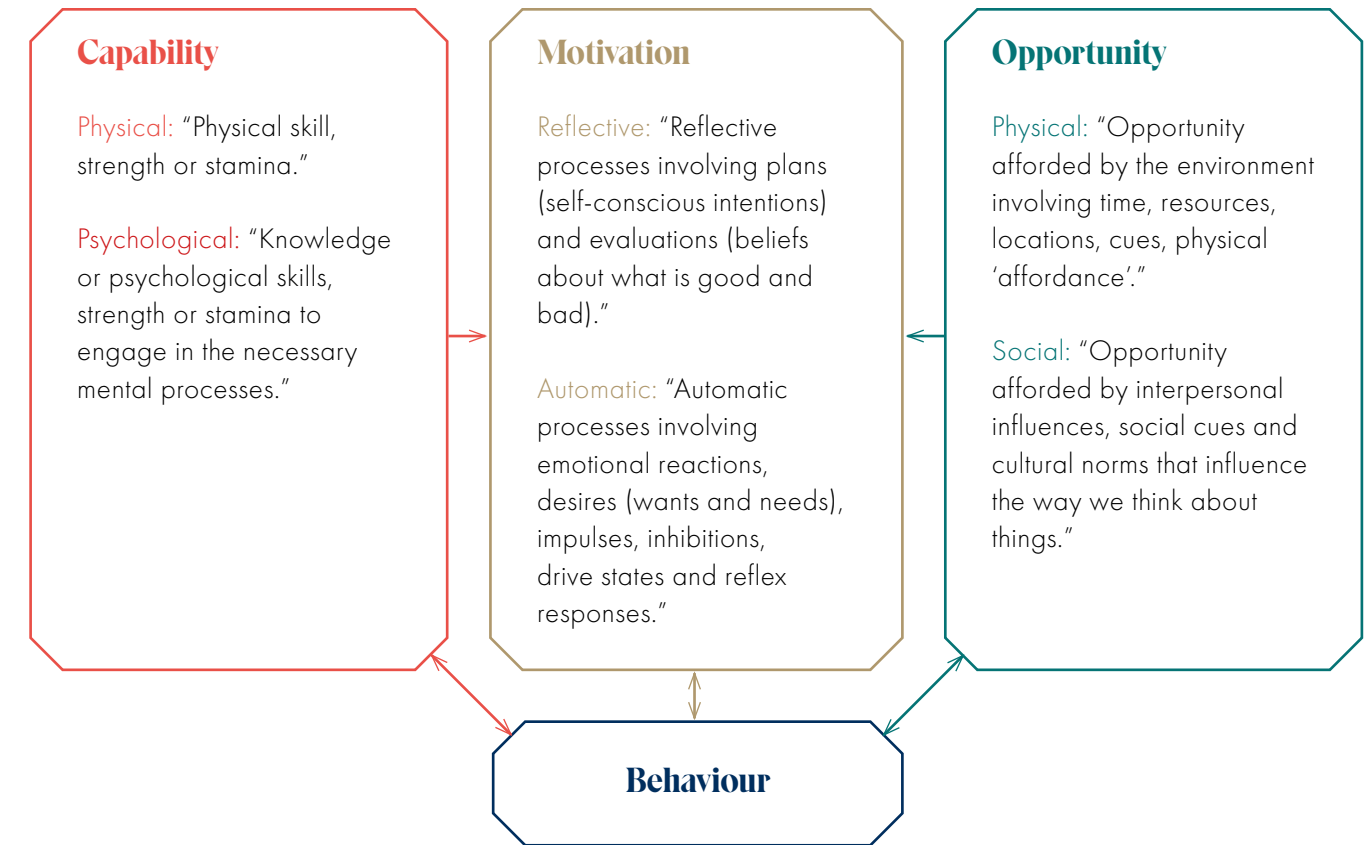


Figure 10: the COM-B model of behaviour change, adapted from Michie et al (2014).

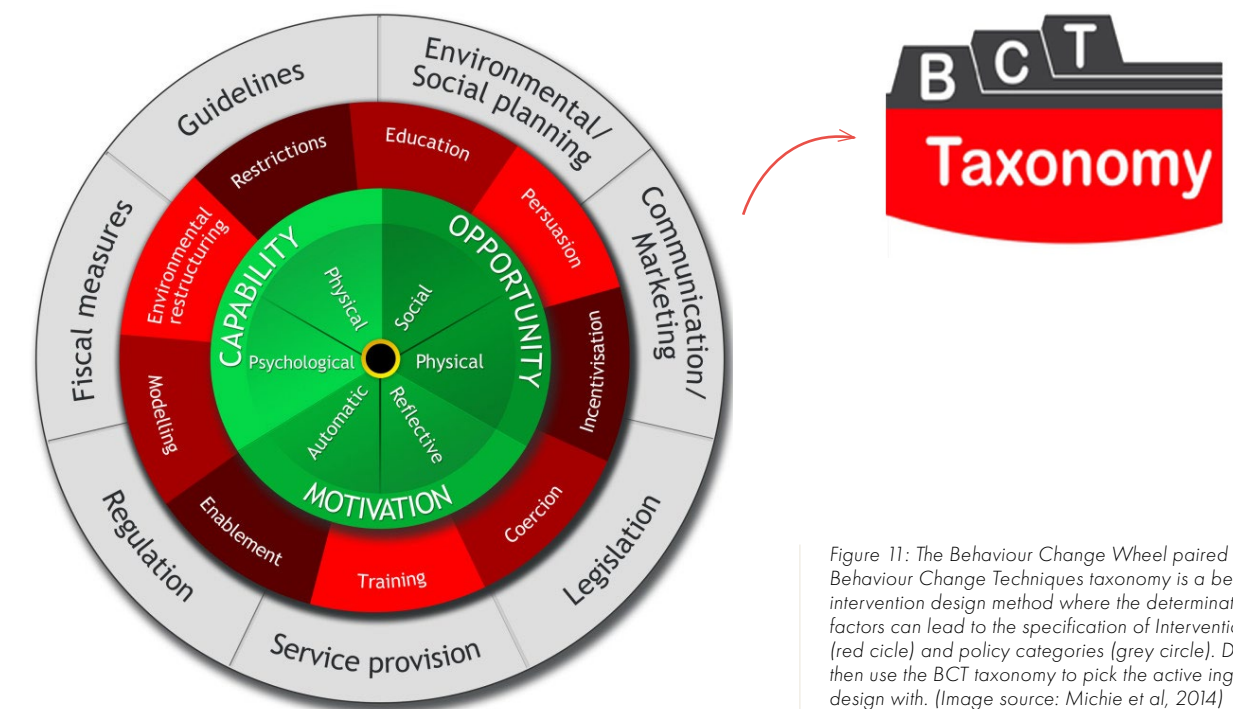


Figure 11: The Behaviour Change Wheel paired with the Behaviour Change Techniques taxonomy is a behavioural intervention design method where the determination of COM-B factors can lead to the specification of Intervention Functions (red circle) and policy categories (grey circle). Designers can then use the BCT taxonomy to pick the active ingredients to design with. (Image source: Michie et al, 2014)

Steps taken by the BCW approach

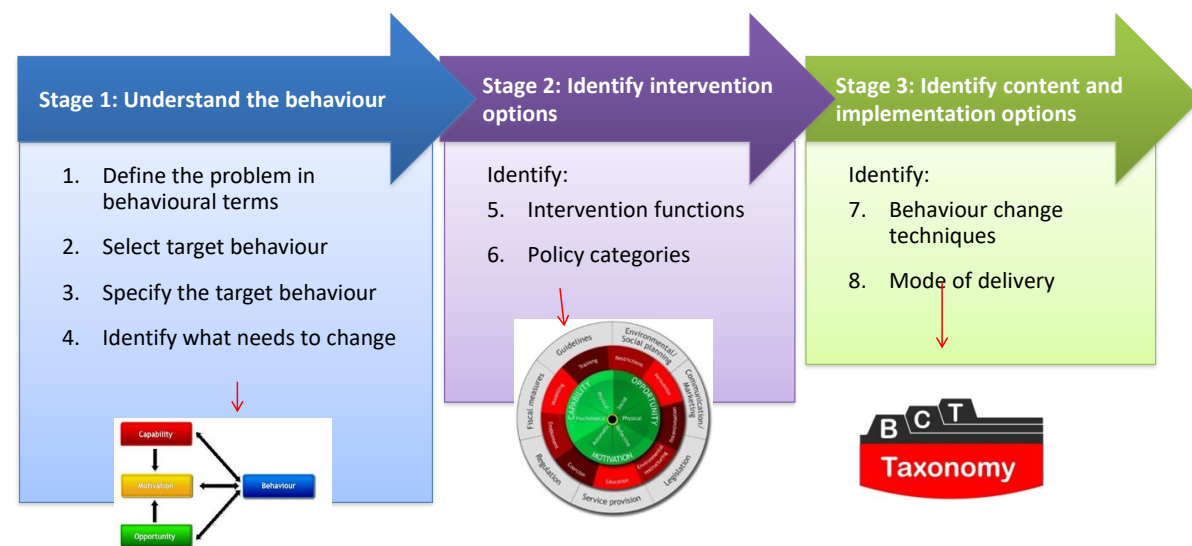


Figure 12: visualisation of the BCW approach (Image source: MSC Behaviour Change lecture slide, UCL)

Combining COM-B analysis with customer journey mapping

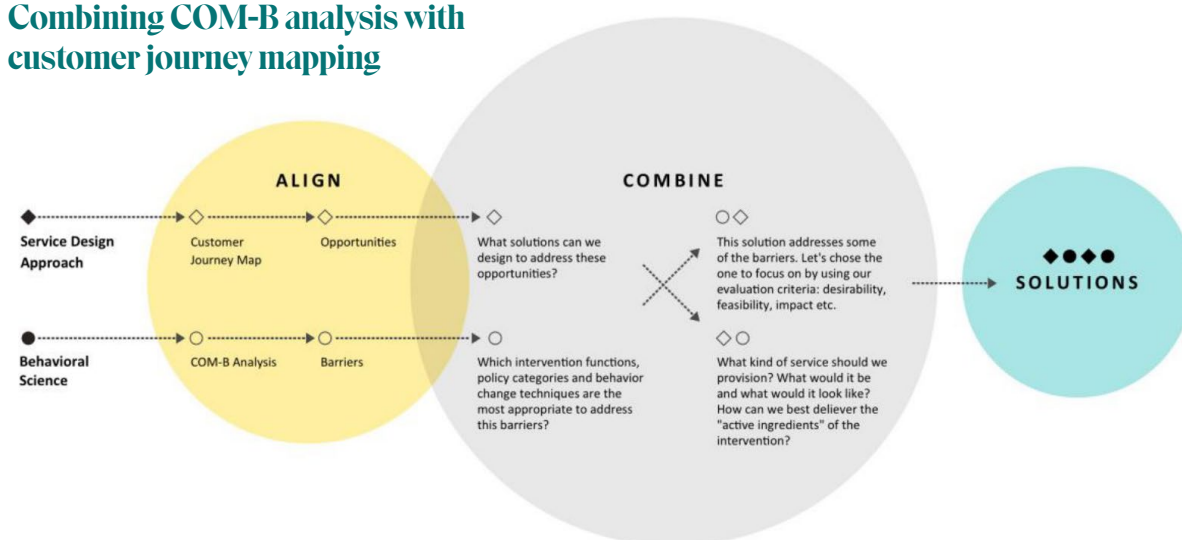


Figure 13: visualisation of a combined approach of service design with the COM-B analysis (Image source: Elizarova and Kahn, 2018)

A combined approach of behavioural science and service design

Out of experience, the BCW approach can sometimes restrain creativity due to its rigid and linear attitude compared to a design approach. On the other hand, a design approach may sometimes lack the empirically-proven theory to make a design reach its behavioural goal.

The BCW approach, whilst prominent in the world of behavioural science (next to the behavioural economics approach), has not often been used in design. Elizarova and Kahn (2018) have proposed a combined analysis approach using customer journey-mapping and COM-B (Figure 12), where behavioural barriers and facilitators (COM-B factors) are mapped alongside the customer journey map. They claim that “identifying phase-specific barriers allows us to strategize which interventions are likely to produce the most improvement in behavior”.

This combined approach could even span further by using further elements from the BCW approach. Determining COM-B factors in each customer journey phase could pinpoint the relevant phases and connect these to appropriate ‘Intervention Categories’ (broad behavioural theory categories) from the BCW approach. From here, using the BCW’s guide, appropriate BCTs can be chosen per customer journey phase.

In the BCW approach, a single specific behaviour is chosen from which a whole sequence of BCW steps is followed (Figure 13). The author proposes that these steps can be applied loosely and at the right time based on the design phase in the Double Diamond Method. After all, design is an iterative process and decisions on both the design and appropriate tools should be guided by design research insights.

Using circular economy principles as a scoping tool

The ultimate behavioural effect of this project can be measured by its sustainability impact. Conducting a full-fledged carbon footprint analysis would however be unrealistic due to time restraints and the author’s field of expertise.

To ensure that the final design could guide a positive sustainability effect, the Circular Economy Butterfly Model and the Circular Business Model Framework (Chapter 1.3) are used to determine the scope of solutions. Further sustainability decisions throughout the design process will be guided by expert conversations.

Main takeaways - Chapter 1.4:

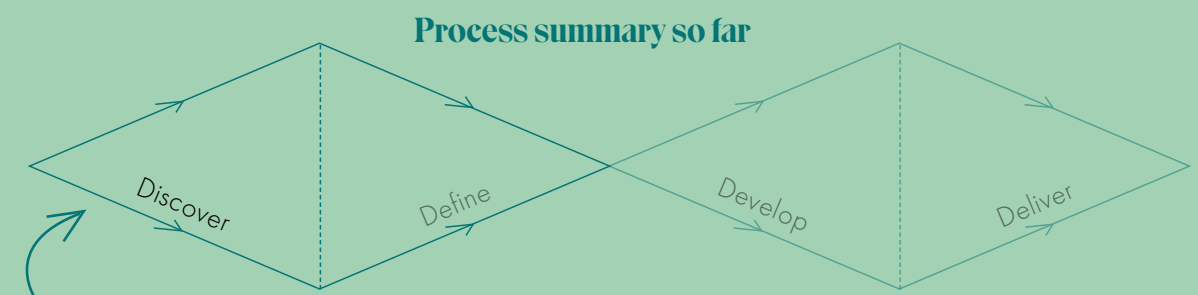
- This project will use an interdisciplinary approach, combining tools from behavioural science with service design based on the ‘Combine and Align’ preposition by Elizarova and Kahn (2018).
- The Design Council’s double diamond method will be used to frame each design phase. Depending on the design phase, different service design tools may be used.
- The Behaviour Change Wheel (BCW) approach is taken to systematically decide over Behaviour Change Techniques that should be implemented in the final design.
- The COM-B model of behaviour change and the socio-ecological model will serve as scoping tools to guide decision-making in the BCW-process.
- Sustainability tools are mostly used as a scoping tool, rather than guiding the design approach.



Context: King Louie

Chapter 1 gave an overview of how socio-technological and psychological factors in the current fashion industry spurred the sustainability issue that will be investigated in this project, namely overconsumption paired with underutilisation.

A combined approach of service design and behavioural science will guide the design and research activities of this project, in order to find a solution. The first step is to Discover the context of the problem further.



Chapter 1:

- Literature research (behaviour, business & sustainability)
- Methodological frameworks

Chapter 2 will further expand on the Discovery phase.

The project explores sustainable clothing consumption in the context of a vintage-inspired womenswear brand: King Louie. King Louie's current business model, marketing mix, their customers and sustainability efforts will be described in this chapter.

2.1 King Louie as a business

The story of King Louie

This brand has been striving to create 'clothes that make women happy' for the past 35 years, through contemporary interpretations of vintage wear. Their endeavours started at the Noordermarkt in Amsterdam during the 80's (Figure 14), where its two founders sold vintage treasures, collected from all over the Netherlands. Now they translate vintage into high-quality, contemporary fashion for women of all ages, mainly across Europe. Their brand values include optimism, independence, and being personal.

King Louie also prides itself on its distinct and original fashion style, its high-quality clothes with excellent fitting at a consumer-friendly price, and an increasing interest in environmental sustainability.

Social sustainability has always been at their heart, but environmental sustainability is a new venture. Current initiatives are mostly executed at a supply chain level (relating to improved work circumstances and the transition towards sustainable materials such as biological cotton and recycled plastic) or on a marketing level (some campaigns flirt with integrating new, sustainable clothing services such as renting).

Shifting their business model

Despite their interest in environmental sustainability, their current business model is a linear model that depends on the sales of their clothes to create customer relationships and revenue streams. Rather than focussing on the quantity of sales per customer, King Louie strives to reach a higher level of item sales through the increase of customers. This means that they would rather have five customers buy one dress each, rather than one customer who buys five new dresses. This business attitude supports their vision that clothing should be durable and timeless, making women happy regardless of current fashion trends. It somewhat resonates with a sustainable business attitude, but they also recognise that more must be done to become truly sustainable (both environmentally and socially).

To achieve this, they are interested in researched the possibility of circular business models. This project partly aims to explore this.

King Louie's marketing mix

To develop a general understanding of King Louie on several business aspects, a Marketing Mix (4 Ps) was mapped out by using internal brand resources and consulting their senior marketing communications specialist, Diane van Ieperen.

Product

King Louie's clothing collection includes accessories, blouses, pants, jumpsuits, blazers/jackets, coats, dresses, knitwear, nightwear, skirts, bags and tops. Their collection is mostly known for its viscose (stretch) dresses and colourful knits; the brand is famous for its floral jersey dresses and soft cardigans, although their collection is growing per season. Each year, they release a summer and winter collection that could consist of more than 600 unique garments (possibly using the textiles that are present across different garments). Their garments are meant to be worn cross-season: encouraging customers to wear clothes as long as possible.

Place

King Louie's owns a webstore and two brick-and-mortar stores (Amsterdam, The Netherlands and Genève, Switzerland). Collaborations with webshops such as Zalando expand their digital sales channels. They also work with several retailers that include KL clothes in their shops, resulting in 1,000 points of sale in 15 European countries, Japan and Australia. Older, excess collections are sold at the Batavia Stad Fashion Outlet. Their largest customer markets include the Netherlands, Belgium, France, Germany, Switzerland, Austria, Denmark, Sweden, Norway, Italy, Spain and the United Kingdom.

Due to the diversity in sales channels, both digital and physical channels can be utilised for an intervention. However, given the control and reach of their own

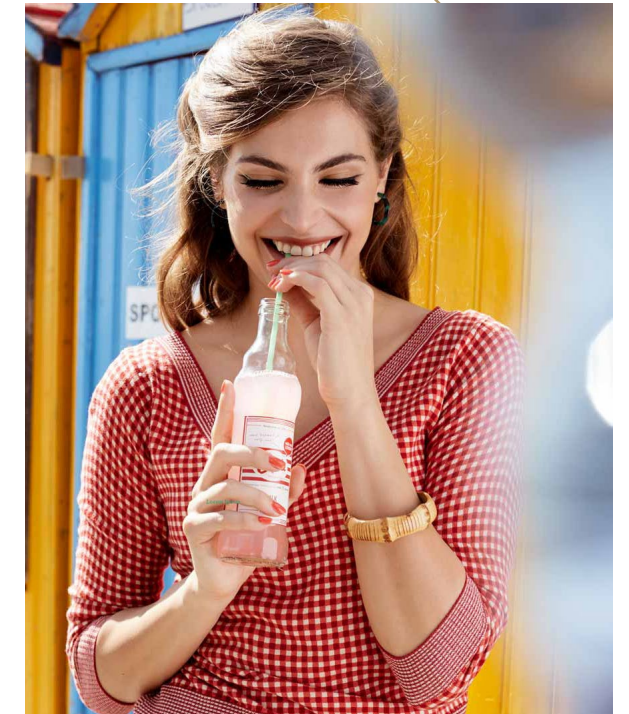


Figure 14: King Louie from their Exota shop in the 80s to their own brandstore at the Hartenstraat in 1992.

webshop, this might be a more appropriate main focus. The location of their distribution centre may also affect the design: currently their B2B distribution centre is situated in Enschede, the Netherlands.

Promotion

Most marketing efforts are done digitally, specifically through bi-weekly e-mail newsletter campaigns. Their Facebook page is mostly curated for a 35-59 y.o. customer segment which they call 'Lotte' (more about KL's customers will be explained in Chapter 2.2). Through Instagram, a younger target segment is targeted. To do this, they also collaborate with several social media influencers.

Other communication channels include Pinterest, although this is used less often. They are currently also working with a PR company in the Netherlands (The Gardeners) to reach their younger audience. In terms of fashion magazine coverage, they gain much less media attention.

Price

Due to their interest in corporate social responsibility, King Louie aims to sell their garments at a price that ensures all parties can run their business adequately. Their partnership with the Fair Wear Foundation also helps them create a fair and healthy work environment for their workers.

Compared with global brands, such as fast-fashion brand H&M or luxury-fashion brand Gucci, King Louie encourages slow fashion and is positioned in a niche of vintage inspired brands (Figure 15). It can therefore

not be compared with global fast fashion companies such as H&M, Primark and Zara; King Louie's price range goes beyond this due to the distinct style and quality that goes into production. When comparing King Louie with fellow vintage brands (Figure 16), King Louie's has a lower pricing range. This also matches with how King Louie markets itself: as a high-quality vintage-inspired fashion brand at an affordable price.

Main takeaways - Chapter 2.1:

- King Louie has a distinct and original fashion style which does not follow fast-fashion trends, which puts them in a unique vintage-inspired niche compared to other brands. The brands is proud of its high-quality clothes with excellent fitting at a consumer-friendly price, and an increasing interest in environmental sustainability.
- Their products and business attitude are fitting for a product-life extension approach towards sustainability. They are also interested in the wider, circular business model opportunities which will be uncovered through this project.
- KL's wide-spanning promotion channels and own webshop can both be utilised for a design channel, although this project focusses on the Dutch market.

	Top/shirt		Dress	
	max-min	average	max-min	average
KING LOUIE	€35 - €90	€ 63	€80 - €200	€ 140
Mademoiselle YÉYÉ	€30 - €80	€ 55	€60 - €125	€ 93
<i>American Vintage</i>	€40 - €80	€ 60	€45 - €175	€ 110
emilyandfin	€65 - €98	€ 82	€65 - €195	€ 130
IKKS	€40 - €135	€ 88	€ 135 - €295	€ 215
<i>Bellerose.</i>	€39 - €149	€ 94	€ 129 - €299	€214

Figure 15: Pricing comparison of King Louie's global competitors, highlighting the minimum and maximum prices of tops/shirts and dresses. Highest average prices are highlighted in red, lower average prices are highlighted in light green.



Figure 16: The branding position of King Louie according to their strategic report (2018).

2.2 King Louie's customers

Lotte: Casual Comfort (35-59 y.o.)

King Louie describes their main customer base as the persona called 'Lotte' (Figure 17). Based on recent research on King Louie's brand image (Feith, 2018), Lotte likes to flirt with vintage wear but does not necessarily identify herself or the brand as vintage-inspired. These customers know the collection well and are in love with King Louie for their specific handwriting: colour, prints, beautiful dresses and cardigans, great quality and a perfect comfortable fitting. Their favourite garments include classics such as their jersey dresses with colourful floral prints or cross-dresses (Figure 18). Some fans even call themselves 'King Louie Queens'. King Louie's classical (recurring) models are highly appreciated. It is not uncommon for customers to buy the same model in a different print: one of the respondents during a focus group by King Louie (Feith, 2018) mentioned that she always buys the 'Gina' model because it isn't as lengthy as the other models. According to a King Louie survey (Feith, 2018), 'Lotte' associates King Louie with 'vrolijkheid' (cheerfulness), 'vrouwelijkheid' (femininity) and 'retro'.



Figure 17: several pieces of clothing that were chosen during two focus group discussions (Feith, 2019) with King Louie's current customer group (Lotte; left) and King Louie's desired customer group (Lucie; right).

Lucie: Contemporary Fashion (30-49 y.o.)

The media and Lotte associates the brand with old-fashioned moms ('bakfiets moeders'), which is something KL is trying to stray away from by approaching a slightly younger, new customer segment which they call Lucie. Lucie likes King Louie for its vintage-inspired yet contemporary look. This type of customer might not even know the brand yet, which is the biggest marketing challenge.

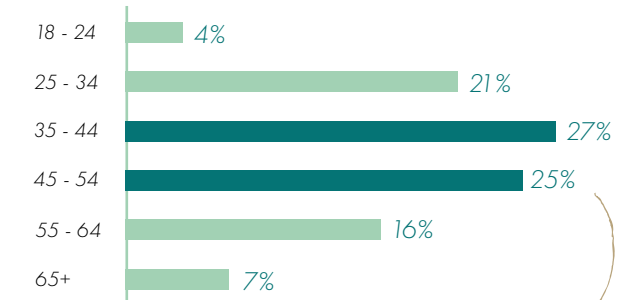
Her persona is imagined to be a young professional (HBO-schooled) who works 4 days a week, may have a child and is interested in fashion but is not a trend-follower. She would be attracted to clothes such as jumpsuits, wovens instead of jersey dresses and other contemporary translations of vintage wear (Figure 17).

Vintage-lovers (all ages)

In general, women who are in love with vintage, Etsy and second-hand stores are also attracted to King Louie. Their vintage-retro style drives them towards brands like Who's that Girl and platforms such as Top Vintage.



Age range of King Louie webshop users



King Louie's 'Lotte'



Current customers are extremely happy with King Louie, giving their clothes an average rating of 8.3/10 and an 8.1/10 for their service.



King Louie is appreciated for its prints (36%), fitting (25%), quality (20%) and colours (19%).



A big segment works part-time (63%) and only 16% work full-time or as an entrepreneur (9%). Popular sectors include: healthcare, education, government or retail.



Most customers (43%) will have finished a HBO education (43%) or MBO (37%). Only 15% have finished an university degree.



Most customers are married with children: 85% live with a partner, of which 65% have children as well.



Favourite communication channels for marketing purposes include e-mail (60%) and Facebook (27%). Everyone is active on Facebook, and less so on Instagram (only 55%), Pinterest (46%) and LinkedIn (39%).



King Louie's clothes are considered good for daily wear (93%), work (43%) and parties (49%). If possible, they would love to see more dresses, accessories, jackets and tops.



Clothes are equally bought online and in-store. Most women have a general clothing expenditure of between €50 and €200, with an average of €120 per month.

Figure 18: statistics from King Louie's web analytics and a survey of 503 King Louie customers (Feith, 2018).

King Louie's customers on Instagram

King Louie 'Queen' • 40 y.o. mom •
Wears a lot of King Louie and Tante Betsy •
Posts selfies/OOTDs • Writes as a hobby



12 likes
One of my favo dresses 🥰
#kinglouiebyrne #kinglouiedress #kinglouie #green
#ootd #esmée #esméebliss #happy
#wanderlustandco #wcogirlgang #microfringe
#micropony #microbangs #babyfringe #babybangs
31 August

King Louie's 'Lotte'

Mom of 2 kids • Posts selfies/OOTDs,
family updates and nature shots • Into
vintage, creativity and sustainability



19 likes
A quick morning selfie as I was
happy about my outfit today 🥰 #kinglouie
#kinglouiebyrne #broochie #vintageinspired

Daughter wears Petit Louie



13 likes
#toddlergirl
#somuchloveforher #kinglouiebyrne #kinglouie
#petitlouie #momlife

King Louie
makes women
Happy

Vintage lover

26 y.o. vintage lover • Showcases her
vintage items on Instagram



42 likes
•unpaid tag•
A little 70s vibes today in order to keep the spring
Mom of a 3.5 y.o. son • Posts about family
life, OOTDs, nature shots



14 likes
Collect AAALL the prints! #kinglouie
#kinglouiebyrne #prints #dress #collection
2 May 2018

39 y.o. mom with a 10 y.o. son •
Housewife, sustainability blogger and hand-
made jewellery webshop owner • second-
hand and bargain shopper • Posts about
budgetproof and sustainable lifestyle



21 likes
OOTD: Rokje King Louie via marktplaats, shirt C&A,
vest Miss Etam en legging Bonprix.
#ootd #outfit #outfitinspiratie #kleurrijk
#kleurrijkejurkjes #kleurrijkerokjes #rok #kinglouie
#kinglouiebyrne #kinglouieskirt #kinglouiefashion

Second-hand shopper

Main takeaways - Chapter 2.2:

- KL describes their main customer base as the persona called 'Lotte', but is interested in finding a younger customer segment which they envision as the persona called 'Lucie'. These two personas mainly differ in the type of clothes they're interested in, which inevitably causes a divide in KL's design collection.
- Aside from 'Lotte' and 'Lucie', KL is also known for its vintage-roots amongst 'Vintage-lovers'. These three customer segments have a love for colour and unique patterns in common.

Lovely prints
& colours

2.3 The current peer-to-peer second-hand market for KL garments

The customer-driven second-hand market for King Louie items is very prominent. A recent King Louie survey (2019) found that 24.5% of their customers buy second-hand King Louie items next to new King Louie items. A particular user segment often buys or sells second-hand King Louie items from places such as Marktplaats (Dutch C2C second-hand online platform) and various Facebook groups.

Analysing 230 posts in the ‘King Louie Fans’ Facebook group reveals that customers both enjoy sharing outfit tips and selling their King Louie items to fellow fans. 50 of these selling-posts contained a reason for why an item was no longer desired (Figure 19). The most frequent reason includes ‘Problem with fitting’, which usually entails that a garment is either too small/tight or too big. The second most frequent reason is that a garment was barely/never worn (without further explanation).

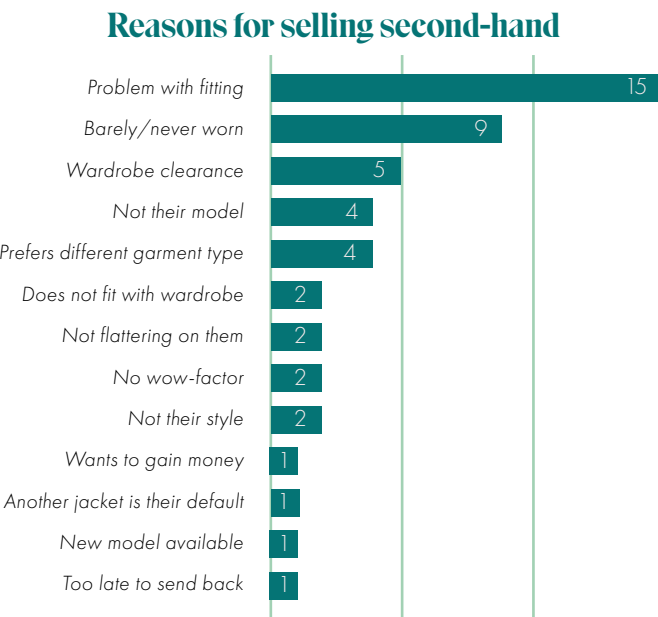


Figure 19: frequency count of 50 posts in the ‘King Louie Fans’ Facebook group, where reasons for selling a garment were mentioned out of 230 other posts in November 2019. NOTE: on November 2nd/3rd, King Louie held a sample sale, due to which more people were probably selling their King Louie items due to fitting issues.

Te koop, leuk jurkje maat M. Driekwart mouw. Hooguit 4x gedragen maar helaas net te kort voor mij. Dikkere stof dus ideaal voor de herfst/winter. Riempje ontbreekt maar een andere crème of zwarte riem staat ook leuk. 25 euro excl verzendkosten



Too short

Met pijn in mijn hart, slechts 1x gedragen maar past niet bij mijn andere kleding: baseball jackje met borduursel en stipjesvoering. Maat m. Bieden vanaf €100,- excl vk.

Does not fit their wardrobe

Nu €20
King louie Emmy trophy
Maat xs te koop.
Graag €25 excl verzenden.
Aangezien ik nu ook de lange rok van deze gave stof heb, mag deze gaan... Het jurkje is in goede staat. Hij komt van de noordermarkt en heeft dus een geknipt label. Ook was een lusje los bij een knopje , deze heb ik netjes gemaakt, zie je als je het draagt niks van. Ik vind hem als een xs/ kleine s vallen.
Deze jurk is in het echt zo veel mooier als op de product foto's! Check de glitters!



Gereserveerd!
Chinese dress baroque maat M vorig jaar gekocht op de Sample sale. 1 keer gedragen (dus zo goed als nieuw) en blijft hangen omdat het model niet flatterend is voor mijn lijf.



Kastopruiming!!
Ben toch meer een jurkjes -mens, daarom zoeken deze rokjes een nieuwe eigenaresse.
De rok in het midden en links ervan zijn maat L, 95% viscose en 5%elastan, intact label.
De rok op rechts is maat M van het bekende gladde stofje, ook intact label.
Wie gaan ze blij maken?
Graag €17,50 per rok ex. evt. verzendkosten
Allen in 1 koop:€50 ex. evt. verzendkosten



Same print, different type of garment

Not flattering for body type

Main takeaways - Chapter 2.3:

- The second-hand market for KL clothes is a viable sustainability opportunity.
- Besides a problem in fitting, women most frequently sell their clothes because it simply hasn't been worn, confirms the appropriateness of focussing this project on mass-consumerism paired with underutilisation.

2.4 Sustainability at King Louie

Sustainability strategy

King Louie has a long history of caring for social sustainability, due to their membership at the Fair Wear Foundation (FWF). Their ecological sustainability attitude mostly manifests in transparent communication, timeless designs and having an internal green team,

Additionally, the inclusion of sustainable materials is at the forefront of their sustainability agenda (Figure 20). Currently, 15% of their garments are made of organic or sustainable materials (mostly organic cotton). By the summer of 2020 KL hopes to include sustainable materials in 33.3% of their garments; by 2022 this is aimed to be 50% (of which 75% will be bio-cotton).

See Appendix B1 for materials that were used in the Winter 2019 collection.

Pro-social supply chain

Per year, King Louie produces a spring/summer collection and a fall/winter collection, these can contain at least 600 unique pieces per collection, which are divided into four 'delivery blocks' (i.e. four deliveries are done within a season) along with a small additional delivery drop for each season (a 'Flash' collection). Their current business models relies on having plenty of stock of their collections; around 30% of the total production comes from re-orders by retailers.

In 2019, 67% of King Louie's production took place in Turkey, and 33% in China if finer hand labour was needed (according to King Louie's head of production). See Appendix B2 for a visualisation of their supply chain. Their membership at FWF ensures social sustainability across their supply chain: currently 98% of the factories have been approved for appropriate work circumstances.

Their main supplier is located in Turkey, with whom they have worked for more than 30 years. They also have an intermediary in Turkey which connects them with six specialist suppliers (socks, nightwear, jerseys, wovens, knits) and a smaller Turkish supplier, Orimpex, which covers 15% of King Louie's production percentage. Orimpex is labelled as their 'green' supplier, given that they produce most of King Louie's Recycled Polyester, Tencel and Global Organic Textile Standard (GOTS) garments. An audit by the Fair Wear Foundation (FWF) also confirmed the healthy and fair working circumstances .

For clothes that are of lesser quality due to production mishaps (second-quality clothes), King Louie has ties with Wings of Support, which coordinates clothing donations for women and children in developing countries. Some leftover fabrics are also used to make additional clothing, such as for their 'Renewed' collection.

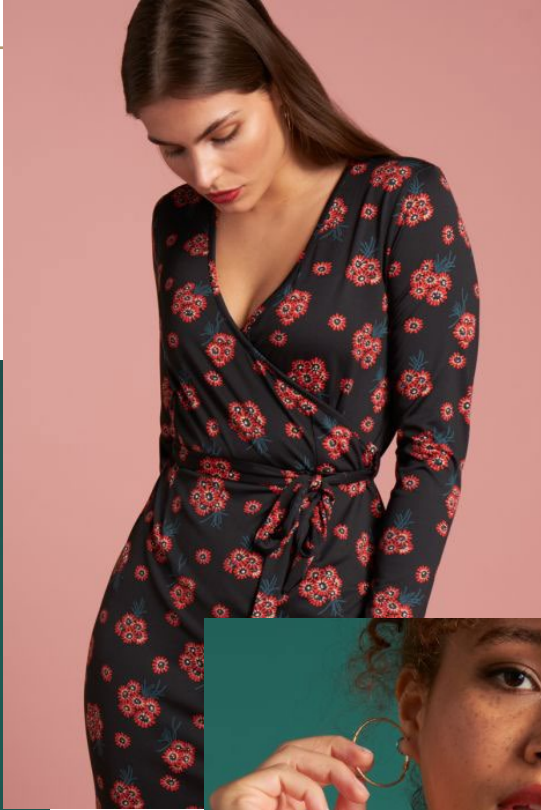
Figure 20: KL's sustainability goals, as communicated on their website.



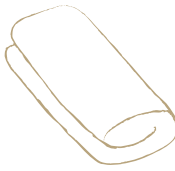
95% recycled polyester
5% elastane



95% organic cotton
5% elastane



98% Tencel Lyocell
2% elastane



78% Tencel Lyocell
17% recycled polyester
2% elastane

Marketing & Communication

Most of KL's marketing initiatives are usually not specifically branded as a sustainability strategy but are more so seen as a lowkey effort to encourage prolonged usage of clothing among customers. However, long-term usage of a product is actually a business model strategy in the circular economy. Some KL initiatives include:

- **Project 333** is a marketing campaign showing how owning 33 pieces of clothing can be mixed and matched to create different outfits for 3 months. This has been communicated through social media and a workshop during the Fair Wear Foundation's pop-up fair.
- **ReLove** is a campaign that asks customers to send one of their unloved items to KL's instagram channel; a KL stylist then creates new outfits based on this items.
- A better fit of clothing ensures pro-longed usage. King Louie offers **free personal styling advice** at their King Louie Store (appointments must be made through e-mail). Internally, more market research is being done to add a more sophisticated styling service.
- **Advice on how to take care of clothing** encourages long and sustainable usage of clothing. Several tips can be found on their website among which general care instructions for denim, cotton, leather and suede, polyester, Tencel, viscose and wool.
- **A sample of Seepje** (a sustainable washing detergent) was bought at reduced price through a collaboration and included in all the online purchases for customers. A 'Wear & Care' tag was also included about how to treat the clothes, especially because viscose-based dresses might shrink after washing. This was a temporary campaign and collaboration.

Transparency about their efforts to become sustainable is also a part of sustainability. King Louie has joined Fashion Revolution Week showing the origins of their products; They were part of a Q&A marathon organised by FWF; the sustainability of their materials has been highlighted in specific newsletters, social media posts and labels on their webshop.

Renting & Sharing initiatives

Other than encouraging and enabling prolonged product usage, another type of circular business model that KL has experimented with relates to renting and sharing initiatives on a smaller scale:

- A **collaboration with LENA the fashion library** has been happening since November 2019; this was well-received as King Louie's clothes were already rented after 3 days.
- **At festivals, King Louie offered people to wear King Louie clothes for a weekend (for free)**. The initiative was to try and make people get familiar with King Louie clothes. It has not been determined what to do with the worn clothes yet. These could either be resold as 'pre-loved' or re-distributed to LENA. Currently the marketing team is looking into collaborations with other summer festivals to continue this renting initiative.
- Through a **German collaboration with Fairnica and a Dutch collaboration with Zalando**, King Louie's clothes are part of an 'outfit package' service where customers can try different styles without owning them.

Main takeaways - Chapter 2.4:

- Much is already done in KL's supply chain and choice of materials, mostly in terms of social responsibility. This is however not the focus of this project.
- More relevant for this project is KL's encouragement of product-life extension on both an individual level (better care and novel styling efforts) and collective level (sharing or renting pilots).





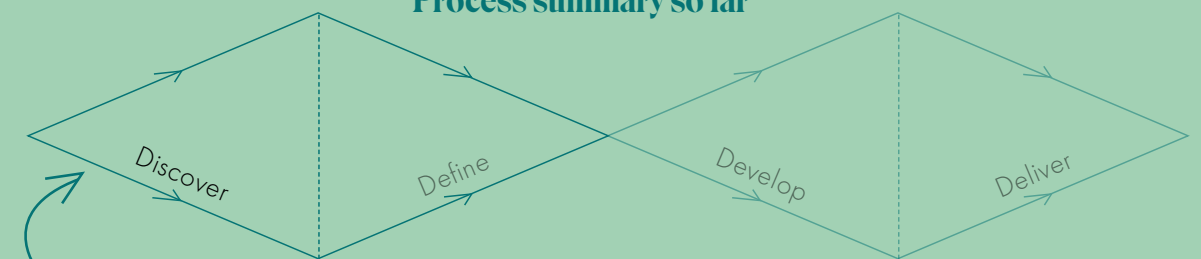
Consumer research

The previous chapter explored KL as a business, which is currently facing two challenges: 1) transitioning towards a more sustainable business; 2) attracting a new customer segment ('Lucie').

Their current customers ('Lotte') are 35-59 y.o. women who are in love with King Louie's vibrant colours, vintage-inspired looks and comfortably fitting clothing. Through these women, the second-hand KL market is thriving.

King Louie's current supply chain efforts towards sustainability mostly include the usage of bio-cotton and improvements in fair working circumstances. More novel initiatives that could grow into a circular business model include: the encouragement of extended product durability and renting/sharing pilots. It is however still unclear which direction suits the consumer segment 'Lucie'.

Process summary so far



Chapter 2:

- Marketing Mix
- Social media research
- KL sustainability research

Chapter 3 will further diverge within the Discovery phase.

Lucie is envisioned to be a younger, more conscious customer segment, but who could Lucie be exactly? The general lifestyle and habits of Dutch (working) women around their 30's will be investigated, to pinpoint where the opportunities for creating a new behaviour may lie during their daily lives, and how this can be matched with their general attitude towards their wardrobe and clothing. This is done through literature research, a survey and in-depth interviews.

3.1 Finding a new consumer segment

Different segmentation methods have been used to describe types of consumers, from Ellen Macarthur Foundation's business model segmentation (Chapter 1) to King Louie's own personas distinguishing 'Lotte' from 'Lucie' (Chapter 2). The search for King Louie's 'Lucie' starts with the current chapter. In order to attract this new consumer segment, the marketing department at KL has collaborated with several social media influencers (Figure 21). These influencers are young, interested in sustainability, yet travel-savvy and fashionable. However, not much else is known about this potential new consumer segment. This will be explored in the following few sub-chapters.

Targeting consumers according to their potential interest in sustainability

According to the marketing department at King Louie, their current customer base (mainly 'Lottes') might not be specifically interested in King Louie out of sustainability motives. Whenever newsletters are sent out highlighting the sustainability aspect of their products, sales are not doing exceptionally well.

Since King Louie is currently undergoing a transition with the desire to attract younger audiences (around their 30's), it is a viable opportunity to actually target these women through a sustainability initiative. This new potential target group is especially interesting because King Louie expects them to be more environmentally conscious due to their educational level and their location in bigger cities such as Amsterdam, where circular initiatives are more well-known (such as LENA the fashion library).

This assumption is in line with research literature. According to a review by Camacho-Otero and colleagues (2018, 2019), demographic factors such as age, gender, education and location can be indicators of people's intention for pro-environmental behaviours. Younger females with a high level of education in high-income economies generally have a higher intention of participating in circular innovations.

Understanding the new consumer segment based on consumer needs

Sustainable behaviour is often regarded as something that could clash with other goals, values or aspirations that may lead to a higher carbon footprint (Gifford, 2011). Someone might be environmentally conscious, but still desire to buy a larger house, travel by airplane for holidays, or drive a bigger car (the 'intention-behaviour' gap; Young et al, 2010). Pro-environmental behaviour change is also difficult due to 'behavioural momentum' (habitual behaviours are extremely difficult to change permanently; Maio et al, 2007).

Rather than retro-fitting current solutions onto a still unknown 'Lucie', it might be more effective to look into Lucie's general lifestyle and see whether new habits can be created that fit the circular economy and the segment's lifestyle. After all, removing a behaviour is more difficult than initiating a behaviour: established behaviours never truly diminish, but are merely replaced by new behaviours (Johnston, 2016).

Main takeaways - Chapter 3.1:

- It is a viable opportunity to target a new, younger consumer segment, especially because demographic factors can be indicators of people's intention for pro-environmental behaviours.
- The intention-behaviour gap and the notion of behavioural momentum points towards the urge to understand consumer needs first before designing a solution, rather than retrofitting current sustainability solutions onto a still unknown 'Lucie'.

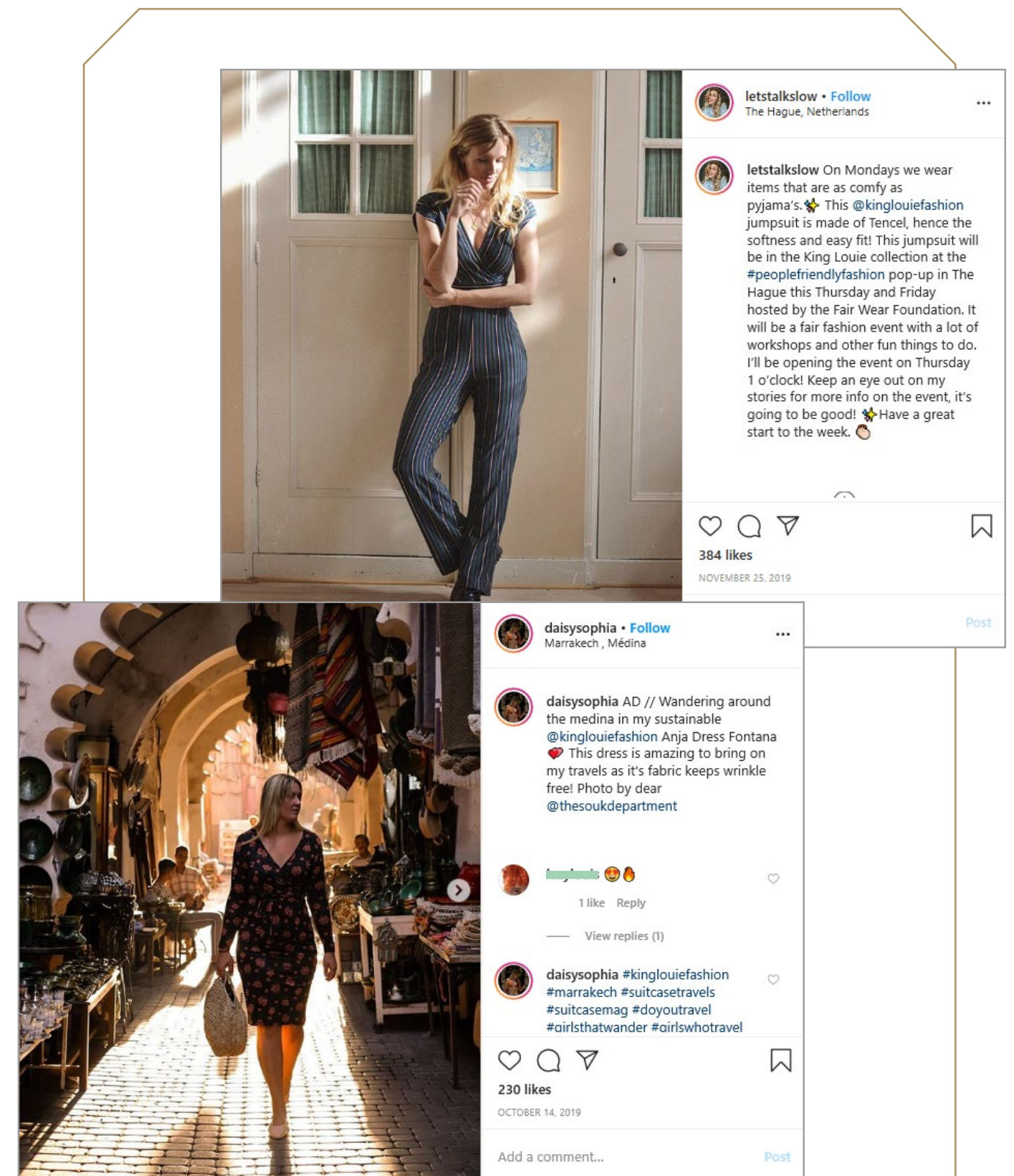


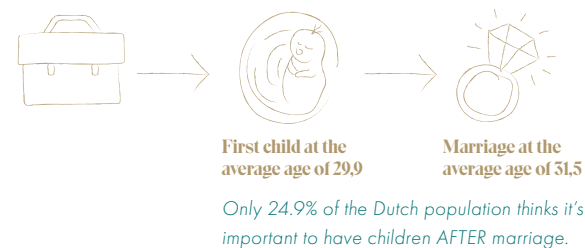
Figure 21: examples of the social media influencers which fit KL's image of 'Lucie'.

3.2 The lifestyle of women around their 30's - according to literature

General lives of Dutch women in their 30's

Dutch women in their 30's are likely married and have their first infant child already, according to national statistics (CBS, 2018; CBS, 2019a; CBS, 2019b):

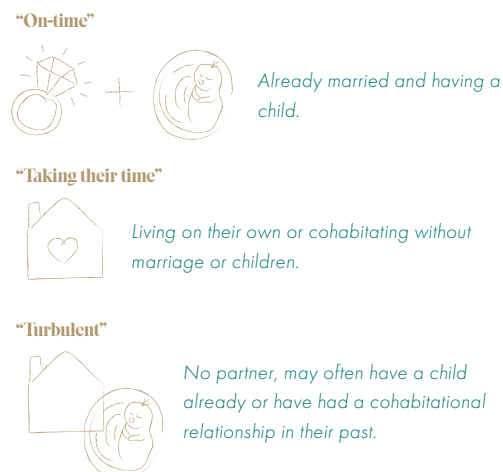
Dutch women find it important to have a stable job before having children:



Late marriage is compensated by more frequent co-habitation:



However, a study by Van Gaalen (2014) found that household situations may differ depending on the type of women:



Most women in their 30's (born in the 1980's) are 'on-time' regardless of their level of education, although those with a lower education more often tend to be 'turbulent' compared to highly-educated women, whilst highly-educated women tend to 'take their time' more often than those with a lower education.

This may shape the lifestyle of a woman drastically, given that generally women's career choices are more often related to relation- and household situations compared with men (Van Gaalen, 2014).

Implications: A new customer segment of interest may be the working professional between 27-35 years old (a 10% margin from the 30-32 age range to account for lifestyle differences depending on the 'type of woman' we are targeting). These women are likely more financially established, and therefore more likely able to invest in sustainable, high-quality clothes.

Personality and behaviour changes of women in their 30's

Based on retrospective projections of changes over adulthood (Steward et al, 2001), the following factors were found to be dynamic when comparing recollections of women when they were in their 30's compared to when they were in their 40's:

- **Identity:** Erikson (1950) proposed that women continue developing their identity beyond adolescence, through intimate relationships. As women grow older, they create a stronger certainty of identity. This may result in having a better sense of being their own person, less confusion about their potential, amongst others feelings that are typically related to a better understanding of the 'self'.
- **Generativity:** "a concern for establishing and guiding the next generation" (Slater, 2003) may be more important to those in their 40's compared with those in their 30's. The desire to contribute to the next generation may manifest in the commitment to care for ideas, cultural products, institutions, values and people.
- **Confidence power:** women perceive the age of 27-40 to be marked by competency, productiveness and a sense of responsibility. They believe to have a better command of

themselves and their worlds, more confidence, dominance and coping skills, accompanied with a broader sense of well-being.

- **Concern about aging:** the older women get, the more challenges a woman's self-image and sense of purpose may become due to the "high cultural value placed on women's reproductive potential and activities".

Compared to their 20's, women in their 30's are also assumed to lay more importance on qualitative, social activity, rather than having a lot of friends (Carmichael, Reis & Duberstein, 2015).

With age may also come a different way of dressing (Twigg, 2009). Throughout history, distinct types of clothes have been associated with older age (e.g. long robes and sober, quiet dress). According to Twigg, "some of these associations persist today, certainly in relation to longer skirts, covered up arms and necklines, neutral toned down colours, and the avoidance of showy, blatant or sexual styles". These associations are perpetuated through choices by designers (Iljanen, 2005).

However, associations are context-dependent. As opposed to sober forms of dress, other styles also have an "age association" (e.g. "the bright, loose resort wear that characterises the dress of, particularly American, elders"). This type of design may have evolved from the meanings associated with older age, namely: less constraints through business dress, more emphasis on leisure styles that are about comfort and allow flexibility for expanding figures (O'Connor, 2005). After all, clothes are worn in response to one's body. If this changes (which becomes especially relevant in old age), the clothing that is chosen might have to adapt to this.

These associations related to age are crucial for a brand such as King Louie that is trying to attract younger audiences whilst retaining their older audiences. Whilst class may have created a fashion hierarchy in the past, modern culture may have created a hierarchy based on age. For example, out of date clothing may only be associated with older people (Freitas et al, 1997). Although with the trending love for vintage, this may already have changed.

Implications: When designing for clothing behaviours of a particular group, it is important to understand that these may have changed due to their age which is most often associated with lifestyle changes. Furthermore, the literature's heavy emphasis on 'identity' and feelings such as 'confidence' implies that women's values and emotions should be considered during the design phase.

Shopping motivations of women in their 30's

Shopping motivations may either be utilitarian ("goal-oriented, rational and decision effective") or hedonic (relating to pleasure), according to Kang and Park-Poaps (2010). For women in their 30's, research by Boardman and McCormick (2018) indicates that important utilitarian shopping motivations include convenience (for internet and mobile shopping); selection (for internet shopping) and lack of sociality (for internet shopping). Hedonic motivations include adventure/exploration (for internet and mobile shopping); social (internet and in-store shopping) or to gain ideas (internet and catalogue shopping). The same study determined that those aged 30-39 prefer the following channels in the following order: internet shopping, mobile shopping and in-store shopping.

Implications: The difference in shopping motives and shopping channel preferences will influence where the final design is staged in terms of location and which motives it should support.

Main takeaways - Chapter 3.2:

- Women between the age of 27-35 should be targeted during the research phase.
- A woman's change in identity, generativity, confidence power, concern about aging and preference in social interactions will shape the values and emotions that a new clothing service should account for.
- Further understanding women's shopping motives will shape the scope of the design problem.

3.3 Clothing consumption patterns - survey results

Method

Survey A:
This survey (n = 78) was sent out to Dutch women aged 27-35 through a personal, targeted social media advertisement (Appendix C1). Contrary to literature, very few of these women were married or had children. Since this is a-typical for KL customers, a second survey was conducted as well.

Survey B:
Survey B (n = 589) was sent out by KL for their own marketing agenda and stands apart from this graduation project (Appendix C2). Respondents included Dutch KL customers aged 21-70. Data comparison was however only done with the respondents aged 31-40 (n = 163), as these are closest to King Louie’s desired new target segment.

Survey B was used to include some of Survey A’s questions. This allowed a comparison of the two surveys, to give an idea about how current KL customers might differ from other consumers.

Percentages of shopping frequencies

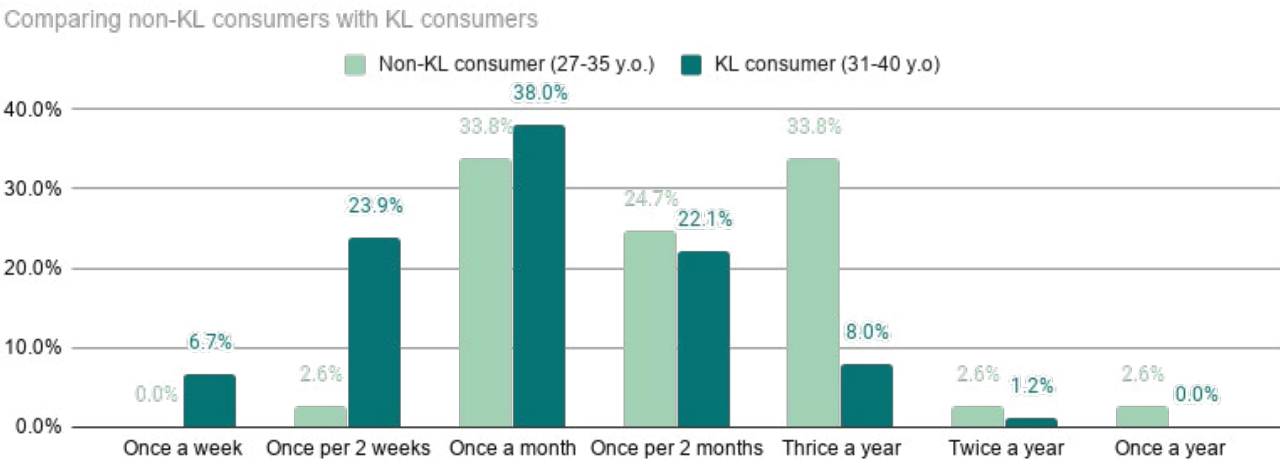


Figure 21: self-reported shopping frequencies, expressed in the percentage of non-King Louie consumers and King Louie consumers.

Results

Purchasing behaviours vary greatly between consumer segments

In light of this project’s focus on the overconsumption of clothes, a focus was laid on shopping frequencies, purchasing amounts and purchasing reasons. A big discrepancy was found between KL consumers and regular consumers in terms of shopping frequencies (Figure 21). Overall, KL consumers shop more often. Both types of consumers shop mostly once a month. However, the second largest shopping segment shops only thrice a year (non-KL consumers) and once per 2 weeks (KL consumers). The latter shopping frequency is concerning in terms of sustainability, especially given that most women tend to purchase 2-3 items per shopping moment (Figure 22). At a rate of one shopping spree per 2 weeks, this could lead to 52-78 purchased items per year.

The reason for purchases varies greatly (Figure 23), although most consumers did it because a garment ‘looked nice’. Paired with a great desire to ‘want something new’; emphasising the aesthetic value of having clothes. The practical value of clothes, such as needing it as a replacement, for work, or special occasions were more prominent amongst non-KL consumers compared with KL-consumers, although both consumer segments bought new clothes for a new season (likely because the surveys were sent in November 2019, meaning winter was approaching). KL-consumers also have a stronger desire to buy clothes due to discounts or because buying clothes makes them feel good; emphasising the hedonic motives related to shopping. Overall, there is a constant balance between purchasing for practical reasons versus purchasing for aesthetic or hedonic reasons, where the latter is usually stronger, meaning that the purchase of clothes is not often rational, as will be seen in Chapter 3.4.

The amount of money that is willingly spent on clothes differs based on the type of garment. Whilst sweaters, skirts and shirts/blouses remain on the lower price end for regular consumers, more consumers are willing to pay higher prices for pants and dresses. This could be due to the amount of material that goes into pants/ dresses and how long these are envisioned to last (Chapter 3.4). Overall, KL-consumers seem more often willing to pay higher prices for skirts, shirts/blouses or dresses (Appendix C3). This might be because they are used to these prices from KL and are more able/willing to afford this.

Percentages of purchasing amounts

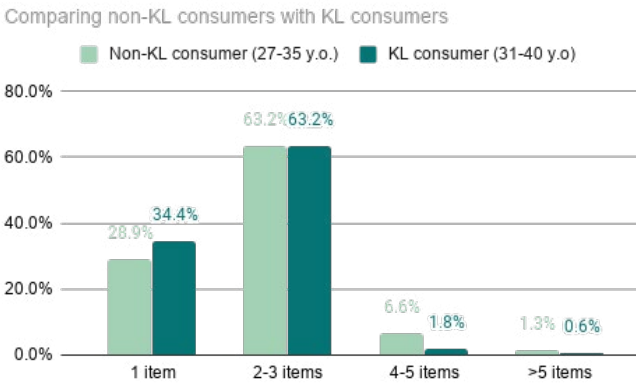


Figure 22: self-reported amount of purchased clothing items, expressed in the percentage of non-King Louie consumers and King Louie consumers.

Reasons for the latest clothing purchase

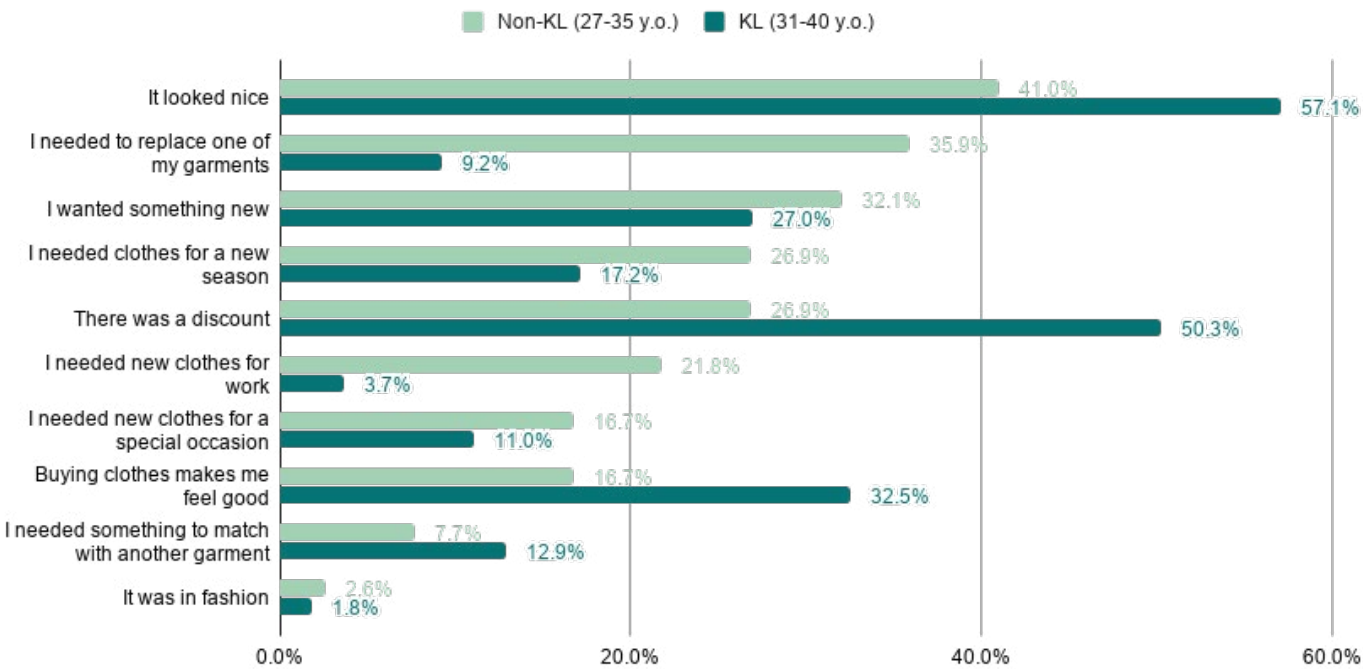


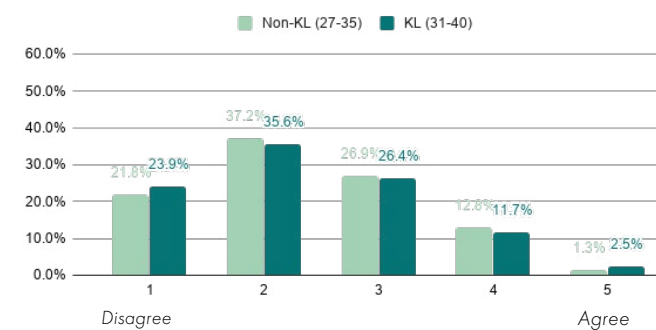
Figure 23: self-reported reasons for the respondents’ latest purchase, expressed in the percentage of non-King Louie consumers and King Louie consumers. A maximum of 3 reasons could be chosen, which is why the percentages per consumer segment add up to over a 100%.

Negative social influences of purchase are low for both consumer segments, but social inspiration is high

Zooming into the reasons for purchase in Figure 23 (previous page), it was already seen that something being in fashion did not often trigger a purchase. Further questioning on whether clothing purchases are dependent of the latest fashion trends confirm that all consumers are not trend-sensitive (Figure 24). They also do not worry about what friends or family might think of their clothes, regardless of age differences.

This is in line with previous literature (Chapter 3.2) where it was stated that those who grow older from their 30's onwards generally have a good sense of self-identity. It might be interpreted that these social influences have a low effect on clothing behaviours. However, when asked to choose top 3 fashion inspiration sources (Figure 25), most women (50%) chose 'friends/family/colleagues', followed by 38.5% choosing Instagram and 24.4% choosing fashion brands.

"My clothing purchases are dependent of the latest fashion trends."

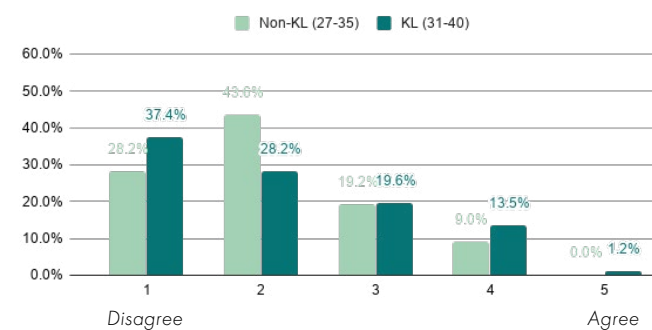


Hoarding behaviours fluctuate between both consumer segments

Overconsumption was already highlighted in previous survey results, yet the answers to several statements regarding 'hoarding behaviours' show a contradiction. Most consumers do not consider whether they have too many unworn clothes and find it important to have a lot of clothes to choose from in their wardrobe, yet they do not show signs of impulsive buying behaviour when asked whether they often make regretful purchases. Interestingly, KL consumers (who go on more shopping sprees) also find it more important to have many clothes to choose from.

Figure 24: regular and KL-consumers were asked to what extent they disagree (1) or agree (5) with the given statements about how social influences affects clothing behaviours.

"I worry about what my friends or family might think of my clothes."



Waar haalt u het meeste modeinspiratie vandaan? (Kies maximaal 3 opties)

78 responses

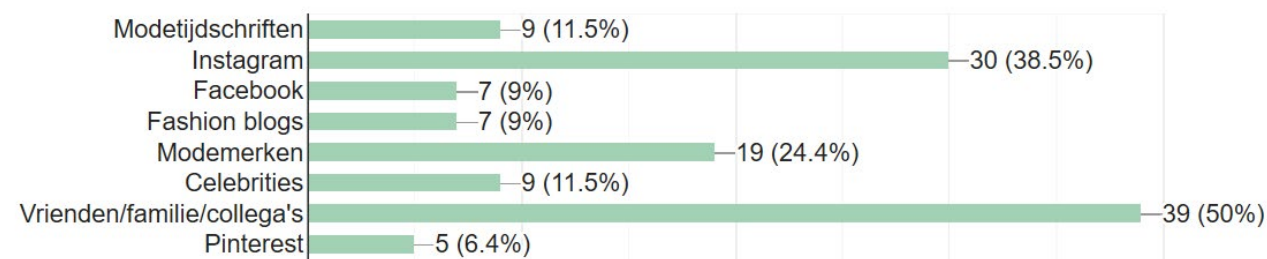


Figure 25: top 3 fashion inspiration sources include 1) friends/family/colleagues; 2) Instagram and 3) Fashion brands.

Disposal actions taken over the last year

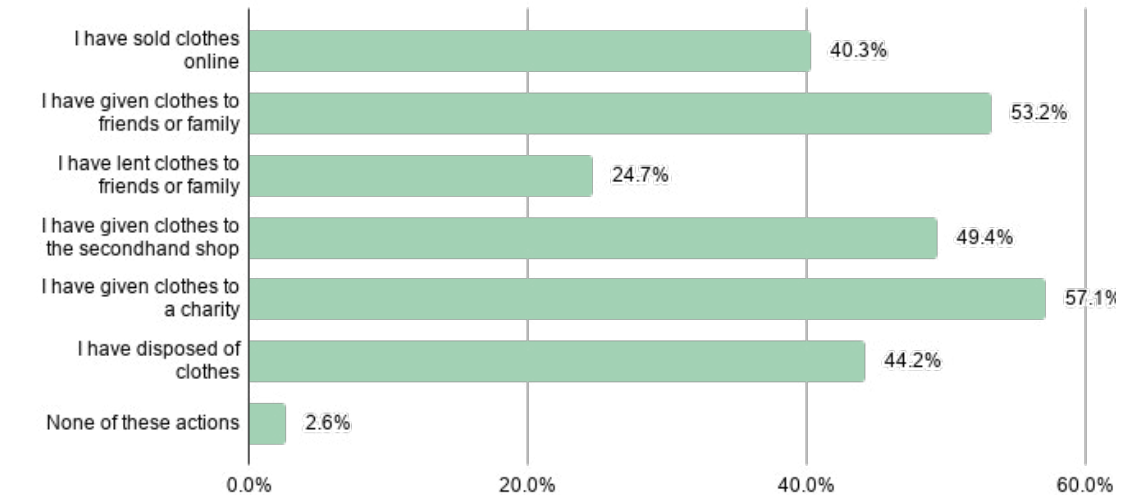


Figure 26: Disposal actions that were taken by regular consumers (27-35 y.o.). All given actions could be chosen, which is why the percentages add up to over a 100%. Due to the set-up of King Louie's marketing survey, no comparison could be made between consumer segments.

'Smart buying' is prominent among both consumer segments

In order to measure the degree of sustainability amongst consumers, a few survey statements inquired about high-quality clothing purchases and 'smart purchases' (i.e. whether a garment is suitable for a woman's body type and wardrobe). All consumers answered positively on these statements, indicating a sustainable attitude in these aspects regardless of the consumer segment.

Care for clothes is higher amongst King Louie consumers

In terms of caring for old clothes (e.g. repair) and following washing instructions, KL-consumers show a higher degree of agreement compared to regular consumers.

Care for clothes among regular consumers is however expressed through how they are disposed of (Figure 26). Almost everyone has considered circular ways of disposal, such as giving clothes to charity or giving them away to friends or families. However, many consumers still simply throw away their clothes. More in-depth insights about caring behaviours are retrieved from interviews (Chapter 3.4).

Overall survey implications

Survey A managed to give a broad understanding of what a potential new target group looks like in terms of their clothing behaviours and attitudes. Comparing the results with Survey B, there were very few differences. This might suggest that sustainable consumption patterns do not differ that much depending on age or living circumstances.

There are however two prominent differences that must be considered when looking for KL's 'new consumer':

- Current King Louie consumers shop more often, are willing to spend more money on clothes and are also more often triggered by hedonic reasons such as the thrill of a discount or the pleasure that is derived from shopping.
- King Louie consumers seem to care more for their (old) clothes and following the proper washing instructions, although more nuances occur in the interview insights (Chapter 3.4)

Main takeaways - Chapter 3.3:

- Segmenting consumers based on age or household situation may not be useful given their minimal difference in sustainability.
- KL customers' frequent shopping sprees are triggered by hedonic motives. This confirms overconsumption as a valid problem.
- Social influences from friends are alluded to, but not strongly supported.

3.4 Clothing behaviours, values and COM-B factors - interview results

Method

10 semi-structured in-depth interviews were done in order to find out what the values and behaviours of women are regarding clothing throughout the whole customer journey. The aim was to find opportunities of pro-environmental behavioural intervention. To find these opportunities, questions were mostly aimed at distilling when and how clothes are (de)valued.

Figure 27 displays an overview of interview participants: a wide mix of participants was considered based on several factors; four participants were current King Louie customers. See Appendix D1 for a further explanation on the recruitment process and the interview guide. A thematic analysis was done of full transcripts (see Appendix D2 for an example transcript) and quotes were extracted/clustered to create an insight summary with quotes (Appendix D3).





	Age	Job	Education	Status	Items bought per year	Budget per item	Sustainability awareness
P1	28	Shop manager	Master's	Lives with spouse	Once a month, 1 item	€0 - €40	Low
P2	30	Interviewer & caretaker	Bachelor's	Lives with her only child	Twice a year, 1 item	€0 - €80	High (social)
P3	33	Skintherapist	HBO	Single; lives on her own	Thrice a year, 2-3 items	€0 - €80	Low
P4	27	Child psychologist	Master's	Has a spouse; lives with housemates	Once a month, 1 item	€20 - €120	High (social & ecological)
P5	30	Cleanster	MBO	Has a spouse; lives with parents	Thrice a year, 2-3 items	€0 - €20	High (social & ecological)
 P6	35	Teacher & Animal clinic owner	HBO	Married with children	Once a week, 2-3 items	€40 - €120	Low
 P7	27	Part-time make-up artist	MBO	Married with children	Once a month, 2-3 items	€0 - €80	Medium
 P8	35	High school secretary	HBO	Married with children	Once a week, 2-3 items	€40 - €120	High (social)
 P9	37	Thrift store stylist	?	Married with children	Once per 2 weeks, 2-3 items	€40 - €120	Low
P10	28	Marketeer	HBO	Lives with spouse	Once a month, 2-3 items	€0 - €40	Low

Figure 27: an overview of interview participants, which were mostly selected from Survey A (Chapter 3.2) to ensure a diverse set of participants based on various factors. Since the first few interviews mostly included a lot of conscious consumers already, or people who did not buy a lot of clothes, it was decided to recruit more participants through Survey B (Chapter 3.2). Participants 6-9 are therefore King Louie consumers.

Results

The interviews resulted in 5 main stages of the customer journey (Figure 28):

1. (Intending to) shop or purchase clothes (drivers for shopping or intentions to shop were often related);
2. Pre-used clothing exchanges;
3. The value of having clothes;
4. Caring for clothes;
5. Reflecting on clothes through wardrobe rituals;
6. Disposing clothes.

These stages (as shown from page 54 to 60) may blend into each other, showing connected socio-ecological influences and COM-B factors (see Chapter 1.3):

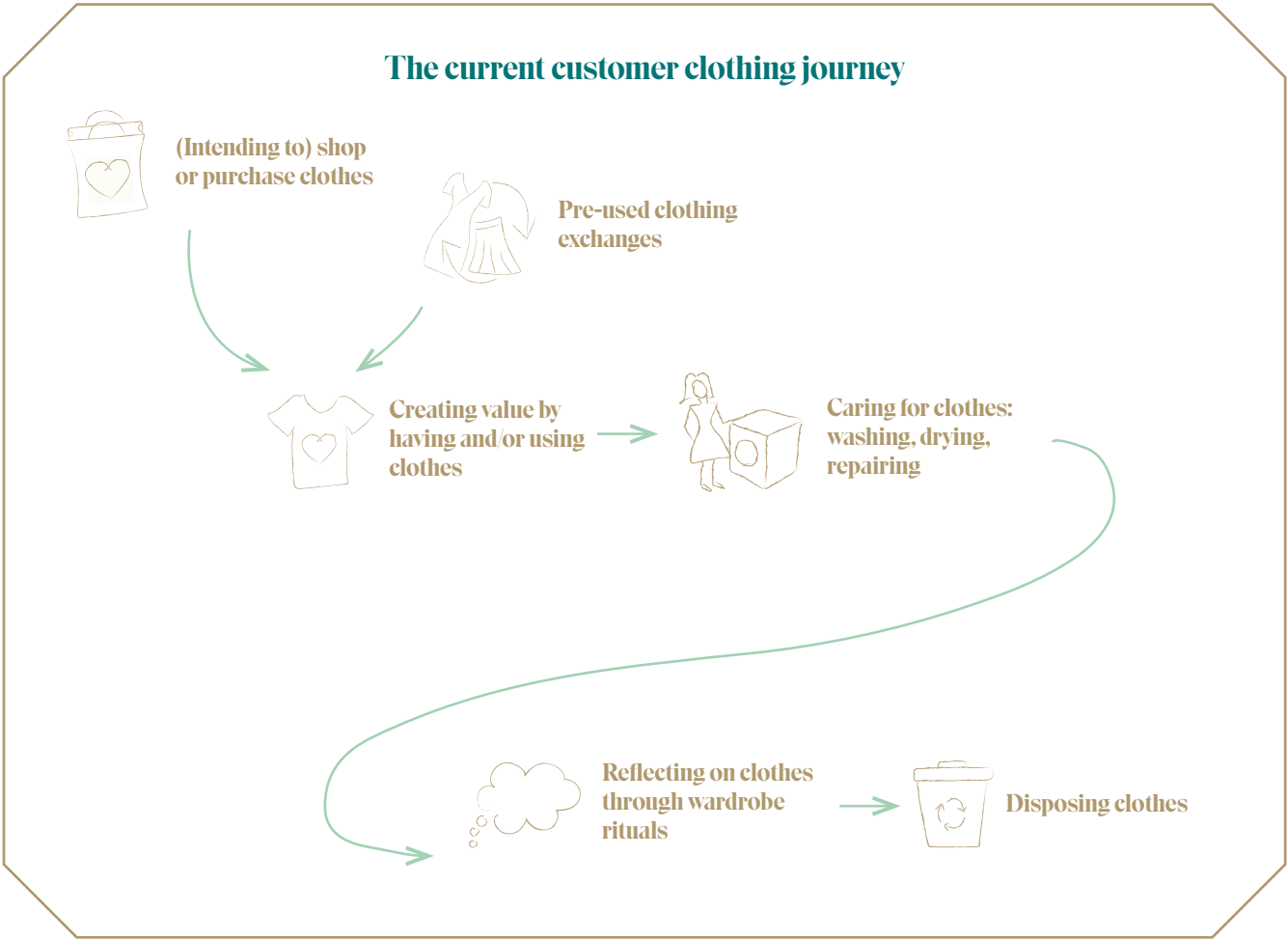
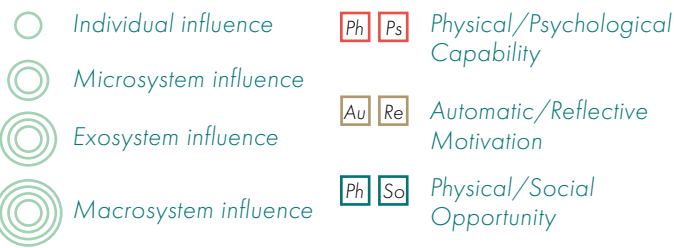


Figure 28: customer actions that are taken in the clothing journey, from purchase to disposal (derived from the interview results).



1.1 Unplanned, coincidental shopping

1. (Intending) to shop or purchase clothes

Socio-ecological influence

Quotes

- Strategically placed shops during moments of boredom create an unplanned desire to go shopping or to desire clothes.
- When friends or spouses go shopping, tagging along can create an unplanned desire to go shopping or desire clothes for oneself.
- Conversations around clothing can be an additional social opportunity that trigger a desire to buy something.
- Shopping for someone else, such as a child or spouse/husband, can create a snowball effect of several purchases for oneself.

- Clothing industry marketing Ph
- Friends/spouse So
- Friends So
- Family So



Location influence

“Dan moet je 10 minuten voor de trein wachten en dan staat die winkel daar precies goed, en dan kom je binnen en dan denk je: is eigenlijk wel handig zo’n zwart shirtje.” (P4)

Friends influence

“Toevallig was het zo dat mijn vriendin die moest wat dingen halen voor kerst maar toch nog andere dingen, dus dan ga je gewoon mee.” (P10)

Family influence

“En ook gevaarlijk bij Zalando, dan koop je iets voor de kinderen omdat ze dat nodig hebben, en dan floep dan floept daar nog een truitje of een broek erbij voor mezelf.” (P6)

1.2 Unplanned, habitual shopping

- Webshops make it easier to browse for clothes whenever it is convenient paired with every day responsibilities such as work and childcare, and therefore perpetuates a habitual desire to buy clothes.

- Clothing industry marketing Ph



Boredom

“Als ik mij verveel, als ik even niet aan werk wil zitten, dan ga ik scrollen.” (P1)

1.3 Bargain shopping (planned or unplanned)

- Seasonal discounts and other annual discounts such as Black Friday, can create a planned intention to shop for clothes due to the desire to save money.
- The prospect of discounts can postpone purchasing behaviour of a long-desired item until a discount occurs.
- Unpredictable bargains that are communicated through e-mail marketing and other types of (targeted) advertisements can create an unplanned intent to shop.

- Clothing industry marketing Re
- Clothing industry marketing Re
- Clothing industry marketing Au



Planned bargain

“Ik koop nooit kleren of items volle prijs. Meestal wacht ik op korting. Mijn shopping routine is eigenlijk standaard. Meestal winkel ik dus 2 keer per jaar met de zomer collectie en winter collectie korting.” (P1)

Unplanned bargain

“de laatste keer dat ik wat kocht was echt toevallig dat ik bij Kruidvat was en er was een hele lekkere warme pyjama en toen dacht ik dat is dan zeker handig voor de wintertijd en het was afgeprijsd” (P2)

Advertisements

“Er komen ook heel veel van die mailings binnen iedere dag en die probeer ik dan te verwijderen en sommige die triggeren je toch en dan ga je even kijken en dan word je sneller aangezet te kopen dan je eigenlijk wil.” (P6)

1.4 Planned, conscious shopping

- Women consciously shop for a new garment if it fulfills a value that is important to them in the moment, such as social levelling, thermal comfort, self-expression or any of the other values that can be fulfilled through clothes (see 3. The value of having clothes).

- Individual needs Re



Fulfilling a need

“Maar de laatste aankoop is een jurk geweest – ik was mijn kast aan het doorspitten en toen vond ik dat qua lengte mijn jurken wel allemaal korter waren. En toen dacht ik dat past ook niet meer helemaal bij mijn leeftijd en toen wilde ik ook nettere stukken hebben.” (P3)



2. Pre-used clothing exchanges

2.1 Second-hand shopping

- Second-hand shopping sprees are not planned for, but rather done occasionally as a leisurely activity to seek out new ‘treasures’ (clothes that are surprising, aesthetically pleasing and cheap).
- Second-hand purchases are thought to be guilt-free because owning these clothes equals giving these clothes a second life.
- Second-hand clothes are generally accepted except for a few who have hygiene issues, either as a personality trait or due to a bad experience with bed bugs.

- Individual needs Au
- Individual values Au
- Individual values Au



Moral licensing

“Als ik tweedehands koop dan zit daar wel H&M en Zara tussen, dus de minder eerlijke merken, maar dan geef ik zeg maar zo’n kledingstuk dat door iemand anders niet meer gedragen wordt wel weer een tweede kans” (P7)

Treasure hunting

“ik vond het gewoon zo leuk om te struinen, en dat je dan zo’n buit bij elkaar kan sprokkelen voor relatief weinig geld al is vintage wel duur” (P8)

Hygiene

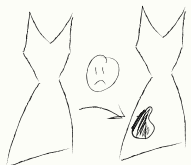


“Ik koop ook geen tweedehands kleding ik ben er als de doods voor dat er vlooiën, bedbugs of shit in zit waarvan ik gewoon niet wil weten dat het erin zit.” (P5)

2.2 Exchanging clothes with friends or family

- Very few women obtain clothes from friends or relatives, mainly because people in their surroundings don’t have the same style and size as them. In rare occasions, clothes are passed on from generations or with siblings.
- Lending or borrowing clothes is mostly imaginable for short-term, special occasions such as parties; but concerns remain around size issues (when borrowing) and friends keeping their clothes in a good state (when lending).
- Lending is generally more imaginable than borrowing. There is enjoyment in purchasing/owning clothes and knowing that they are clean and untarnished when worn.

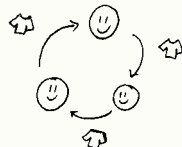
- Friends and/or family Ph
- Friends Ph Re
- Individual needs Au



Hesitance about lending

“Ik heb ook wel eens dingen uitgeleend en dat ik ze niet meer terug kreeg en dat er iets stuk aan was en dan baal ik gewoon want ik ben wel voorzichtig met mijn spulletjes. [...] Mijn ervaring heeft mij geleerd dat ik liever geen kledingstukken uitleen en over het algemeen heb ik ook niet veel vrienden die dezelfde maat hebben dus dat scheelt weer.” (P3)

Glad to borrow



“Nu al heb ik een zak met kleren die te klein is van mijn broertje vroeger en die neem ik dan mee terug naar Duitsland. Zo gaan we de hele jaar door kleren wisselen.” (P2)

<div data-bbox="172 205 296 321"> </div> <div data-bbox="145 380 287 443"> 3.1 Practical value </div>	3. The value of having clothes	Socio-ecological influence	Quotes
	<ul style="list-style-type: none"> For those who are not a fashion lovers, clothes are considered a daily necessity to cover oneself. Clothes are appreciated for creating a bodily or thermal comfort; this value may supersede aesthetic value. Clothes that have a degraded aesthetic value can still be used when aesthetic value is not of importance, such as when doing dirty work or chores. 	<div> <div></div> <div>Individual needs</div> <div>Re</div> </div> <div> <div></div> <div>Individual needs</div> <div>Ph</div> </div> <div> <div></div> <div>Individual needs</div> <div>Ph</div> </div>	<div data-bbox="1602 306 1768 327">Thermal comfort</div> <div data-bbox="1605 348 1754 495"> </div> <div data-bbox="1783 306 2012 495"> "...een jurk of rok die dan heel erg synthetisch is, [dat] houdt dan de warmte zeg maar binnen. Dat is dan wel heel erg vervelend voor bepaalde seizoenen." (P10) </div> <div data-bbox="2056 306 2199 327">Bodily comfort</div> <div data-bbox="2059 348 2184 495"> </div> <div data-bbox="2228 306 2398 495"> "Altijd 's morgens trek ik gewoon wat aan. Het is ook altijd een beetje hetzelfde, als het maar lekker zit." (P3) </div> <div data-bbox="2445 306 2540 394">Degraded aesthetic value</div> <div data-bbox="2570 285 2792 443"> </div> <div data-bbox="2445 436 2849 520"> "Hij is ook te kort en de vorm is ook niet mooi. Ik heb hem wel aan als ik aan het klussen ben, maar niet in m'n dagelijks leven." (P4) </div>
	<ul style="list-style-type: none"> Clothes are appreciated for making oneself look and feel beautiful, allowing the wearer to choose which specific body parts are accentuated or hidden. Clothes are appreciated for fulfilling the ability to be combined and worn across contexts (in terms of style and occasion-based appropriateness), whilst tending for the need to look different from day to day. 	<div> <div></div> <div>Individual needs</div> <div>Re</div> </div> <div> <div></div> <div>Social environment</div> <div>So</div> </div>	<div data-bbox="1602 560 1739 581">Looking good</div> <div data-bbox="1605 602 1703 749"> </div> <div data-bbox="1783 560 2056 720"> "Ik voel me comfortabel in wat ik draag, dus ik heb zoiets van: het staat goed in mijn lichaam en je ziet de vormen die ik heb, die ik wil laten zien, en daar word ik happy van." (P5) </div> <div data-bbox="2205 560 2273 581">Variety</div> <div data-bbox="2208 602 2401 720"> </div> <div data-bbox="2445 560 2819 665"> "Hij is ook stoer te combineren met sneakers maar ook super vrouwelijk met een rode pump. Daar hou ik van.. stoer en vrouwelijk tegelijkertijd." (P9) </div>
	<ul style="list-style-type: none"> Clothes are something that need to match one's self-image and 'true self', when this 'true self' is found and matches with their clothes, this creates joy. Having 'found one's true self' results in more conscious and high-quality purchases, which is typically mentioned as an improvement from younger years. The desire to look professional, neat or appropriate to the social work environment suppresses the ability to be one's true self through clothing at work. Clothing says something about someone's emotional state, where positive feelings are expressed through clothing but negative feelings such as a low self-esteem causes avoidance of clothes that add to these negative feelings. 	<div> <div></div> <div>Emotional state</div> <div>Au</div> </div> <div> <div></div> <div>Individual needs, age</div> <div>Re</div> </div> <div> <div></div> <div>Social work environment</div> <div>So</div> </div> <div> <div></div> <div>Emotional state</div> <div>Au</div> </div>	<div data-bbox="1602 814 1739 877">Matching their self-image</div> <div data-bbox="1605 919 1703 1108"> </div> <div data-bbox="1783 814 2012 1066"> "...ik ben best creatief en ik hou best van kleur, en dat staat veel dichterbij hoe ik mezelf zie. En dat matched elkaar, hoe je je kleeft en hoe je je voelt en wie je bent als persoon. Dat is zo fijn, dat geeft zoveel rust." (P8) </div> <div data-bbox="2056 814 2163 909">Expressing different identities</div> <div data-bbox="2059 930 2169 1108"> </div> <div data-bbox="2208 814 2398 1092"> "Ik heb bijvoorbeeld een jurk met roodkapjes erop van Blutgeschwister, nou die zou ik niet gauw aandoen voor de klas want dat straalt niet heel veel professionaliteit uit." (P9) </div> <div data-bbox="2445 814 2703 840">Emotional self-expression</div> <div data-bbox="2466 861 2674 1003"> </div> <div data-bbox="2445 1035 2843 1150"> "Als je niet lekker in je vel zit en je voelt je al onzeker dan wil ik geen risico's nemen met mijn kleding, om te veel aandacht te trekken waardoor ik me nog onzekerder voel." (P3) </div>
	<ul style="list-style-type: none"> Clothing consumption is a social experience which is cultivated through (online) conversations and exchanges of outfit pictures. Joy is found in thinking about how clothes could match together as an outfit, since it is a light, enjoyable and superficial activity. 	<div> <div></div> <div>Friends, social media</div> <div>So</div> </div> <div> <div></div> <div>Emotional state</div> <div>Au</div> </div>	<div data-bbox="1602 1199 1703 1262">Mixing and Matching</div> <div data-bbox="1605 1220 1798 1346"> </div> <div data-bbox="1834 1199 2139 1339"> "...en dat vind ik super leuk om te doen, kijken naar kleurverhoudingen enzo, en goed op zoek gaan naar perse de juiste panty bij mijn rokje" (P7) </div> <div data-bbox="2184 1199 2377 1224">(Online) socialising</div> <div data-bbox="2208 1245 2332 1367"> </div> <div data-bbox="2398 1199 2837 1339"> "Dat is wel leuk dan stuur je af en toe een foto en zeg je: welke panty zal ik doen. En dat klinkt natuurlijk een beetje oppervlakkig maar het is wel altijd heel gezellig. Dat mensen echt snappen wat je style is omdat ze die delen." (P8) </div>
	<ul style="list-style-type: none"> Special occasions such as going to a party, visiting in-laws or going to church trigger awareness around social and age norms and prompt women to dress accordingly, specifically in terms of looking 'neat' or 'appropriate'. There is a desire to look professional, neat or appropriate to the social work environment, whether there are work-related dress codes or not. 	<div> <div></div> <div>Family, friends & acquaintances</div> <div>So</div> </div> <div> <div></div> <div>Social work environment</div> <div>So</div> </div>	<div data-bbox="1602 1388 1670 1409">Private</div> <div data-bbox="1576 1430 1813 1556"> </div> <div data-bbox="1843 1381 2131 1570"> "Ik heb toch een Cup D, dat heb je dan gewoon [...]. Dus ik wil er best vrolijk uitzien maar het moet toch ergens praktisch zijn. Ik ben geen 23 meer, ik heb ook een puberzoon die ook een mening heeft." (P9) </div> <div data-bbox="2220 1388 2341 1409">Professional</div> <div data-bbox="2237 1430 2318 1577"> </div> <div data-bbox="2398 1409 2837 1556"> "Bijvoorbeeld gisteren was ik bij twee wat oudere chiquere dames, toen had ik gezien dat zij wat welgestelder waren. En toen had ik echt nette kleren aangedaan voor hen dan zeg maar om indruk te maken." (P2) </div>
	<ul style="list-style-type: none"> Those who are either pro-socially or pro-environmentally conscious, recognise that much material and time resources goes into making a garment, and are therefore willing to buy higher quality clothes. Branded, high-quality clothes that have a higher monetary value are an investment or an opportunity to gain money back. Regardless of the amount of money that women are willing to spend on clothes, clothes are recognised to have a value in a 'second life' to make someone else happy, such as friends, relatives or people in need. 	<div> <div></div> <div>Individual values</div> <div>Re</div> </div> <div> <div></div> <div>Clothing industry design efforts</div> <div>Ph</div> </div> <div> <div></div> <div>Individual values</div> <div>Au</div> </div>	<div data-bbox="1602 1629 1730 1692">(Social) sustainability</div> <div data-bbox="1590 1734 1724 1881"> </div> <div data-bbox="1783 1629 2036 1906"> "Ik weet dat vroeger als ik al iets kocht dan probeerde ik het zo goedkoop mogelijk te kopen maar nu heb ik wel beseft dat een t-shirt van 5 euro never nooit de prijs kan zijn van de hele keten en dat dat dan goed betaald is voor de werknemer" (P2) </div> <div data-bbox="2095 1629 2205 1650">Altruïstism</div> <div data-bbox="2065 1671 2228 1839"> </div> <div data-bbox="2243 1629 2398 1906"> "...als ik ergens niet blij mee ben en ik heb het voor een leuke prijs gekocht dan geef ik het met liefde weg aan iemand die het echt nodig heeft." (P8) </div> <div data-bbox="2445 1629 2540 1650">Business</div> <div data-bbox="2534 1671 2733 1766"> </div> <div data-bbox="2445 1770 2837 1906"> "Ja dat is het wel het fijne van King Louie en de andere merken. Die kun je wel online verkopen en dan heb je nog een centje terug. Op marktplaats, of op een Facebook groep." (P9) </div>

4.1 Washing & drying



4. Caring for clothes

- Care for clothes is mostly expressed through the appreciation for colour retainment, where clothes are sorted appropriately before being washed (e.g. whites being separated).
- The desire to retain the shape and material quality of clothes is expressed by following the temperature instructions of clothes.
- Dryers are rarely used, in order to retain shape and material quality.
- The feeling of clean, fresh smelling laundry is often mentioned as a pleasurable moment and signifies an important desire for cleanliness, which is especially expressed when speaking of second-hand or borrowed clothing.
- Concerns about the way other people take care of their clothes signify distrust of others and a desire to ensure colour, material, shape and crease-free retainment themselves.

Socio-ecological influence

- Individual values Re
- Individual values Re
- Individual values Re
- Individual needs Au
- ◎ Spouses and/or related Ps

Quotes

Colour retainment



"Mijn vriend en ik hebben best wel vaak ruzie over kleren wassen omdat het voor hem eigenlijk niets uitmaakt. Hij gooit gewoon alle kleuren door elkaar. Op een gegeven moment werden al zijn nieuwe witte kleren gewoon grijs" (P1)

Shape retainment



"Ik weet bijvoorbeeld dat je bepaalde kledingstukken ook niet mag hangen, bijvoorbeeld wollen truien dat rekt gewoon. Dat moet je altijd plat laten liggen natuurlijk als je hem laat opdrogen." (P10)

The feeling of cleanliness



"Als het lekker vers ruikt en het fris ruikt en ik hang het op. Of ik kom in de kamer als het net hangt te drogen dan ruikt die hele kamer lekker naar wasmiddel. Dat ruikt schoon." (P6)

4.2 Ironing

- Ironing is often a disliked activity for no explainable reason, or something that is only done when utmost necessary.
- 'Preventive' behaviours are used to avoid the need to iron, such as 'waving out' clothes before hanging them to take creases out during the drying process.

- Emotional state Au
- -- --

Avoidance of ironing



"Ik probeer zo min mogelijk te strijken want ik probeer al zo min mogelijk in de wasmachine te doen en ik laat het niet te zeer centrifugeren en ik haal het er snel uit dan hoef ik er niet veel aan te doen qua strijk." (P6)

5.1 Biannual & casual wardrobe re-organisation



5. Reflecting on clothes through wardrobe rituals

- Biannual wardrobe reflections are prompted by season-bound wardrobe re-organisations where winter and summer clothes are swapped around for ease of accessibility.
- Casual wardrobe reflections are prompted by a desire to keep the wardrobe neat and organised when they feel 'messy'.
- Biannual wardrobe rituals can be broken up into a more casual ritual when children are involved, as these outgrow clothes much faster regardless of seasons, which then prompts a wardrobe clearance in the whole house.
- The secondary effect of re-organising wardrobes is a judgment of whether clothes are valuable or not, based on whether they fit their aesthetic appeal, practical appeal and lifestyle appeal.
- Reflection on clothing affects disposal positively: where clothes are re-discovered and therefore re-appreciated and less likely thrown away.
- Some will give into disposal uncertainty with a conscious habit, where unwanted clothes are first put aside for a while before actual disposal (see Figure 29).

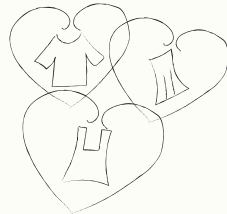
- Wardrobe capacity Ph
- Individual needs, emotional state Au
- ◎ Family (children) Ph
- Individual needs & values Re
- Individual needs & values Re
- Individual needs & values Re

Dealing with a chaotic wardrobe



"Soms heb je wel eens zo'n tik dat je denkt ik moet nu echt gaan opruimen want het ziet er niet uit. Wanneer je iets zoekt en je bent helemaal de weg kwijt. [...] Mijn wens later is om het liefst een inloop kast te hebben waar ik meer ruimte heb dan alleen een kledingkast wat we nu hebben." (P10)

Re-discovering clothes



"Ik wissel ook mijn kleding tussen de voorjaar en najaar. Op die manier blijft het voor mij allemaal nieuw en hoef ik niet vaak te shoppen. [...] Want als ik dan mijn voorjaarskleren ga pakken dan denk ik: oh dat heb ik ook nog, en oh dat heb ik ook nog! Dus dan ben ik weer helemaal blij met alles dat ik heb. Dus ik heb minder snel zoiets van: ugh ik heb niets om te dragen." (P5)

Situation-bound wardrobe habits



"Ik denk 2 keer per jaar dat ik de zomerserie en de winterserie zeg maar ga bekijken, en dat ik dan denk ja dit heb ik echt niet gedragen, ik zie het mezelf ook volgend jaar niet meer aandoen. Dan doe ik dat op marktplaats. Is ook een beetje het gevoel." (P9)

"Heeft ook te maken met de seizoenswissel, dan kijk je sowieso even kleding na. Maar soms dat de kids ook halverwege het seizoen wisselen van maat, dus dan kijk je gewoon" (P7)



6.1 Disposal channels

6. Disposing clothes

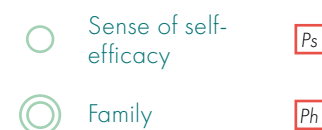
- There is a divide between what happens with clothes that are in a 'good state' but simply undesired, or those that are not in a 'good state' and need repair. In both cases, women imagine certain "if... then..." scenarios (Figure 29).
- Most younger, unmarried women usually consider their friends or relatives as the first 'disposal' option as it is convenient or there is a direct sense of making someone happier. (Microsystem, friends/family; social opportunity)
- Clothes that are in a good state and have a low monetary value usually end up in the clothing container or donated ('kringloopwinkel', second-hand shop or a charity organisation).
- Clothes that are in a good state and have a high monetary value are re-sold through online channels if the effort is deemed worth the monetary gain.

Socio-ecological influence

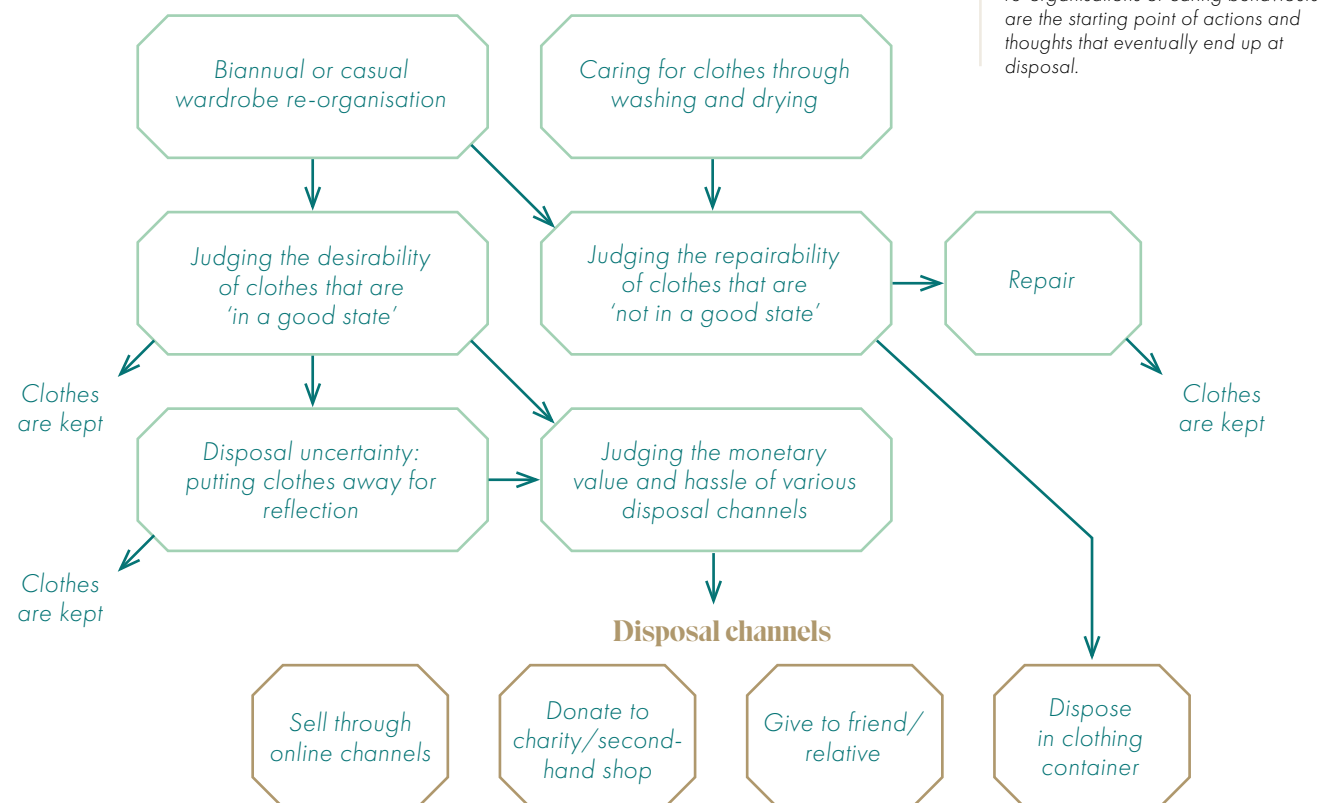


6.2 Judging repairability

- Clothes that are in a less good state will be judged for its repairability paired with women's own capability to repair and take different disposal routes accordingly
- The ability to repair clothes differs per person regardless of their age. Those who are proficient in repair have learned this from their mother, as a result of poverty during their younger years.



The links between reflecting, caring and disposal



Design implications of the interview results

The previous few pages summarised the interview insights from the whole customer journey. An in-depth overview with quotes from participants can be found in Appendix D3. The following paragraphs will focus on what the insights could mean from a behavioural design perspective.

Overconsumption at the intent generation phase needs a solution that is focussed on 'irrational' behaviours.

The goal of this project was to tackle overconsumption. Overconsumption can be reduced through two ways: reducing purchase and/or using owned clothes more often. When surveyed, women seem to be smart shoppers (buying clothes that fit their wardrobe and body type), non-trend followers and non-impulsive shoppers. This indicates a somewhat conscious attitude when purchasing clothes.

The insights around intent generation showed that a lot of shopping sprees or purchases are unplanned due to social and physical opportunities which are driven by the clothing industry, friends or family. This means that mostly external factors are influencing behaviour through automatic motivations.

Rational, planned shopping sprees or purchases are likely not an interesting moment of intervention because consumers do these purchases to fulfill a necessary need (see 3. The value of having clothes). These purchases are justified from a user-centric perspective and should not be taken away for the sake of sustainability. It seems more viable to focus on the unplanned shopping moments, where we turn subconscious behaviours into conscious behaviours (so called 'rational overrides'; Lieren et al, 2018).

Whilst reducing purchases during unplanned shopping sprees could be an interesting moment of intervention, these might not align with business needs to create profit.

The possibility to exchange pre-used clothing is heavily dependent on social resources, but the willingness to do so depends on individual needs and values that could either hinder or facilitate sustainable behaviour, and even encourage 'consumer misbehaviour' if such a new service is introduced.

The sharing economy has often been celebrated as an opportunity for sustainable fashion behaviours, but the possibility to share clothes is scarce and the willingness to do so is very minimal.

The research participants could only imagine lending clothes to friends or family, which means that size and style matching becomes a big hindrance in whether people are able to share clothes with each other. Moreover, borrowing clothes is still not a desirable thought amongst respondents, due to an inexplicable desire to own clothes and have agency over the cleanliness or quality of these clothes.

Besides the social resources needed to facilitate the exchange of pre-used clothes, possible 'consumer misbehaviours' raise a concern about whether this route is the best design opportunity. Statements about the purchase of second-hand clothes show that this can easily turn into a guilt-free, infinite shopping spree where clothes are seen as a 'bargain treasure'. This kind of mentality should not be encouraged if sustainable behaviour is the end goal.

Clothes can fulfil various values due to different individual needs which should not be taken away through a new service.

As stated in the insights about intent generation, some clothes fulfil a necessity that spurs rational purchasing behaviours. The needs that are fulfilled through clothing, such as practical needs, aesthetic needs, the need for social levelling and self-expression should not be taken away from consumers through a new clothing service. These are well-known needs from literature that consumers prioritise above ethicality.

The social environment can have a big effect on how clothes are valued and could either increase or reduce the need to have more clothes. Social influences can therefore both be an opportunity or threat to sustainable service design.

Clothing can embody the value of being a (social) hobby which creates an appreciation of clothes, but social influences can also prompt unsustainable behaviours. Whilst talking about clothes with friends or exchanging outfit pictures are needs that should not be taken away from women, caution must be taken of how constant exposure to clothes can awaken once latent desires to buy more clothes. This is also seen in the intent generation phase, where some purchases are made because women 'tag along' with shopping sprees with friends or for their children, which then cause a snowball effect of purchases for oneself. A new sustainable service could use social influences as a leverage to generate interest and desirability for a service, but only if it is focussed on the appreciation of current clothes rather than the desire for new clothes.

Women already care very well for their clothes through washing and drying behaviours, meaning that this moment in the customer journey does not have to be intervened upon. However, insights from this customer journey phase reveal valuable design guidelines.

Women already express their love for clothing through the desire of colour retainment, shape/quality retainment and cleanliness. They also enjoy the security of doing this themselves, which means any new service should not take this joy away from them. Ironing is however an activity that could gladly be taken away from women, because it is often marked as an unenjoyable experience.

Wardrobe rituals can be used to reflect on clothes and prompt disposal uncertainty, creating the opportunity for a new service to focus on keeping clothes rather than halting purchasing behaviours.

Every woman either has a biannual or casual wardrobe reorganisation moment, regardless of their lifestyle situation. This moment is an opportunity to judge the value of clothes (Figure 29) and either prompts disposal or disposal uncertainty for clothes that are still in a good state; ultimately influencing whether clothes are kept or not. Even though most

women will dispose their clothes through 'sustainable' options such as donation, this can also be seen as an easy way to justify guilt-free, new purchases. A new service should therefore focus on keeping clothes. Some participants even find a lot of joy in their wardrobe reorganisation, stating that they rediscover their clothes through their wardrobe rituals.

Looking at women's mental model of disposal (Figure 30), it is clear that a lot of consideration goes into deciding whether a garment is disposed of or not. This conscious behaviour makes it easier to intervene upon. Clothes that do not fit anymore in terms of their practical value, aesthetic value, value of self-expression and value of social levelling are disposed. This has given a much richer overview of the reasons for disposal than the social media analysis of King Louie's C2C second-hand market (Chapter 2.3), which mostly emphasised on a size misfit with clothes. Size misfit is something that cannot be easily solved, but a reconsideration of values is a viable opportunity.

Conclusion

Two main opportunities emerged from the interview results:

- Wardrobe rituals can be used to reflect on clothes and prompt disposal uncertainty, creating the opportunity for a new service to focus on keeping clothes rather than halting purchasing behaviours. This opportunity is about value renewal through reflection (Figure 30).
- The social environment can have a big effect on how clothes are valued and could either increase or reduce the need to have more clothes. This opportunity was especially prominent when looking at the socio-ecological model that was mapped into the interview results: most behaviours that were influenced by macro-level factors included friends, family or the general social environment.

Both these opportunities can work their magic on the values we attach to our clothing, specifically the psychological values (aesthetic, self-expression, social levelling and hobby value). A merged design direction could be created, focussing on how we re-value the clothes we already own, by renewing one or more values.

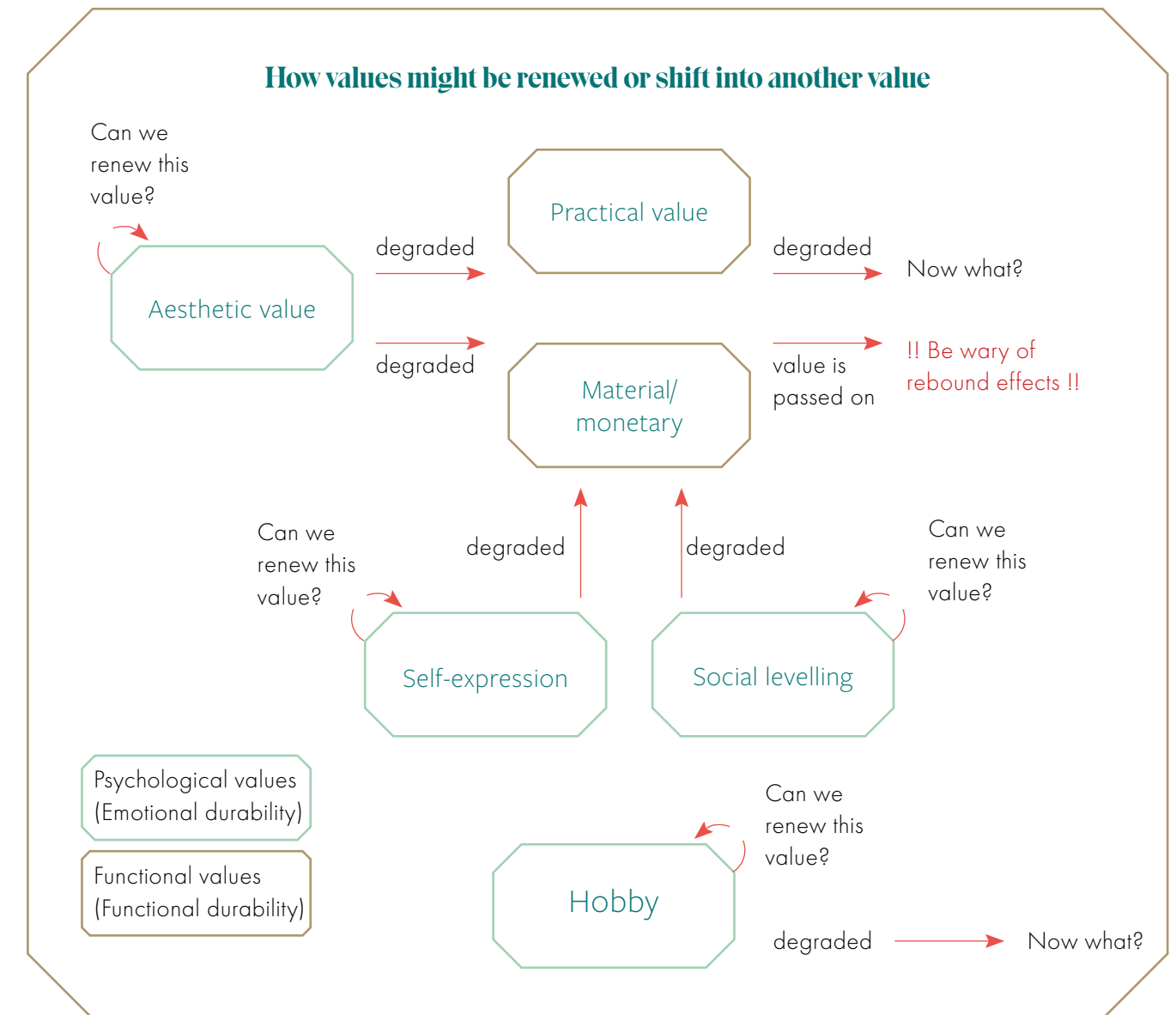


Figure 30: schematic representation of how different values could possibly be re-valued

Main takeaways - Chapter 3.4:

- Clothes can be appreciated due to functional needs (practical value or monetary/material value) or psychological needs (the value of self-expression, social levelling, having a hobby or aesthetics).
- Women already care very well for their clothes through washing and drying behaviours, meaning that this moment in the customer journey does not have to be intervened upon.
- Regardless of their age or lifestyle, all women had a 'wardrobe re-organisation' moment at least twice a year. This causes them to reflect on their clothes.
- There are links between caring behaviours, reflecting behaviours and the way clothes are disposed. These links can likely be positively changed by influencing the psychological or functional values that people attach to their clothes.
- People on the micro-level of social influence (e.g. friends or relatives) can have a big effect on how clothes are valued and when new clothes are sought.

3.5 Behaviour Change Wheel implications of the interview results

From COM-B factors to Intervention Functions (IFs)

As explained in Chapter 1.4, a COM-B behavioural analysis flows into the use of the Behaviour Change Wheel (BCW). The BCW is a guiding tool to decide what kind of Intervention Functions (IFs - “broad categories of means by which an intervention can change behaviour”, Michie et al, 2014) should be applied in the final concept. This will help in selecting Behaviour Change Techniques (BCTs - active ingredients which stimulate behaviour change) from the BCT Taxonomy; a comprehensive list of 93 BCTs which is linked to Intervention Functions). Using this systematic approach of behavioural intervention design ensures that the proper techniques are used to solve the problem.

The interview resulted in an overview of the COM-B factors that influenced behaviours at each stage of the customer journey (Figure 31). The main opportunities for a behaviour change intervention were the following stages in the customer journey:

- Creating value by having and/or using clothes
- Reflecting on clothes through wardrobe rituals

The most prominent factors from these stages include: Physical/Social Opportunity and Reflective/Automatic Motivation. Looking back at the interview results, factors of Physical Opportunity were however mostly related to the practical and monetary/material value of clothes, which has been dismissed as a focus area in the previous chapter.

This leaves the following factors to guide the choice of Intervention Functions: Social Opportunity Automatic Motivation and Reflective Motivation. Figure 32 shows which COM-B factors are linked to which IFs, and demonstrates that the chosen COM-B factors could be actualised through all IFs. A choice had to be made based on further use of the research insights. From COM-B factors to Intervention

Chosen IFs

Each IF was carefully considered (see Appendix D4 for the list of dismissed IFs). In the end, the following three were deemed suitable for a design direction:

Persuasion: “Using communication to induce positive or negative feeling or stimulate action”
This could be a good choice because it intervenes at the interplay of automatic and reflective motivation. The wardrobe rituals of the respondents were clearly both an emotional and reflective moment that could effectively made use of.

Modelling: “Providing an example for people to aspire to or imitate.”
This is one of the few IFs that covers social opportunity and is explicitly linked to an active involvement of other people, since the only BCT under this category is ‘demonstration of the behaviour’. Given the importance of leveraging social influences, this IF was chosen.

Training: “Imparting skills”
This IF would be tapping into Automatic Motivations which is more fitting than the way Education taps into Reflective Motivations behind learning. Training could involve the usage of social influences. It would be a good bridge between Persuasion and Modelling.

Determining the level of influence

Mapping the socio-ecological model onto the interview results has shown that many influences come from the individual level and macro-level. The dynamics between these two levels points towards a design interaction that involves friends or family, especially in the value-creation phase.

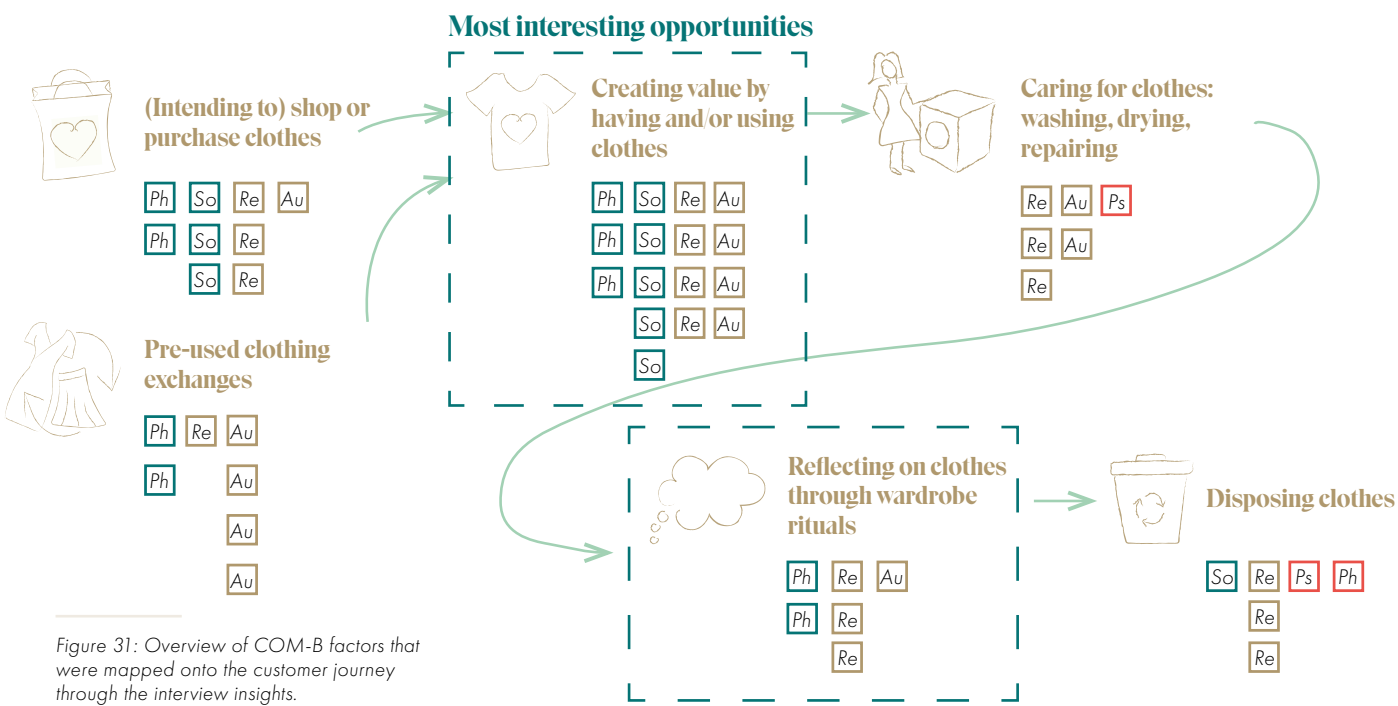
This means that the socially-related IFs ‘modelling’ and ‘training’ could very well be coming from someone on the macro-level of the consumer, rather than broader levels of influence.

Methodological considerations

Normally, the BCW approach would jump straight into the selection of BCTs once an IF is chosen. However, given that a design approach is also used in this process, the value of iteration and divergence should not be undermined, as it can create more varied and creative solutions.

The chosen IFs are therefore used to specify so-called “Creative Territories” to create concepts. This will specifically make use of the interaction between individual- and macro-level influences, due to the analysis through the socio-ecological model.

Once a concept is chosen, where divergence is needed, BCTs will be selected to detail the concept.



	Education	Persuasion	Incentivisation	Coercion	Training	Restriction	Environmental restructuring	Modelling	Enablement
Physical Capability									
Psychological Capability									
Physical Opportunity									
Social Opportunity									
Automatic Motivation									
Reflective Motivation									

Figure 32: Matrix that maps COM-B factors against Intervention Functions (Michie et al), which helps determine which IFs should be chosen based on which COM-B factors.

Main takeaways - Chapter 3.5:

- Design solutions will focus on the use of ‘Persuasion’, ‘Modelling’ and ‘Training’. These Intervention Functions are supposed to target the following COM-B factors: Social Opportunity, Automatic Reflection and Reflective Motivation.
- The choice of these Intervention Functions will guide the choice of appropriate Behaviour Change Techniques during the detailing phase.

4 Design direction

The previous few chapters aimed to explore the context and the two main pillars of this thesis: (sustainable) clothing behaviour and circular business opportunities.

Chapter 3 included extensive literature, quantitative and qualitative research activities to understand KL's 'Lucie' further, in order to make decisions about what defines this target group. The following insights highlight the most interesting design opportunities:

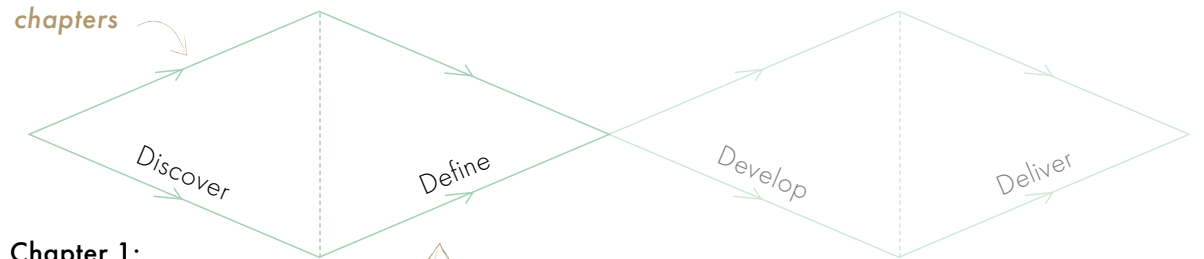
- A woman's change in identity, generativity, confidence power, concern about aging and preference in social interactions will shape the values and emotions that a new clothing service should account for.
- Segmenting consumers based on age or household situation may not be useful given their minimal difference in sustainability. A rough indication of age (women around their 30s) should be taken as guidance but not as objective measure.
- Regardless of their age or lifestyle, all interview participants had a 'wardrobe re-organisation' moment at least twice a year. This caused them to reflect on their clothes.
- Segmentation based on values may be more interesting. Clothes can be appreciated due to functional needs (practical value or monetary/material value) or psychological needs (the value of self-expression, social levelling, having a hobby or aesthetics).
- Friends and relatives can have a big effect on how clothes are valued and when new clothes are sought.
- The behavioural science behind the design solution should focus on the use of 'Persuasion', 'Modelling' and 'Training'.

Chapter 4 will converge into the Define phase.

Jumping from research insights to design solutions requires direction, thus converging the insights from the 'Discover' phase into the 'Define' phase (see image on the right). A list of design guidelines and the design goal will be formulated based on the previous chapters. This leads to the design rationale (a thorough explanation on why we should match the value of having a hobby with the value of self-expression by leveraging social influences).

We did this in the previous few chapters

Process summary so far



Chapter 1:

- Literature research (behaviour, business & sustainability)
- Methodological frameworks

Chapter 2:

- Marketing Mix
- Social media research
- KL sustainability research

Chapter 3:

- Social media research
- Surveys (n=78; n=163)
- Interviews (n=10) and COM-B analysis
- Intervention functions

Now we are going here with Chapter 4

Matching the value of having a hobby...



Mix & Match:

"I love thinking about different sets and colours."



(Online) socialising:

"It is so nice to talk with others and exchange OOTDs."

... with the value of self-expression



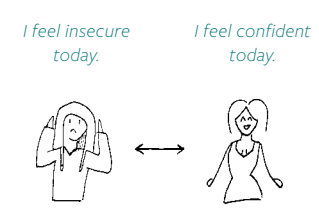
Matching their self-image:

"I am a flowery person so I love wearing flower dresses."



Expressing different identities:

"At work I need to express a different me."



Emotional self-expression:

"If I am feeling insecure, I don't want my clothes to put me at an emotional risk."

... by leveraging social influences

4.1 Research summary and design guidelines

What is the problem?

Overconsumption of clothes:

- The clothing industry releases an average of 5 collections each year, with big players such as Zara offering 24 collections. (Chapter 1.1: The state of (un)sustainable fashion)
- Clothing sales have doubled from 2000-2015. (Chapter 1.1: The state of (un)sustainable fashion)
- A part of King Louie's consumers between the age of 31-40 often shops at least every 2 weeks and purchase 2-3 items per shopping moments, which could therefore lead to the purchase of 52 – 78 items per year. (Chapter 3.3: Clothing consumption patterns - survey results)

Underutilisation of clothes:

- Clothing utilisation has halved from 2000-2015; 30% of clothes are left unused in a wardrobe. (Chapter 1.1: The state of (un)sustainable fashion)

What are the opportunities?

A new consumer segment for King Louie:

- As a brand, King Louie is trying to reach a slightly younger, new customer segment around the age of 30, which they call Lucie. (Chapter 2.2: King Louie's customers) Lucie is predicted to have a higher interest in sustainability due to demographics that have been associated with pro-environmental attitudes before, namely being part of the Millennial generation and being highly educated. (Chapter 3.1: Finding a new consumer segment)
- A new customer segment between the age of 27 and 35 is of most interest due to their lifestyle situation which fits King Louie's price ranges and a possibility for pro-environmental interest. (Chapter 3.2: The lifestyle of Dutch women in their 30s - according to literature)

- The 30's are marked by a greater sense of identity and confidence, as well as a greater value for social activity and generativity; these values can be used to make a new service more attractive. (Chapter 3.2: The lifestyle of Dutch women in their 30s - according to literature)

Individual product life extension:

- If the life of a garment is extended by 3 months, this could result in an overall reduction of the carbon footprint by 7.7%, a water footprint reduction of 10%, and waste reduction of 8.8%. (Chapter 1.3: Towards a circular fashion economy)
- Project 333 by King Louie and their 'Wear & Care' marketing initiatives show potential for future services that encourage a deeper appreciation of our clothes (Chapter 2.4 – Sustainability)

Collective product life extension

- The peer-to-peer secondhand market for King Louie items is thriving. Places such as Marktplaats and various Facebook groups are most popular. (Chapter 2.3: The current peer-to-peer second-hand market for KL garments)
- King Louie's deadstock and second quality clothing is currently redistributed through several channels, such as the Batavia Fashion Outlet, their Noordermarkt stand and the 'Wings of Support' charity. (Chapter 2.4 – Sustainability at King Louie)
- King Louie's collaborations with LENA the fashion library (The Netherlands), Fairnica (Germany), Zalando (The Netherlands) and several festivals show potential for future collaborations that encourage renting or sharing. (Chapter 2.4 – Sustainability at King Louie)

Creating a new environmentally conscious consumer ritual based on current practices (Chapter 3.4: Clothing behaviours, values and COM-B factors - interview results):

- Every woman, regardless of their lifestyle or age, go through biannual or casual wardrobe re-organisational moments, which are an opportunity to re-value clothes and prompt 'disposal uncertainty'.
- Clothing consumption is a social experience which is cultivated through (online) conversations and exchanges of outfit pictures.
- The material and monetary value of clothes is recognised with branded, high-quality clothes and can be used as a leverage for additional sustainable behaviour.

Shaping the design direction according to Intervention Functions from the BCW-approach.

- The following IFs have been chosen: Persuasion, Training and Modelling. This should scope the ideation process. (Chapter 3.5: Behaviour Change Wheel implications of the interview results)
- Behaviour Change Techniques (BCTs) in the detailing phase should be related to the chosen IFs.

What are the design guidelines for a new sustainable clothing service?

Meeting consumer needs:

A few needs through clothing should still be enabled or not taken away with a new service:

- The need for **practical fulfilments** such as bodily and thermal comfort (Chapter 1.2; Chapter 3.4 and having clothes of 'degraded aesthetic value' when doing dirty work or chores. (Chapter 3.4)
- The fulfilment of **aesthetic needs** (Chapter 1.2; Chapter 3.4 – Results)
- The opportunity of **self-expression** through establishment of identity: i.e. the communication of our character and personality in a specific moment; the negotiation of identities in a specific context through social levelling (Chapter 1.2; Chapter 3.4)
- The possibility of having a **hobby**: clothing services should ensure the individual or shared

joy of thinking about clothes, talking about clothes and exchanging outfit pictures. (Chapter 3.4)

- The opportunity to use clothes as a means of **social levelling** should extend to various professional and personal contexts. (Chapter 3.4)
- The desire for **cleanliness** in owned clothes or newly purchases second-hand clothes should be kept intact. (Chapter 3.4)
- **Higher prices for sustainable clothing options are often not tolerated** (Chapter 1.2). If a new service would affect clothing prices, consumers are generally not willing to spend beyond 80 euros. Although King Louie customers are already willing to pay high prices for clothing depending on the type of garment; a big motivation for purchases is still driven by discounts. (Chapter 3.3)

Taking currently enjoyable and unenjoyable caring activities into account:

- Women care for their clothes through washing and drying behaviours where colour retainment and shape/material retainment are ensured. They enjoy doing this themselves and would not like other people to do this for them. (Chapter 3.4)
- Clothes that need to be ironed cause unenjoyable moments in the customer journey; this should therefore be avoided. (Chapter 3.4)
- People have a mental model regarding how clothes are disposed of according to which circumstances; this should be respected, especially taking their judgment of repairability and convenience into account. (Chapter 3.4)

Taking socio-ecological and psychological influences into account:

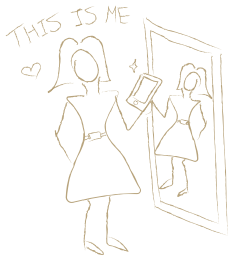
- If a reduction of clothing purchases is desired, the social opportunities due to friends or children and automatic motivations that are paired with the intent-generation for clothing purchases should be taken care of. (Chapter 3.3 – Results)
- Lending clothes to friends or families is imaginable, but only if clothing styles and sizes match. However, borrowing is less imaginable to most women. (Chapter 3.4)

- Having young children may encourage more frequent wardrobe re-organisations, meaning that the timing of intervention should be more attentively considered for women with children. (Chapter 3.4)

Keeping what ‘King Louie’ stands for and their technical capabilities:

- Most of King Louie’s current customers are in love with King Louie’s clothes due to their distinct style, fitting and quality; this should be held intact in the service (Chapter 2.2: King Louie’s customers)
- King Louie is transitioning towards a future of fully sustainable materials in their collection (50% by 2022), where organic cotton, tencell lyocell, ecovero and recycled polyester. Whatever new service is designed should take the durability of such materials into account. (Chapter 2.4: Sustainability at King Louie)
- Their current business model is dependent on funds; any radical business model changes should consider this.

4.2 Design goal



Creative territory

Instead of what is commonly referred to as a ‘design direction’, which is often based on opportunities that are pinpointed by insights only, it would be more valuable to define a so-called ‘creative territory’ which can be used as a creative jumping board for more ideas, whilst keeping both business and user outcomes in mind.

According to Modern Human Design Studio, a creative territory is made out of three elements:

- **‘How might we...’:** “This is the statement of your goal, the single specific thing you want to achieve.”
- **‘By...’:** “This is ‘how’ part of the creative territory. Your discovery research should have highlighted opportunities for achieving the goal you’ve described in the ‘how might we section’ and you should use these opportunities to provide some direction om how to tackle the challenge here.”
- **‘So that...’:** “This is where you state what outcome achieving the ‘how might we...’ goal will have. If it’s a project for a commercial business this will usually be linked to their broader strategy. For your project this might be more about the sustainability impacts.”

Target group: Experiential Clothing Users.

King Louie’s Lucie is envisioned to be around their 30’s, but determining their exact age range will not be as useful given how many women around this age may be in different life phases (Chapter 3.2). Instead it is more valuable to determine the target group based on what women need and what a service can offer them (DIY, design card no. 16)

‘Lucie’ is therefore reframed into a group called ‘Experiential Clothing Users’, based on the survey and interview insights. These women need many (new) clothes because they believe clothing is a part of their identity. Beyond just ‘wearing’ clothes, they need it to be a hobby as well. What they get out of the new service would be a new way of renewing the self-expression value of their owned clothes through a (social), qualitative experience.

How many of these users are there?

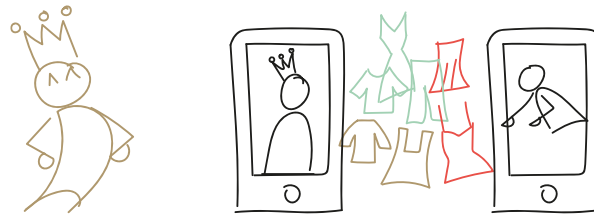
- Women who believe the clothing they wear is a part of their identity (71.8%, non-KL survey)
- Women who find it important to have a lot of clothes to choose from. (44.9%, non-KL survey; 65.1% KL survey)
- Women who buy clothes because it makes them feel good. (16.7%, non-KL survey; 32.5% KL survey)

Taking all the research insights into account, the creative territory below was made (of which the rationale will be further detailed in the next chapter):

How might we...	... increase the ‘Experiential Clothing Users’ use of clothes they already own (and feel disposal uncertainty about, possibly during the wardrobe re-organisation moment)
By...	... socially renewing the value of self-expression in the clothes they already own.
So that....	... they feel less inclined to own and purchase ‘new’ clothes’ (sustainability impact) ... King Louie can provide a new service which provides a greener revenue (business impact)

4.3 Design rationale: the positive value of sustainability paired with social influences

The solution space, based on the creative territory and target group, is two-fold (from a behavioural perspective):



1. Fuelling the sense of self-expression through clothing

2. Creating a new digital 'clothing hobby', leveraging social influences

Emphasising on these two principles which stem from consumer values (rather than an educational, pro-environmental approach) hopefully creates a positive experience with pro-environmental behaviour change. Pro-environmental activism usually emphasises on the need to keep 'reducing, reducing, reducing', bringing a lot of negativity in the climate conversation (Figure 33). It would be more inspiring to show consumers how being sustainable can add value rather than hinder our needs.



Figure 33: Shifting from an angry and negative 'climate activist' philosophy to a positive, explorative philosophy where sustainability can add new value to our lives.

Anecdote: how sustainability can add value rather than hinder our needs

During my quest of becoming a flexitarian in London, I had to re-invent my cooking style, as I restricted myself from bringing meat into the house (unless I was ill and needed to make myself Chinese soup). Coming from a Chinese household, most meals were cooked around meat. Meat dishes were the main tastemakers alongside rice and a plainly cooked vegetable that would usually only be enhanced by very simple spices. In Dutch cuisine, 'aardappel-vlees-groente' (potato-meat-vegetable) was also a common go-to meal, where vegetables are again more of a plain side-dish next to a piece of meat.

Becoming flexitarian therefore meant going on an explorative adventure. When I stumbled upon a funny-looking, unfamiliar vegetable in the supermarket, I bought it and experimented with it. New vegetables were added to my cuisine, such as kale, artichoke, celery, fennel... things I never used to cook with back home.

To account for my protein deficiency, I started to fall in love with lentils and chickpeas. Going out, I re-discovered my love for burgers through sweet potato patties, jackfruit burgers, mushroom burgers, and many more.

Many new flavours have entered my life since becoming a flexitarian, and I believe that being sustainable in any sector should gift this feeling.

1. Fuelling the sense of self-expression through clothing (based on literature)

To create a behavioural impact, it is important to be specific in the outcome you are trying to realise, otherwise it will be difficult to measure the true effects of Behaviour Change Techniques you are applying to realise the outcome (Michie et al, 2014).

Aesthetic values and the value of social levelling are in a way about how we want to express ourselves. We want to be part of a group (e.g. a brand) that fits our self-image, but within that group we still want to be distinctive enough (Chan et al, 2012). The psychological proximity of clothing to the self is based on assumptions regarding clothing in relation to our self-identity, how we experiment with different 'selves' and communicate this to others or imagine their response, our self-esteem and our (desired) body image (Sontag & Lee, 2004). This means that emphasising on the appreciation of self-expression is a viable intervention opportunity which may cause 'spillover effects' on how clothes are appreciated for their aesthetic and social levelling value. From a King Louie perspective, focussing on self-expression is fitting. The brand values quirkiness and following their own style; during Spring 2020, their campaigns will focus on 'being yourself'.

A comprehensive qualitative study by Guy and Banim (2000) has determined three types of 'identities' that women adhere to, which could be used to guide concept development:

1. The woman I want to be

This identity is mainly about how women feel about themselves, and whether the clothes they use successfully enhance their self-image. This boosts the ambition to have a good and varied wardrobe (and the skill to use it). Favourite items are vital in shaping 'The woman I want to be'; these are items that women are confident about in how they look on them, and items that create a close proximity of clothing to their self-image. Wearing these clothes should have a positive (imagined) impact on others. Making a good impression is about producing an image which establishes 'a degree of distinctiveness rather than total difference'. Women wanted to feel like they were a distinctive individual but also fitting to the situation they were dressing for.

2. "The woman I fear I could be"

This identity can also be interpreted as "the woman I don't want to be, the woman I want to hide from others or, at its worst, the woman I fear I really am". Women are highly aware that clothes may prompt judgement. 'Unanticipated negative reactions' or 'unfavourable impressions' are feared most, and when an outfit failed to match the desired self-image this can have a negative emotional impact. Women therefore become skilled in concealing 'problem areas' but also managing responses. "The woman I fear I could be" is mostly afraid of losing these skills.

3. "The woman I am most of the time"

Women's ordinary selves just must get on with their lives and deal with the projections they make through their clothes. This is highly context-dependent: sometimes practical influences (such as the physical or the social environment) cause women to wear a certain type of outfit. This self-image does not require too much effort and is satisfactory (neither perfect nor an emotional pain-point). "The woman I am most of the time" is highly aware of the external influences on clothing that are brought forward through social interactions.

These three identities are however not static. Clothes can be used to initiate or reflect time-dependent changes in self-perception or the body; allowing women to produce a range of self-images. Consequently, women develop a lot of knowledge about themselves, the clothes and the situation they are dressing for. They also develop 'avoidance strategies', out of experience from mistakes. If either fails, it becomes a negative experience. The ability to imagine one's appearance in their clothes drives creative use of clothes, from which confidence is gained. A strong imagination can also lead to negative aspects around image-creation, as it brings anxiety and self-doubt in light.

Design implication: the concept should make use of the three type of identities a woman could create through their clothing, as a means of understanding themselves and expressing themselves the way they want to. It is important to explore this visually, using the ability of women to imagine their appearance, as this will jumpstart their creativity.

2. Creating a new digital ‘clothing hobby’, leveraging social influences

The most interesting aspect regarding clothing hobbies was how others were involved in this, specifically during the exchange of ‘Outfit of the day’ pictures or (online) conversations that could help consumers to style or choose their garments. See Appendix E for an overview of online interactions that are currently happening in the KL facebook community:

- 1) Digital wardrobe tours
- 2) Asking for outfit advice
- 3) Outfit of the day posts

The examples show a potential willingness for women to share their wardrobe with others on a digital platform and socialise around it.

The research results also supported the potential of leveraging social influences. Looking at the whole customer journey and its COM-B factors from the interview results, social opportunities are prevalent in the purchase and use stage of clothes. Furthermore, 50% of survey respondents said they get fashion inspiration from friends, family and colleagues, although women aged 27-35 disagree that they are worried about what their friends or family think of their clothing in a negative sense (see Appendix C3). During the interviews, people mentioned that sharing their outfit pictures or potential purchases with friends served as a moment of confirmation rather than something that influences a final decision. However, this does not dismiss the potential that friends or family could influence them positively (see for example the Anecdote on the right).

The value of social levelling (see interview results) also shows that we ‘need’ new clothes (beyond our ‘every day identity’) to communicate a match with our social environment; these are the moments where we want to show people the value of using what they already have. ‘Modelling’ (changing behaviour due to the exposure of someone else doing the desired behaviour) was also one of the chosen Intervention Functions (Chapter 3.5) that could affect automatic motivation AND social opportunity according to the BCW-approach.

Anecdote: how social relations can encourage sustainability

Anna is a conscious consumer in all aspects: she does not eat meat, uses re-usable cups, bags and lunchboxes throughout her day and is a big proponent of minimalism. On average, she buys 2-3 garments per shopping spree and only goes shopping thrice a year. Most of her clothes have been with her for a very long time, and she is an avid ‘Do-It-Yourself’er who can sew, dye her clothes and refashion clothes in many ways. You could almost say she is the ideal pro-environmental consumer.*

However, Anna did not get here out of the blue. She has been affected by what she calls a ‘Ripple Effect’.

Her own Ripple Effect started with her little sister, whom Anna lives with alongside her mother. One day, her sister decided to become a vegetarian. Since Anna often cooks for the family, she had to explore a whole new world of vegetarian cooking. This made her understand that our bodies don’t need meat to function well. Later, this led to minimalism in her food habits, but also in her consumption behaviour.

Since then, she strives to live a clutter-free and conscious life which she carries forward with her boyfriend. Her boyfriend often buys new clothes, but she repairs his clothes to demonstrate to him that his old clothes can still be worn. Soon they will be moving in together, and she tries to encourage him to think consciously about the material possessions he will bring into their new home, since it’s a small apartment.

She says: “These are the pebbles that I will keep throwing into the water, and if I keep throwing them at the same spot, the water ripples will reach someone else, until their ripples reach someone else as well.”

**Name has been altered to keep anonymity in the interview results*

Leveraging social influences through a hobby can therefore be promising to encourage pro-environmental behaviour change, but should not be the result. However, it should be seen as a medium through which the value of self-expression is boosted.

A few general behavioural principles related to social influences and could be fitting of aforementioned research insights:

Herding behaviour and social/distinctive norm

Herding behaviour implies that the way other people act may affect decision about our own behaviour. Seeing a lot of people make a certain purchase may motivate someone to also make a purchase (Herrmann et al, 2011). The usage of social norms (what we believe others are doing) and distinctive norms (what others are actually doing) influences behaviour as well. Goldstein and colleagues (2008) placed a sign that asked hotel guests to ‘Please re-use the towels. Join your fellow guests in helping to save the environment’ resulted in a higher towel reuse rate compared to guests who saw the same sign without mentioning the social norm.

Ingroup-outgroup bias

Ingroup-outgroup bias is about how we (subconsciously) perceive ourselves as part of a certain group and may discriminate against people outside of this group we identify with (Hewstone et al, 2002; Tajfel & Turner, 1986). This can influence how we allocate rewards to others (‘realistic group conflict theory’; groups might compete with each other for scarce resources). In a clothing context, this could for example influence who we share clothing advice with or who we donate clothes to. Through the interviews, it was clear that participants had a certain ‘disposal hierarchy’ when deciding which clothes they would give to whom. Fostering a community where people will feel part of a ‘group’ might stimulate positive clothing behaviours even amongst strangers.

Given the design rationale’s emphasis on positivity, ingroup-outgroup bias might even be strengthened. According to literature, a positive mood results in a higher dependency on heuristics (mental shortcuts or biases that might inform decision-making), resulting in a “higher false identification of members of stereotyped groups” (Park & Banaji, 2000).

Mood-induced social cognition

An emphasis on positivity will also influence long-term behavioural effects. Bower (1981) suggested that happy people may more easily recall happy memories. Several experiments by Shevchenko (2018) have found that positive mood also results in positive judgment, due to the “mood as information” principle (positive moods encourage the use of “non-compensatory strategies”, and negative moods encourage the use of “compensatory strategies”). People in a negative mood therefore consider more ‘subjective probabilities of risk assessments’ than people in a positive mood (Johnson & Tversky, 1983). Such mood-related influences could spur the decrease of risk-taking behaviour in social interactions due to a negative mood (Allen et al, 2003), and possibly the increase of risk-taking behaviour in a positive mood. In a clothing context, people in a positive mood might be more willing to share their fashion ideas with others and seek out social interactions accordingly.

A meta-analysis by Hullett (2015) proposes a relation between mood and the reception of persuasive messages as well. Forgas and East (2008) conducted a study which suggested that negative mood increased scepticism and positive mood decreased scepticism of persuasive messages. A study by Turner et al (2013) showed how people in a positive mood were more persuaded by positively framed political advertisements compared to negatively framed advertisements, whereas people in a negative mood did not show a difference.

Commitment

Especially public commitment is known to influence particular pro-environmental behaviours (according to behavioural researchers at WRAP, see Appendix F1). A study by WRAP has successfully achieved positive donating behaviours by making people commit to the act publicly (Figure 34). Google has also launched the ‘Your Plan, Your Planet’ platform together with the Ellen MacArthur Foundation and California Academy of Sciences, which gives tips on becoming more a more sustainable consumer in various sectors (including the fashion sector). One of the techniques used to encourage behaviour change is the use of ‘public pledges’: sharing the given tips on social media platforms and letting peers know about commitment relating to a particular tip (Figure 34).

Design implication: the usage of social influences can manifest in several ways. Looking at the current social interactions in the KL Facebook community, this gives some ideas on how to create concepts that fit currently acceptable interactions. To create a new hobby/social interaction, behavioural principles such as ingroup-outgroup bias, mood-induced social cognition, commitment and/or herding behaviour (social/distinctive norm) can be integrated in the design solution.

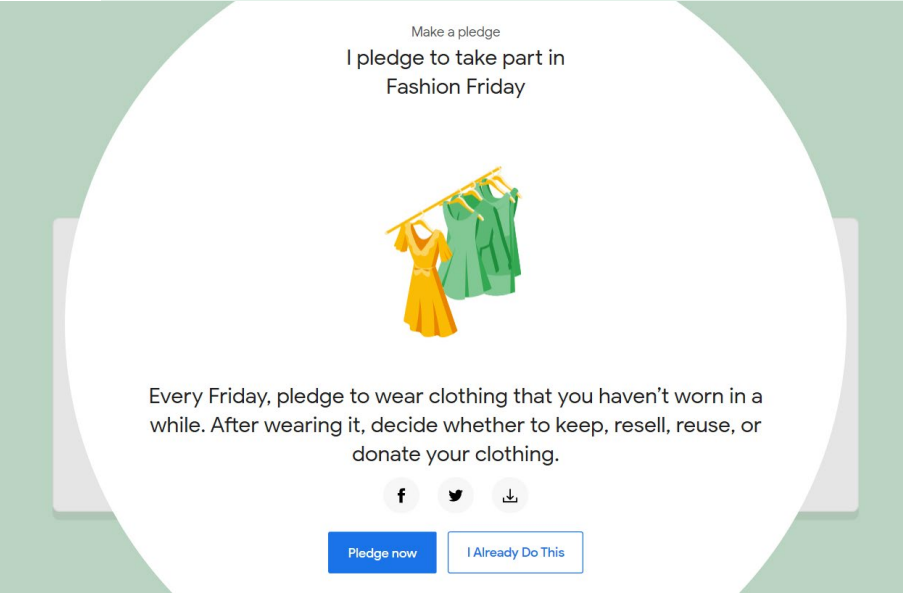


Figure 34: WRAP's and Google Sustainability's use of 'commitment' in their sustainability campaigns.

Main takeaways - Chapter 4.3:

- The solution space will be two-fold: 1) fuelling the sense of self-expression through clothing and 2) creating a new digital 'clothing hobby' by leveraging social influences.
- The design rationale will focus on positivity: showing consumers that being sustainable can add value rather than hinder our needs.
- Focussing on the appreciation of self-expression is a viable intervention opportunity which may cause 'spill over effects' on how clothes are appreciated for their aesthetic and social levelling value.
- The three types of 'identities' that women adhere to will be incorporated in the concept, namely: "The woman I want to be"; "The woman I am most of the time" and "The woman I fear I could be".
- Current social interactions in the KL Facebook community include: 1) Digital wardrobe tours; 2) Asking for outfit advice; 3) Outfit of the day posts. This gives some ideas on how to create concepts that fit currently acceptable interactions.
- Although the influence of peers on clothing behaviours can vary depending on the situation, the possibility of a 'Ripple Effect' can be behaviourally interesting if it does happen.
- To create a new hobby/social interaction, behavioural principles such as ingroup-outgroup bias, mood-induced social cognition, commitment and/or herding behaviour (social/distinctive norm) can be integrated in the design solution.

Ideation

The previous chapter determined and justified the following creative territory:

How might we... increase the 'Experiential Clothing Users' use of clothes they already own (and feel disposal uncertainty about, possibly during the wardrobe re-organisation moment)

By... socially renewing the value of self-expression in the clothes they already own.

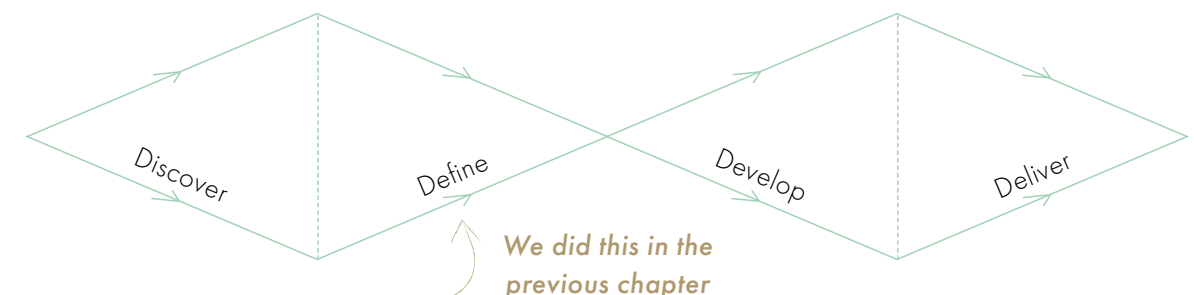
So that... they feel less inclined to own and purchase 'new' clothes' (sustainability impact)
and so that... King Louie can provide a new service which provides a greener revenue (business impact)

Chapter 5 dives into the Development of initial ideas and 3 concepts.

The image on the right illustrates the ideation process up until the final concept. Based on the target group, the creative territory, and the knowledge from the BCW-approach that some form of 'Modelling', 'Training' and 'Persuasion' should be included in the design solution, an open ideation process will be initiated. The SCAMPER method and expert conversations will then be used to further develop the most promising ideas (see Appendix F1-F3).

From here, the ideas will be clustered into three concept areas which should lead into 3 distinctive concepts. These will be further detailed and assessed based on some criteria, from which one concept will be chosen.

Process summary so far

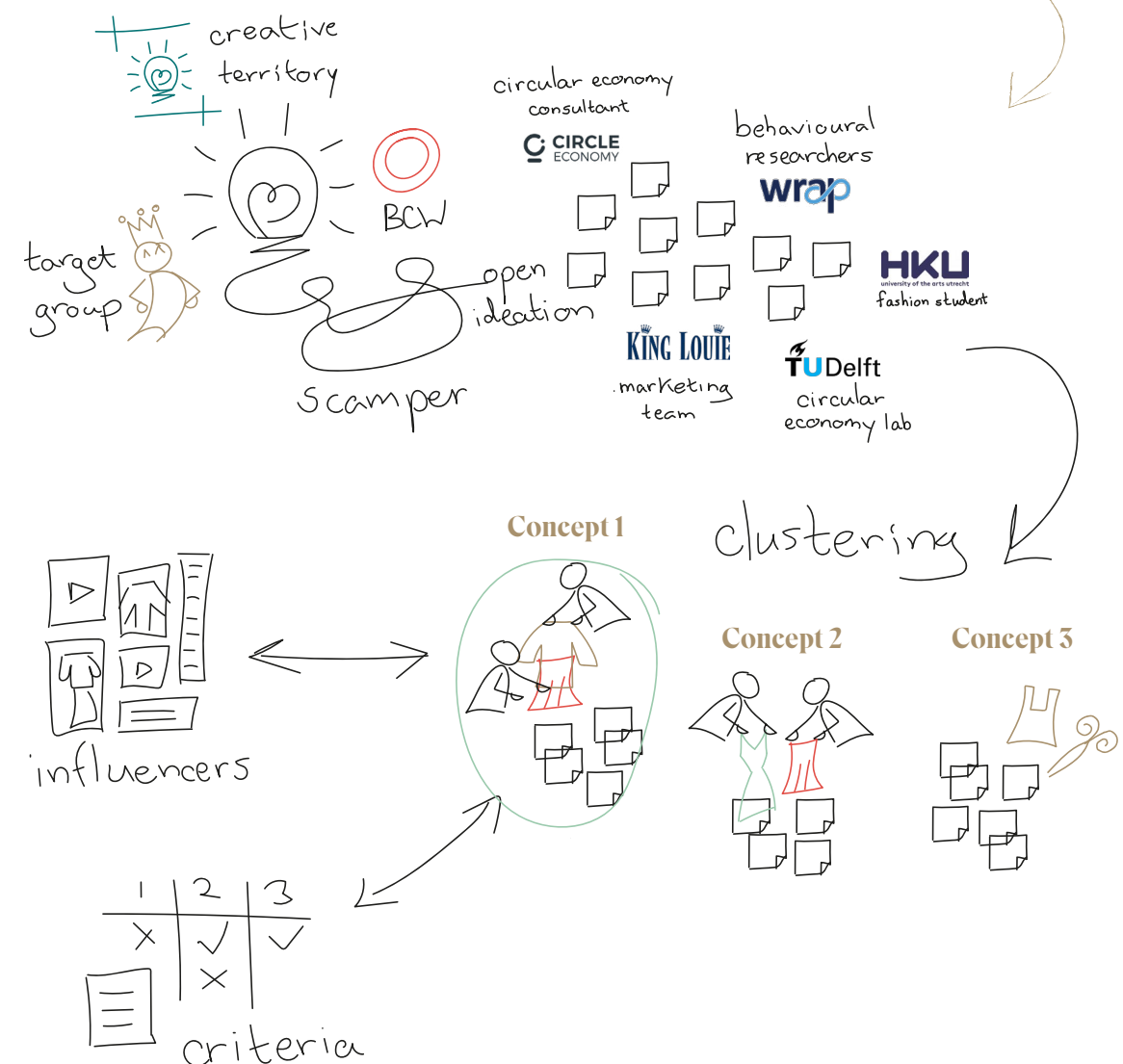


Chapter 4:

- Design guidelines
- Design goal (target group + creative territories)
- Design rationale

We did this in the previous chapter

We are going here with Chapter 5



5.1 Gaining inspiration from influencers: ways to ‘renew’ your current wardrobe

Wear clothes in a new way

A button-down shirt doesn’t have to be worn one way: you can roll up the sleeves and button it up in ways to create a new type of shirt. If you’re truly creative you can even make a top out of it!

Same goes for other types of garments, such as skirts that can be turned into dresses or vice versa. Adding belts on different heights can also give a whole different vibe.

The internet is full of creative fashionistas getting more out of their garments, essentially turning the purchase of one shirt into the value of ten shirts.



Figure 35: different ways of wearing several clothing types. (Source: Brot. co and Project CeCe)



‘Hack’ your clothes with an accessory

Scarves may not be means as a cardigan, but they can be as a dress.

Some sweaters cannot be tucked into certain skirts, but in these instances you could try to ‘crop’ your sweater by hiding a belt underneath.



Figure 36: different ways of using a belt. (Source: Bestdressed and Jeny Mustard)

Just mix and match

It’s common to see fashion vloggers take their viewers into their wardrobe. Sometimes, they will pick one piece which they will match with different clothes, showing their viewers how the same garment can create different vibes when matched differently. Listening to the commentary, different vibes can be described in several ways: clothes may be ‘down-dressed’ or ‘up-dressed’ with several combinations, or simply communicate a different personality.

A crucial part of mixing and matching is also about wearing the chosen garment different according to the match. A simple sweater isn’t ‘just tucked in’: it could also be tucked in on one side only. Similarly, a blouse doesn’t have to be worn on both shoulders, if one side is worn off-shoulder it gives the outfit new life as well.

Figure 37: mix and match vlogs. (Source: Ann Le and Erin Elizabeth)



Figure 38: layering for both warmer and colder temperatures. (Source: Bestdressed and Jeny Mustard)



Reveal what’s usually hidden by layering up

Layering is a go-to fashion technique for colder months, and this can be done visibly to show off a new style or to use clothes that are usually not worn.

A lingerie-like slip-off top can seem too much for every-day wear, but by layering a plain t-shirt inside it looks much more casual.

It’s also possible to be more subtle, such as wearing a turtleneck inside a sweater but rolling up the sleeved in a way that still shows the turtleneck beyond just showing its collar.

Main takeaway - Chapter 5.1:

- There’s more to re-valuing clothes than upcycling this or embellishing it. Keeping clothes intact can still result in different outfits by wearing clothes in a new way; mixing and matching; using an accessory or using layering techniques.

5.2 From ideation to conceptualisation

Ideation insights

The open ideation process was fuelled by having casual conversations with a few experts (see Appendix F1 for full notes):

- **Emma van de Ven (sustainable fashion expert at Cirl)**, pointed out that the idea of re-valuing clothes may 'cannibalise' KL's main business model (selling clothes). She also suggested the possibility of a 'new way of selling' clothes, for example by highlighting old collections. Coincidentally, KL has been sending out newsletters where they tell customers how to match items from their new collections, so this could be an interesting concept direction
- Presenting the design process and design directions (including Emma's view) to **TU Delft's Circular Economy Lab** has re-framed the view of business model 'cannibalism'. It can actually be an opportunity, by for example combining revaluing-efforts with second-hand markets or a sharing platform for clothes that simply cannot be revalued anymore due to size or fitting.
- A discussion with **King Louie's E-Commerce Manager and a colleague in Fulfilment (Project Manager)** revealed that setting up their own sharing/second-hand platform may be an obvious revenue stream, but that the business case for reaching a new target audience and increasing brand recognition might just be as valuable. Especially given the extensive resources that are needed around maintaining returned orders: having them checked and cleaned is currently done by an external party that is paid per item (see Appendix I).
- A remote call with **behavioural researchers at WRAP** confirms that a new way of selling clothes could be valuable, especially given their experience with donation-pilots where they used 'Commitment' as a main behavioural technique to drive successful donation-percentages. Looking into 'moments of change' and the ripple effect of social influences was

also confirmed to be an effective solution space. A final chat with a fashion student at the Hogeschool voor de Kunsten Utrecht pointed at layering techniques for surprising Mix&Match results, and the possibility of 'clothing transformations'. This also inspired a look at social media fashion vloggers/bloggers to see how they 'renewed' their wardrobe (Chapter 5.1).

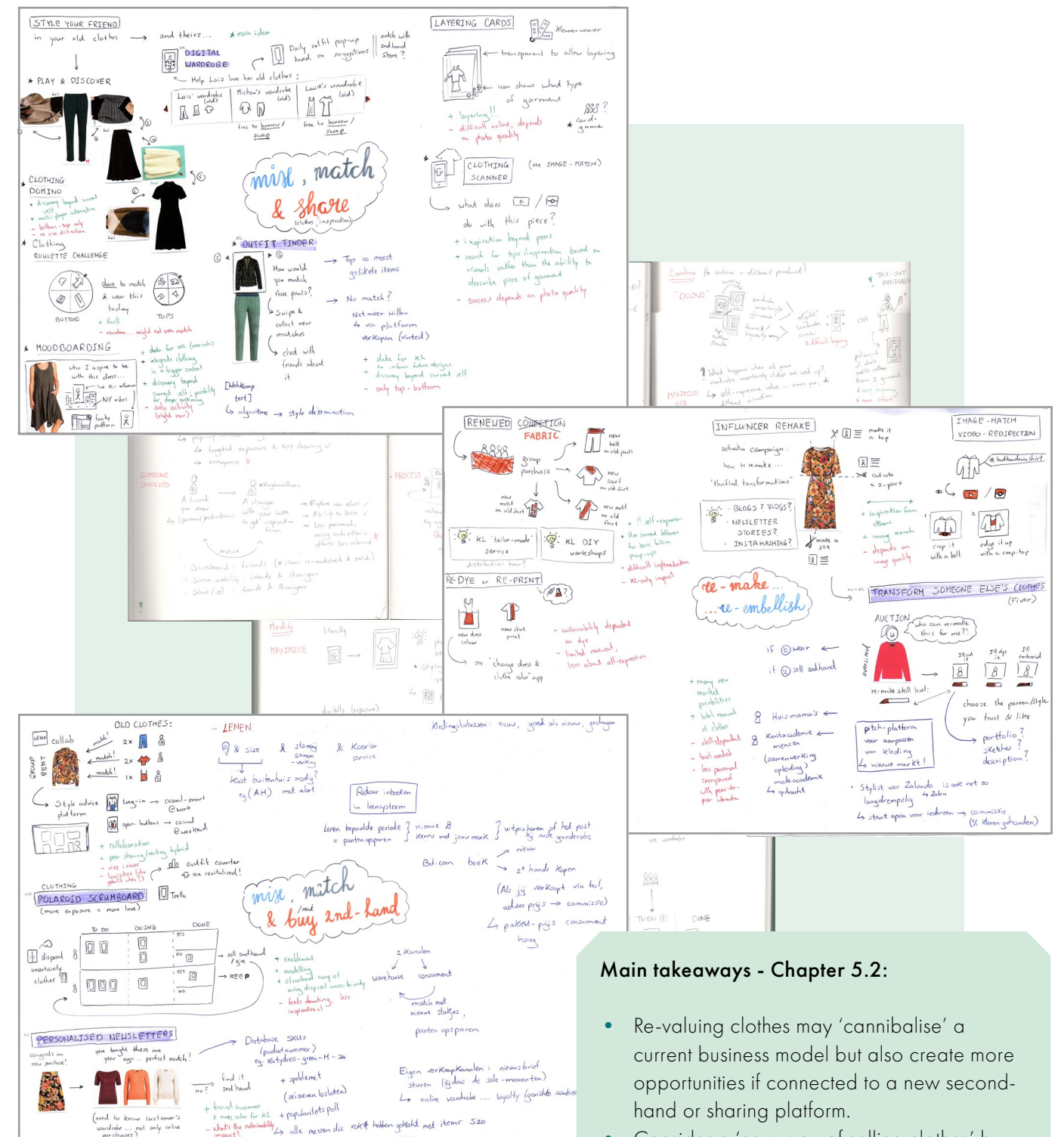
Clustering into concept areas

Taking all of these inspiration points into consideration, three core clusters were found (Appendix F2)

- Ways to encourage 'Mixing & Matching' one's wardrobe in combination with someone else's wardrobe.
- Ways to encourage 'Mixing & Matching' one's wardrobe in combination with 'new' purchases (either fully 'new', rented or second-hand).
- Ways to encourage re-embellishing or transforming garments into something new.

Most ideas in all three clusters led to the idea of an inspirational digital platform using a digital wardrobe. This idea was further detailed using the SCAMPER method (Appendix F3), because it is a good way of provoking new ways of thinking. It was used to reflect on whether this idea would truly be valuable. Upon further reflection three distinct concepts were still formed to make a judgment on what would suit best as a final concept.

One concept was made out of each cluster, the idea that was most different in each cluster was chosen in order to have three distinct concepts to choose from as a final concept.



Main takeaways - Chapter 5.2:

- Re-valuing clothes may 'cannibalise' a current business model but also create more opportunities if connected to a new second-hand or sharing platform.
- Consider a 'new way of selling clothes' by highlighting older collections.
- Beside revenue streams, a compelling business case can also be created on the basis of brand exposure and attracting a new consumer segment.
- 3 concepts will be created based on Mixing & Matching principles and re-embellishment.

5.3 Choosing a final concept from three options

Concept 1: digital wardrobe & styling peer-to-peer styling platform

Knowing that KL customers enjoy using their clothes as part of a digital, social activity, this concept facilitates a new type of “Outfit of the day” interaction. Through a mobile app, women can upload their wardrobe online and let peers style them

This concept has been inspired by King Louie’s recent marketing research into styling advice amongst 31-40 y.o. Dutch women (n = 163). It was found that 61.3% respondents would ‘maybe’ be interested in a personal online stylist, and 10.4% would definitely want to receive this. The top 3 reasons are:

1. “To step out of my comfort zone and try something new”
2. “To find an outfit/item which suits my body shape”
3. “To find the right size”

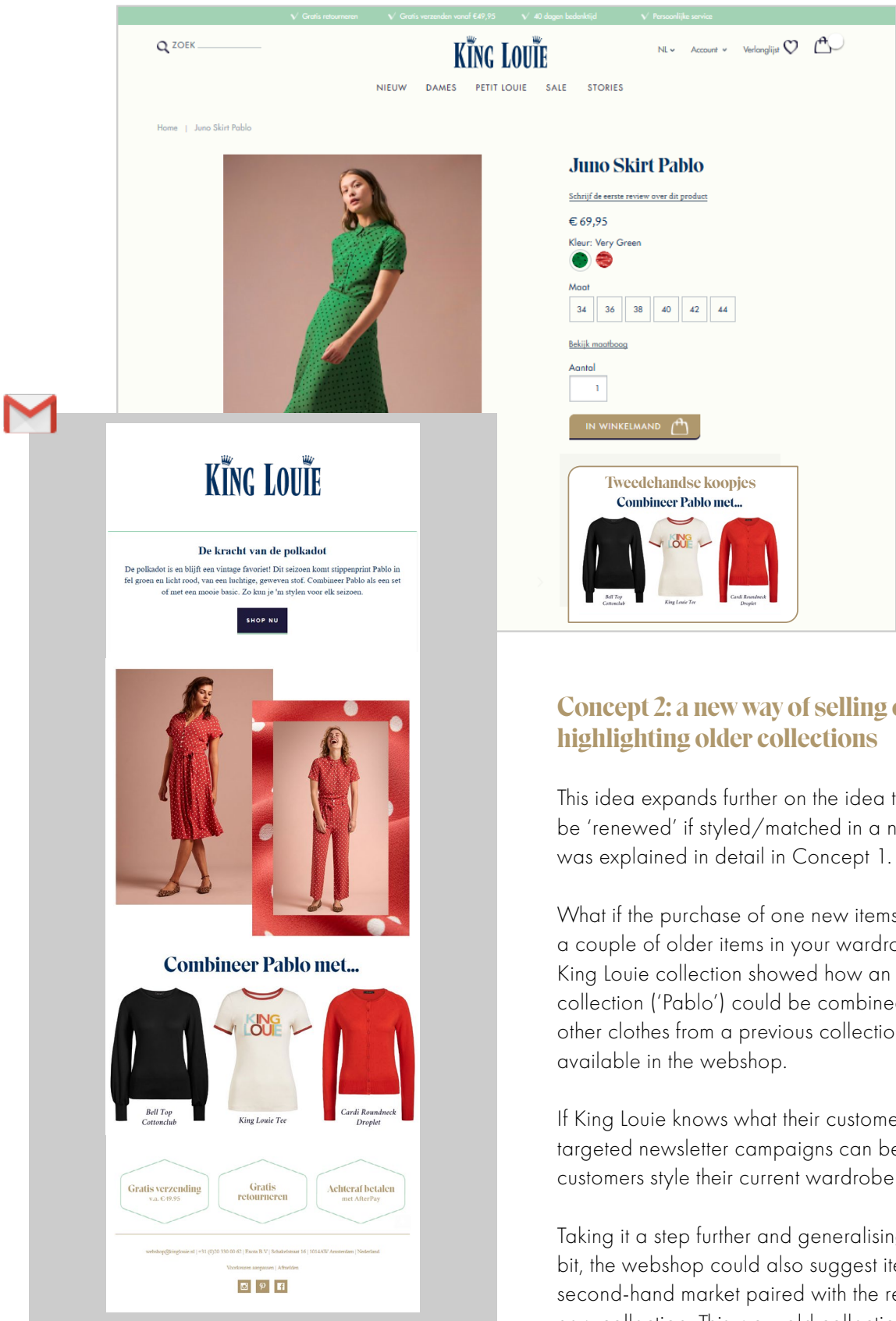
The last two reasons seem like one-off opportunities for a styling service, since body shapes and sizes do not change as often as styles might. More frequent interactions can be created from helping people ‘step

out of their comfort zone’ and try something new, with the clothes they already own.

According to one of KL’s customer service employees, some customers call them for styling advice. This happens about 3 times a week, where a customer would ask how they should match a recent or potential purchase. KL has a ‘Mix and Match’ book to give proper advice on this, although customer service employees also enjoy using their own expertise by inquiring further about the customer’s wardrobe and style, which guides their styling advice.

This behaviour from customers coincides with their stance of not wanting to pay for an online stylist (only 5.1% of respondents would pay, 59.8% would ‘maybe’ do so).

Contrary to a professional service, a peer-to-peer styling platform could adhere to customers’ desires of trying something new without paying for it. Furthermore peer-to-peer advice can create more variety and might be more personal since peers know each other already. Peer-to-peer advice is not uncommon amongst KL-customers, as they frequently post outfit questions in the KL Facebook groups as well.



Concept 2: a new way of selling clothes, highlighting older collections

This idea expands further on the idea that clothes can be ‘renewed’ if styled/matched in a novel way, as was explained in detail in Concept 1.

What if the purchase of one new items could re-vitalise a couple of older items in your wardrobe? A recent King Louie collection showed how an item from a new collection (‘Pablo’) could be combined with several other clothes from a previous collection, which are still available in the webshop.

If King Louie knows what their customers already owns, targeted newsletter campaigns can be sent, helping KL customers style their current wardrobe with new items.

Taking it a step further and generalising the idea a bit, the webshop could also suggest items from a second-hand market paired with the release of a new collection. This way, old collections can still be appreciated

Concept 3: a peer-to-peer ‘clothing transformation’ platform

Most people are not skilled enough to transform their garments. These people can be connected to those who are skilled. This idea came from a conversation with WRAP’s behavioural scientists, where they mentioned pairing elderly with youngsters in some of their projects to tackle social isolation amongst elderly and create trans-generational skill transfers. Elderly can have certain skills that youngsters could still appreciate, such as their sewing skills.

Extrapolating from this idea, [Concept 3 was developed. On this ‘clothing transformation’ platform, women can ‘auction’ their clothes so that other skilled members can suggest outfit transformations. If one of the suggestions is liked, the ‘auctioneer’ can choose to go in conversation with the ‘clothing transformer’, negotiating the style and the price of the transformation.

Potentially, King Louie could do this in collaboration with fashion schools, meaning fashion students get a platform to showcase their skills. It could even be a part of the curriculum, teaching senior students how to sell themselves and their skills.

Concept comparison and choice

A few criteria were suggested by King Louie to make a proper judgment of the concepts (Figure 39), through which a comparison was made. Most of the concepts have both pros and cons in different aspects. All of them have a questionable business potential and ease of implementation. The only concept which satisfies business needs would be Concept 2, but this is also the least sustainable option. Concept 3 has potential on all fronts, but does not seem most sustainably. Moreso, bits and pieces of both these concepts could be implemented in Concept 1.

Therefore this concept was chosen in the end whilst weighing all the criteria. Even though this concept is currently not perfect yet, it has the greatest fit with the interview insights and the greatest sustainability impact. The other criteria can be worked on during the detailing phase.



Denise:

This shirt is just so old and I don't like how flannel looks on my body. Looking for a more feminine change ... who's up for this? Price is negotiable.



Message

120 4.3




Liz:

A few changes to the cutting could make it a nice off-shoulder shirt. I can take off a bit of the bottom to create more shape.

Message

80 3.8




Eva:

With some easy cuts I could change it into a crop-top or a strapless top, I've done it before as you can see.

Message

120 4.3



Chloe:

I've done patchwork-style changes on men's shirts before and can add embroidery if you're into that!

Message

162 4.1

	Concept 1: digital wardrobe & styling	Concept 2: a new way of selling clothes	Concept 3: 'clothing transformations'
Sustainability impact	<div>+ Increased usage of old clothes</div> <div>+ Possibility of collaborations with other sustainability brands</div> <div>+ Possibility of sharing clothes with others</div>	<div>- Old clothes may be re-valued but this is mainly driven by more consumption, it will be hard to predict the final footprint</div>	<div>+ Old clothes will literally have a new value as they are turned into something different</div> <div>- The scale of impact is probably low as not that many clothes can be transformed</div>
Match with the target group	<div>+ Fits with the wardrobe re-organisation moments</div> <div>+ Fits with the current enjoyment of 'Outfit of the Day' exchanges</div> <div>- Resistance in sharing clothes</div>	<div>+ Satisfies customer's needs to still purchase something 'new' whenever they want to fulfill a certain need/ value through clothing</div>	<div>+ Variety in skillsets between customers can be put to use; as some customers were very skilled whereas others were not</div> <div>+ Those who didn't fancy repairing clothes cited a lack of skill or time</div>
Business potential	<div>+ Increased brand awareness and loyalty</div> <div>+ Potential of reaching a new customer segment through collaborations with other brands</div> <div>- Very little direct revenue options, except for affiliate marketing</div>	<div>+ Revenue is kept for clothes sales</div> <div>+ KL can take agency of their secondhand market, which is currently mostly profited from by their customers</div>	<div>+ Potential of reaching new target segment through a collaboration with skilled consumers</div> <div>- Very little revenue options</div>
Ease of implementation	<div>- Launching an app will require a development team or an outsourced team to maintain it</div>	<div>- Difficult to know which clothes are already owned by customers; webshop databases are very new and many customers purchase KL clothes through retailers as well</div>	<div>- Hard to ensure that the desired results are reached through the transformations</div>
Originality	<div>+ There is no peer-to-peer styling platform yet, most styling services make use of professional stylists or ambassadors</div> <div>- There are many wardrobe apps / outfit planners already</div>	<div>- King Louie kind of already does this in their newsletters, except they only highlight what's still available in their webshops.</div>	<div>+ It's similar to Fiverr, but specifically tailored for clothing purposes, distinguishing itself from just a regular repair service</div>
Fit with King Louie	<div>+ KL's 'Project 333' already fits the mindset of using less clothes to create several outfits</div>	<div>+ A lot of KL's marketing campaigns happen through their newsletters and they are already looking into personalisation of newsletters</div>	<div>+ Re-embellishment and repair taps into the vintage background of KL</div>

Figure 39: table that puts all the concepts next to each other according to criteria.

Main takeaways - Chapter 5.3:

- All 3 concepts have their pros and cons based on their sustainability impact; match with the target group; business potential; ease of implementation; originality and fit with KL.
- The Digital Wardrobe is however the most versatile and fitting with the research insights. This concept is chosen whilst considering how the other two can still fit into it.

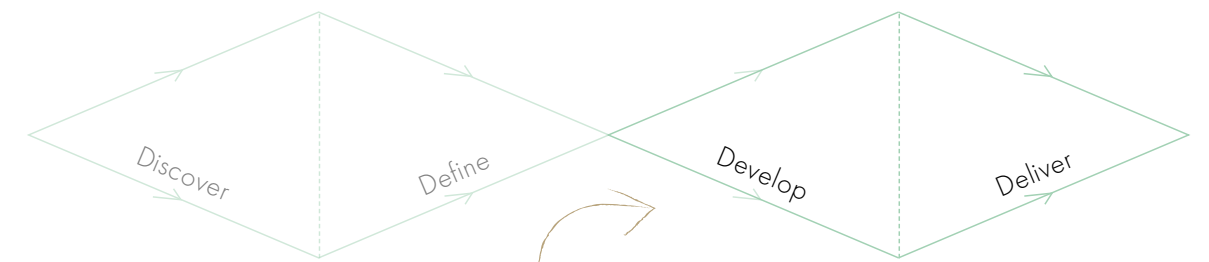
6 Conceptualisation

The 'Digital Wardrobe & Peer-to-peer styling platform' was chosen in the previous chapter, due to its versatility and closest fit with the research insights. However, this concept lacked details and is in need of improvements. Furthermore, some ideas from the other two concepts could still be integrated in this concept.

Chapter 6 will continue Developing the chosen concept.

To further improve the concept, an abstract overview of the concept's current customer journey will be created, which will help pinpoint how design details should be added. These details will be determined through a design exploration with KL colleagues, sustainability-related explorations, a Peer design test and a Wardrobe app comparison.

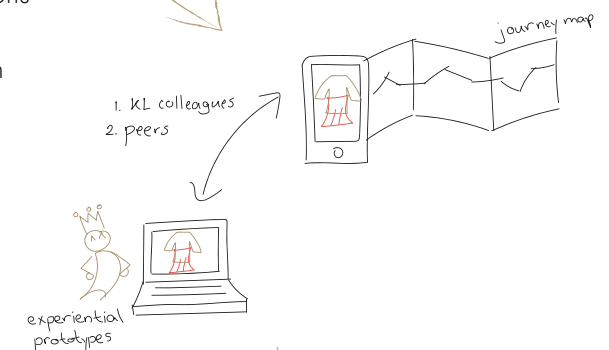
Process summary so far



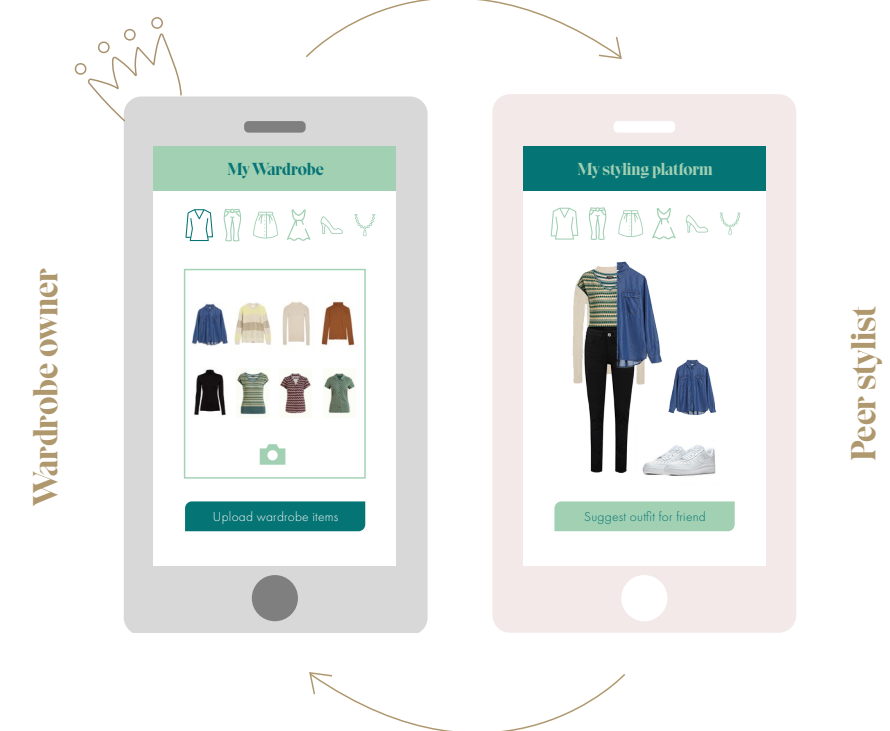
Chapter 5:

- Influencer research
- Expert conversations
- Ideation
- Conceptualisation

We are going here with Chapter 6



Chosen concept



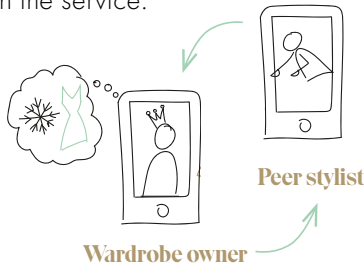
6.1 Creating a new concept customer journey

Concept rationale

The chosen concept aims to restructure the typical shopping customer journey (Figure 40). Whereas a traditional customer journey places the shopping phase early in the process; the Peer-to-Peer Digital Wardrobe app aims to place the shopping phase later down the customer journey, by supporting a 'shopping experience' within the closet first.

Abstract customer journey & service blueprint

Through peer-to-peer styling support, users can gain new inspiration for the garments they put online. This means that a user can take up either or both of two roles in the service:



Traditional clothing journey:



New clothing journey through the concept:



Figure 40: reconstruction of the customer journey to guide concept development.

From a Wardrobe Owner's perspective, there are two main hurdles: 1) being motivated to (eventually) digitalise their whole wardrobe through piece-by-piece garment photography, and 2) wearing the outfits (partially or wholly) that have been suggested by friends. From a Peer Stylist's point of view, creating outfits should be easy and enjoyable, both on a short term and long term basis.

Both should be supported by BCTs and a well-designed experience (from a value proposition and business perspective) throughout the customer journey, in order to create a service that reaches its design goal (Chapter 4.2). See Figure 41.

Main takeaways - Chapter 6.1:

- The premise of the concept will be based on the philosophy that one can 'shop in their own wardrobe' before shopping for something new.
- Reflection on clothes starts at the bi-annual wardrobe reorganisation moment; essentially re-shaping the old customer clothing journey.
- At each stage of the concept, different BCTs will be used, which can have different effects on the final Value proposition and Business model.

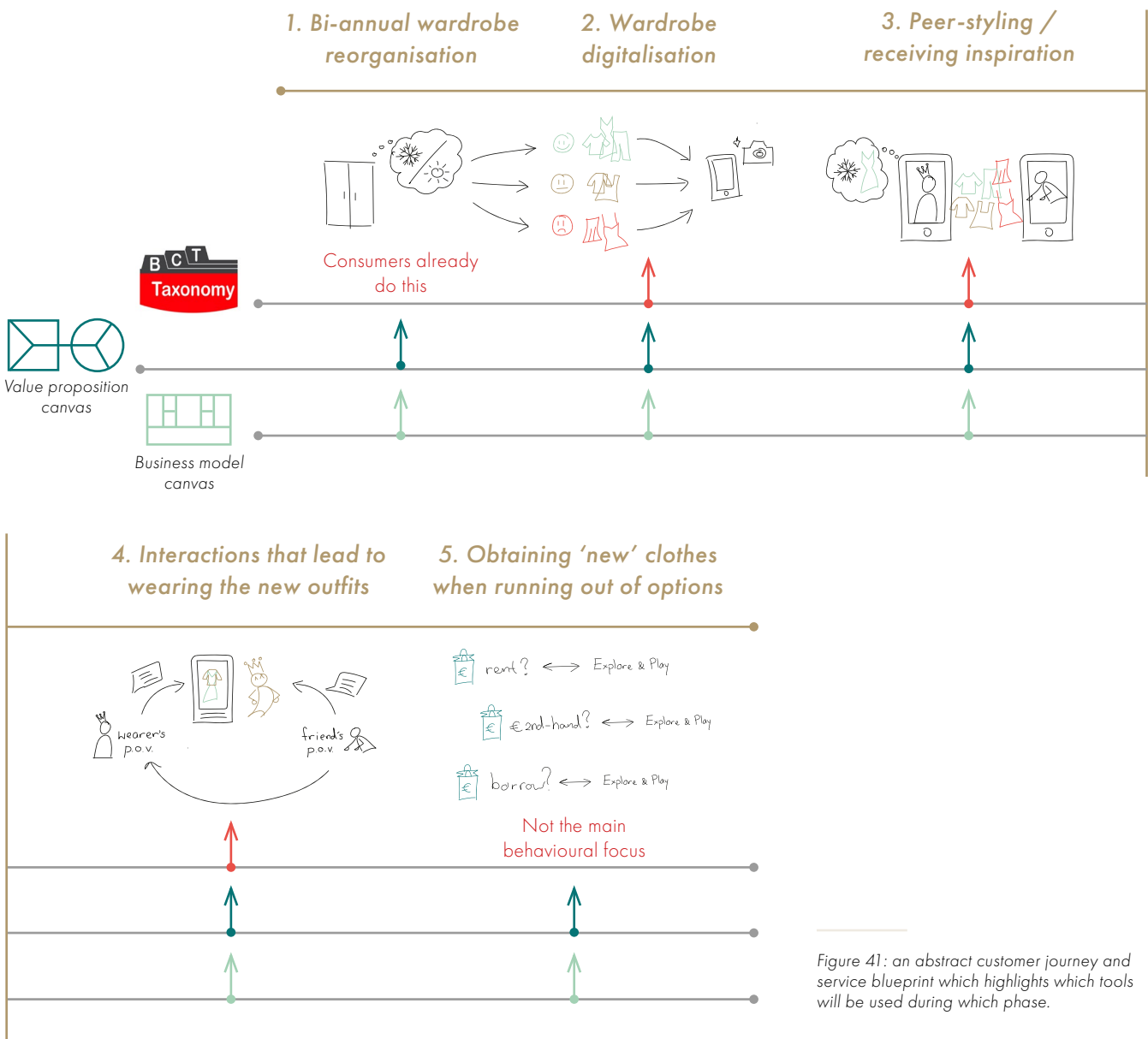


Figure 41: an abstract customer journey and service blueprint which highlights which tools will be used during which phase.

6.2 Design exploration with KL colleagues

Research aim

The aim was to use an early, quick MVP to further develop the concept based on opinions of KL colleagues. Based on their experience in industry, more inspiration could be gained to develop the concept. In that sense, this ‘test’ served as an ideation stepping stone.

Research set-up

Two King Louie colleagues were chosen whom seemed to know each other well*. They were asked to individually reflect on their own and their colleague’s clothing style. Each colleague was then invited for a short exercise to help another colleague create new outfits with their unloved clothes (3 tops and 3 bottoms). In here, they could use their colleagues’ wardrobes, their own, and one item from a ‘Fair Fashion Market’ (Figure 42).

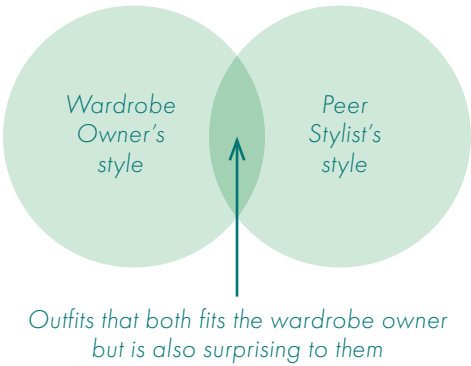
* (At first, 3 colleagues were chosen. Due to illness, one colleague could not join the research anymore, which means Colleague 1 styled Colleague 2, and Colleague 2 styled Colleague 3, but nobody styled Colleague 1.)

Results

The KL colleagues took between 5-10 minutes to do the exercise until they ran out of inspiration (see Figure 42 for final results). An interesting contrast was found between the two colleagues’ amount of inspiration based on how well they knew the other. See Appendix G1-2 for further details and interview notes.

The exercise was enjoyable to the participants, which shows a desirability potential for the concept. However, the sustainability outcome must be carefully considered. Both colleagues started the exercise looking at the Fair Fashion Market first, and their final, favourite outfit creation also included the item they chose from the market. The marketplace was supposed to be an addition, not the main source of inspiration. The final concept should therefore consider separating the peer-styling experience from the marketplace.

Looking at the way the colleagues talked whilst styling, and comparing it to Zalando’s Zalon app questions, it seems that peer-styling can have a value for users. The colleague who knew the other better would create outfits that were closer to the comfort zone of the ‘Wardrobe Owner’, whereas the colleague who did not know the other that well styled the other more daringly (according to her own eclectic style). When peers style each other, there seems to be an interesting interplay between one’s own style and the Wardrobe Owner’s style:



Colleagues also suggested to consider the format in which outfit advice is given (blogs, influencers, or something else depending on the reach). Up until now, the main idea has been that outfit advice would be given by showing combinations, but the platform could be bigger than that and include other types of advice.



Figure 42: picture of the test set-up and the final outfit results from two KL colleagues.

Main takeaways - Chapter 6.2:

- Peer Styling can be valuable and enjoyable; suggesting desirability in the concept.
- Personally knowing someone whilst simultaneously applying your own style to someone can lead to outfits that are both fitting yet surprising for the other.
- The inclusion of purchasing options whilst peer-styling should be questioned based on its sustainability impact.
- The format in which outfit advice is given can span beyond just showing new outfits.

6.3 Sharing, renting or buying second-hand at the end of the customer journey

Based on conversations and the mini-test with KL colleagues, it was questioned what would be a sustainable option for necessary purchases. Sharing clothes was realised to come with many restrictions due to sizing problems, as was already a concern from participants during the in-depth interviews (Chapter 3.4). Renting or buying second-hand could both be more sustainably impactful solutions, but this would depend on logistics and business considerations.

Choosing for second-hand sales

To make a decision, a KL colleague from the logistics department was consulted (Appendix I). Due to the logistical hassle and financial strain of tending for returned items, the concept would best reach its sustainability and business goals if it's focussed on second-hand sales.

Comparing different second-hand webshops based on KL's internal research (Figure 43), TheNextCloset was chosen as a first plug-in to the concept due to its focus on high-quality clothes that fall in the middle of the luxury-spectrum. Furthermore, this webshop values sustainability and includes sustainability tags for pre-selected brands.

Business opportunities through a peer-to-peer second-hand market

A second-hand market that's driven by customers themselves would be easier (logistics-wise), because this means that KL won't have to take care of distribution logistics. Some examples on how second-hand webshops gain revenue include:

- **Selling an 'insurance' per order**, which ensures that if a seller does not deliver what was expected, the buyer gets their money

back. This is handled by the webshop itself: a second-hand clothing app 'Vinted' for example asks their buyers to pay 1.25 euros for such an insurance.

- **Premium services** can be attached to a second-hand webshop. 'TheNextCloset' for example offers a 'premium service' to their members for a certain fee. Items that customers want to sell are checked by the company, touched up, photographed properly, and advertised. The customer still gains profits from the sale, but a certain percentage goes to TheNextCloset.
- **Postage labels** can also create revenue. Companies can make use of their lower postage fares. In the Netherlands, a package may cost 3,97 euros or 2.90 euros if it fits through the mailbox. For consumers, this could lead up to 6.95 euros. Offering a postage label with the second-hand service that's cheaper than the regular consumer postage price could create an incentive for consumers to make use of a particular second-hand service.

Sustainability behind buying second-hand

According to the waste pyramid by Ecochain (Figure 44), buying second-hand (i.e. re-use of products) is one of the best sustainability options in terms of product-life extension.

If it's a peer-to-peer platform rather than B2C, there will be less transport due to a shorter distribution distance as well. Later chapters will go into more detail about sustainability considerations during the detailing phase.

Second-hand webshops



Figure 43: comparison of different second-hand webshops (based on KL's resources).

An adapted vision of the waste hierarchy: 9 Rs

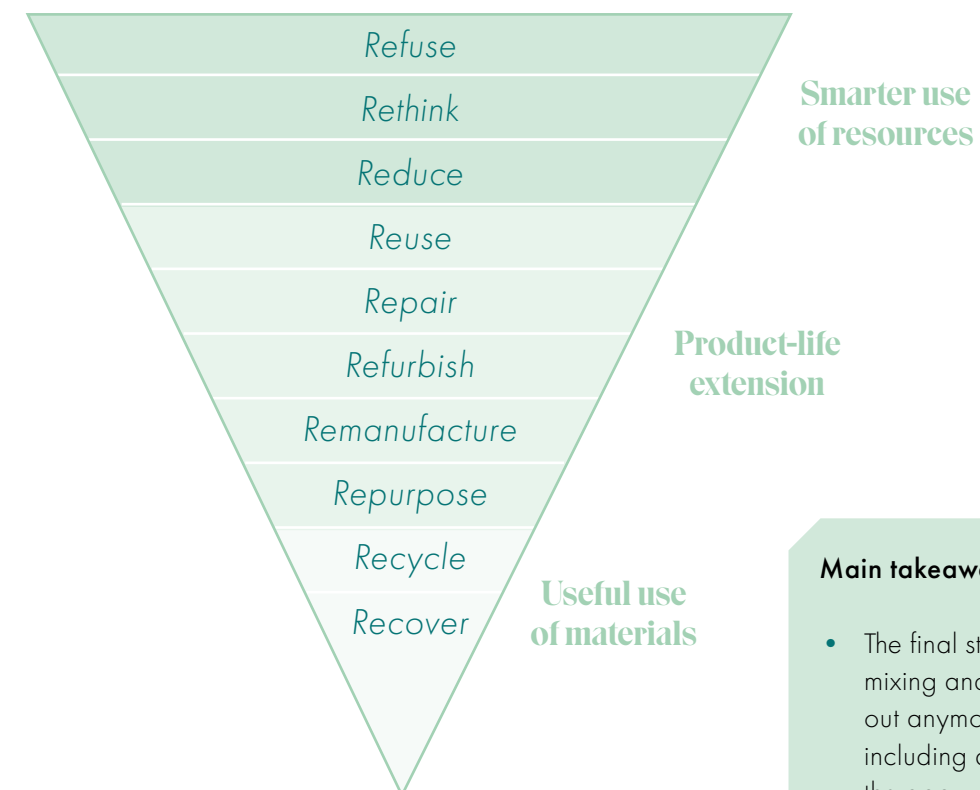


Figure 44: waste hierarchy, highlighting the 9 R's as communicated during Ecochain's Sustainable Fashion Business Day (October, 2019). The top Rs are the most preferred ways of waste management.

Main takeaways - Chapter 6.3:

- The final stage of the concept (when mixing and matching just doesn't work out anymore) is accounted for by including a second-hand webshop in the app.
- Targeting the peer-to-peer second-hand market is both sustainable (based on the waste hierarchy) and practical (fewer logistics required from a company).
- Several revenue options are possible through a p2p second-hand market: e.g. selling 'insurances'; premium services or postage labels.

6.4 Design test with peers

Research aim

Now that it has been determined what the ‘End of life’ situation of a garment could be, we should go back to focussing on how to prevent that situation in the first place. In order to further develop the concept of increasing emotional durability through peer-to-peer-styling, a small test was done with the author’s peers to experience a Minimum Viable Product of the concept. In this test, piece-by-piece pictures of the author’s wardrobe were taken and shared with peers asking them to create outfits for the author.

Wanting to experience what it is like and how long it would take to digitalise an entire wardrobe, the author took it upon herself to do this, as a self-reflective experience. This and the test with peers merely served as a stepping stone towards more appropriate concept tests with the actual target group. Doing this peer-focussed design test is a form of ‘design doing’ that is quicker for early concept development before (time) investments are made for the recruitment of the actual target group. See Appendix H1 for additional research method details.

The aim was to explore three facets of the concept:

1. Experiencing the wardrobe digitalisation phase

- How will it feel like?
- How long will it take?

2. Exploring the experience from a peer stylist’s point of view

- How will it feel like?
- What made them stop, what would encourage them to do it more?

3. Exploring the ‘success’ of a peer stylist

- Did the outfits fit the author’s style?
- Would she likely wear the outfits?
- Were the outfits surprising?

Research set-up

Peers were recruited that were 1) close to the author, meaning they knew their style well and were in contact with the author on a weekly basis, and 2) enjoy thinking about fashion. Due to these requirements and time-restrictions, the test consisted of only 4 participants. Knowing that a bigger test would commence with the actual target group later down the process, this number was deemed sufficient.

After photographing the whole wardrobe, the items were put into a Google Slides format (Figure 45) as this was an accessible and easy software option to create outfits with by dragging pictures around.

The Google slides presentation gave a short explanation of the exercise, asking peers to create as many new winter outfits as they liked, until they got bored. Each participant was then interviewed about their experience.

Results

See Appendix H2-4 for in-depth results.

1. Experiencing the wardrobe digitalisation phase

- A thorough design is needed to ‘take people by the hand’ and keep them motivated to upload their whole wardrobe, although this does not have to happen all at once, nor by themselves. Different levels of difficulty can be created.
- It should be possible to ask Peer Stylists for specific request, to ensure relevant outfit combinations are shared.
- Photographing, labelling the ‘lovableness’ and categorising the garments was both an emotional and reflective exercise which deepened the knowledge of the Wardrobe Owner’s wardrobe and how she wanted to express herself (see Anecdote on the right). This form of ‘reframing’ the wardrobe digitalisation experience can be more motivational.

Anecdote: photographing my own wardrobe

One evening I decided that if I want my users to go through the hurdle of digitalising their wardrobe, I should know how it feels as well. After all, empathy is a key characteristic for me as a designer.

I started out with the easiest part (or so I thought): photographing my pants. “It’s not like I have a lot of pants!” I thought. But with pants also come shorts, leggings, tights. Although I did not photograph duplicates or very similar pants (three blue jeans to keep the washing-machine-balance going, anyone?), I was still surprised by how many things I had. This knowledge of ‘owning more than I thought I did’ was both uncomfortable and inspiring. In a way, it motivated me to be even more environmentally conscious than I thought I was.

I went on and on, thinking I would soon get the hang of doing this efficiently. Since it’s still winter, I moved onto photographing my sweaters. This was utterly depressing to

me: during winter I tend to prioritise thermal comfort, since I get cold easily. This means that I possess a lot of practical sweaters with a lack a personality. It made me feel unhappy about the personality that I was conveying through my clothes, and even more so because there didn’t seem to be an end to the other shirts and cardigans I owned to keep myself layered.

There was – some – light at the end of the tunnel, though: photographing my favourite skirts. It was a joy seeing them because they reminded me of my “true” personality (at least during summer). Moving on to my tops after that still felt like an eternity, but seeing the things I had forgotten about all winter made it a slightly more enjoyable experience.

At the end of the evening, I felt productive, enlightened and like I went through an emotional rollercoaster with my clothes. It felt satisfying to have my clothes neatly categorised on my phone and eventually having them in a more usable overview on my computer.

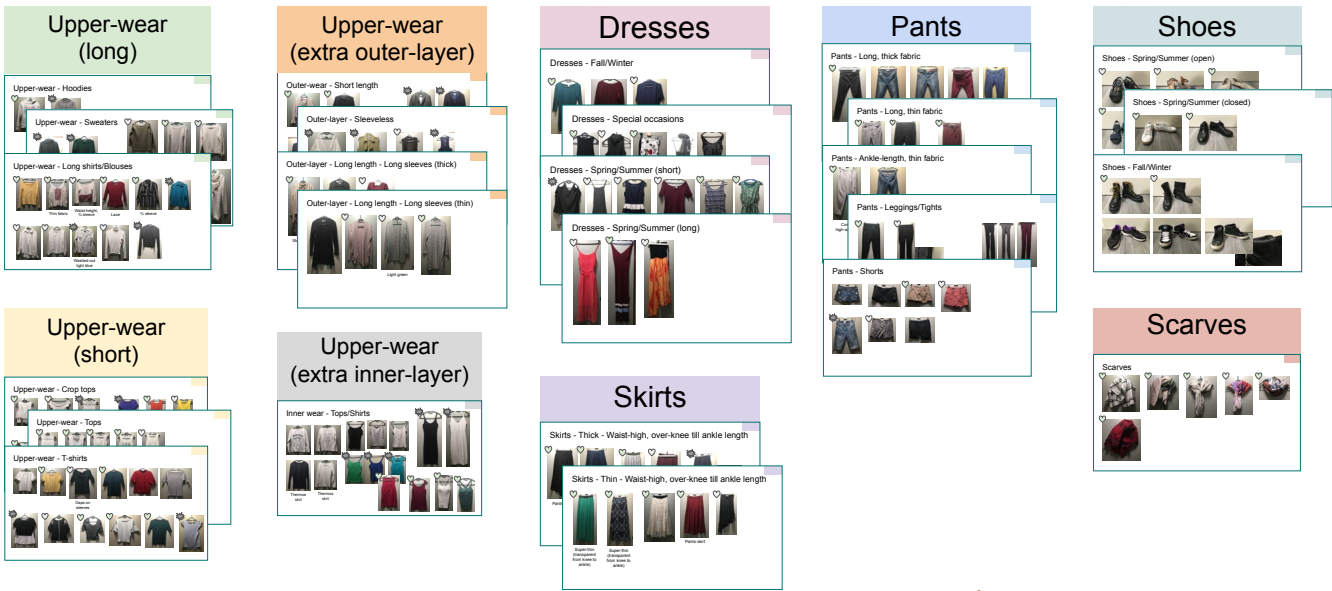


Figure 45: the author’s digitalised wardrobe on Google slides.

How to understand my garments

- See the 'speaker notes' (view > show speaker notes) for occasional comments per garment type.
- Each garment picture has an icon:
 - ♥ I love these items, they feel very 'me'.
 - ♡ I sort of like these items, but they're kind of 'maybe me' or I don't know how to use them.
 - ✱ I really have no clue how to make these items more 'me' or fun.
- If the pictures don't have an icon, it means I feel neutral about them. I wear them but don't feel a strong dislike/like towards them.
- The purpose of this mix-and-match exercise is to make me love these clothes again: ♥ ✱

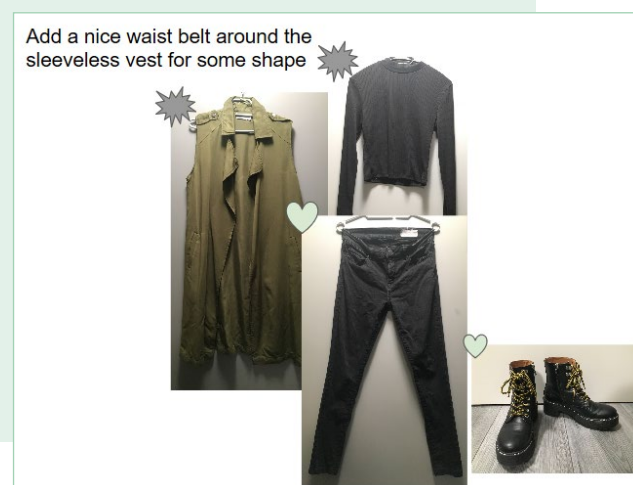
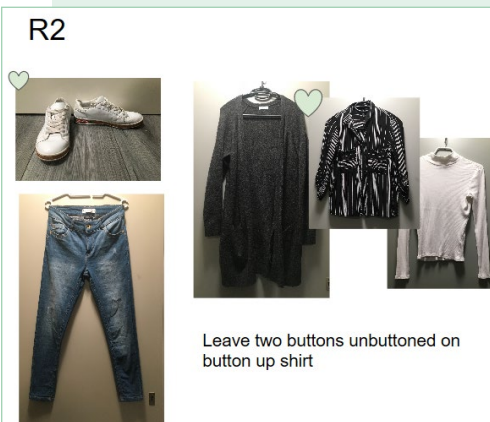
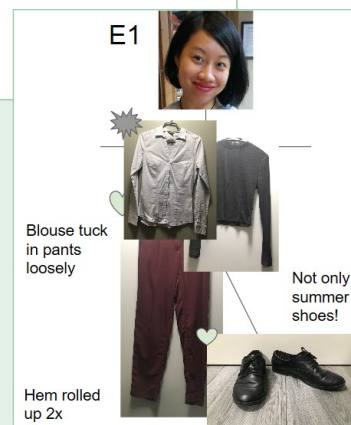
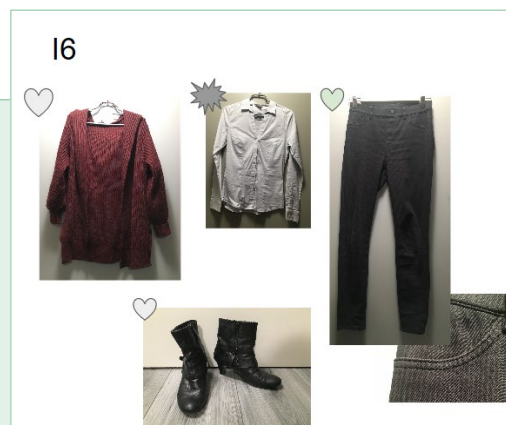
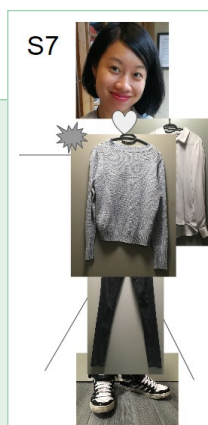


Figure 46: a few outfit examples that were worn by the Wardrobe Owner.

Favourite new outfit that's actually been worn.

(Out of 19 outfits that would likely be worn from the 28 outfit suggestions.)

2. Exploring the experience from a peer stylist's point of view

- The activity was enjoyable in general, but to keep it fun on the long run more game elements or challenges may be needed.
- The activity stimulates people's creativity and prompted personal reflection on their own wardrobe (thinking about what they would usually wear or have worn), this could be used to an advantage, encouraging initial Peer Stylists to also upload their wardrobe.
- The quality of the pictures made the experience less smooth, more information on the materials and their properties (length, fitting) would be helpful.

3. Exploring the 'success' of a peer stylist

- 28 different outfits were created from just four peers, although not all of them would be worn, they sparked inspiration to try other clothes out in a different way (Figure 46). 13/28 (46%) outfits scored high on the perceived newness of the combination, 19/28 (68%) would likely be worn by the author (Appendix H3). Even though the author may be biased, this ratio between newness and likeliness of wearing the outfits shows that the behavioural implications of the design can be promising. This should however be tested with actual research participants, rather than assuming the success of the concept through this auto-ethnographic experience.
- Extra comments or explanations of why an outfit was created led to a higher appreciation of the outfits made by peers. Both the outfit quality and the interactions around it should therefore be incorporated in the concept.

Main takeaways - Chapter 6.4:

- The wardrobe digitalisation can be an emotional rollercoaster ride that people need to be guided through in order to make the process motivating. Reflective tasks should be included, such as labelling the 'lovableness' of a garment; the ability to request specific styling advice and an overall emphasis on exploration.
- Peer Stylists need creative stimulation through specific challenges, which may also prompt them to reflect on their own wardrobe.
- The low quality of pictures are still a hindrance for Peer Stylists; more information on the materials and their properties (length, fitting) would be helpful.
- The Wardrobe Owner's self-rated ratio between 'newness' and 'likeliness of wearing the outfits' shows that the behavioural implications of the concept can be promising
- More interaction (comments/explanations) can lead to a greater appreciation of outfit suggestions.

6.5 Comparing other wardrobe apps

In order to understand how the new concept could be positioned in the market, and to gain inspiration for its interface, a few digital wardrobe apps were compared (Figure 47). A more detailed comparison of the apps can be found in Appendix J.

An abundance of apps ranging from personal wardrobes to creative communities

Looking into the Google Play Store, the need for a personal wardrobe overview has already been well-catered for. There are an endless amount of apps where you can photograph your items, neatly categorise them in your digital wardrobe, and create outfits from those items. Some apps take it a step further, encouraging users to create a daily overview of what outfits they might want to wear on a day. Sometimes this could happen automatically based on weather reports. The main goal of this app is to easily decide what to wear each day (see Stylevault or XZ Closet).

On the other spectrum you will find wardrobe apps that have a community aspect to it. These community interactions exist to foster creativity by seeing other people's outfit creations, voting on outfit polls, seeing other people's digital wardrobe, joining outfit challenges/contests and being able to showcase your own work. For example, the Fashmates and Combyne apps.

Differences in usability and complexity

As more features are added, it becomes harder to navigate apps such as Fashmates, as opposed to an app such as Stylevault. Uploading items in all apps seems pretty much the same, although some might have handy features such as the ability to upload items from a webshop.

More usability difficulties come to surface when creating outfits. As there seems to be a heavy commercial emphasis on apps such as Combyne, it

becomes hard to create outfits due to the abundance of options available. The layout of the outfit creator is crucial the more items are displayed; some apps cleverly use an expandable 'clothing drawer' to make efficient use of space and maximum item visibility.

The visual results of the outfits also heavily influences whether an app could be too complex or not. Apps such as XZ Closet kept the outfit results simple and clean, whereas Fashmates for example allows users to make use of templates, stickers, backgrounds, etc. Either way, both seem quite unpersonal as users are mostly faces with items rather than actual people wearing outfits.

A digital wardrobe website, Wishi, easily solves this by giving users the ability to add photos from the internet to outfit creations. Although these are meant for inspiration, having an actual human picture next to an outfit creation could bring new digital outfits to life.

Implications for concept development

Things to be inspired by:

- Keep the wardrobe overview simple.
- Consider several options for item uploads.
- Consider different ways of adding a personal touch to outfit creations.
- Use a 'drawer' to display items in the outfit creator.
- Consider the quality of the end result and how that will affect the overall feel of the final concept.
- Keep clear which community aspects are truly needed to reach the design goal.

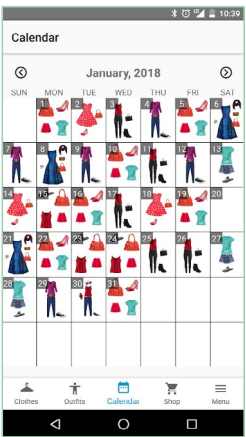
Things that make the concept unique:

- The peer-styling aspect has not been included before and should have a strong emphasis.
- Most of the apps include webshops that are connected to commercial fast-fashion brands. Including a more eco-conscious webshop will position the app in a different market segment.

Wardrobe apps that focus on a personal overview



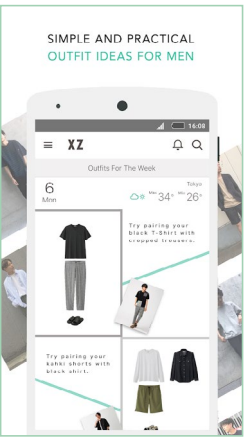
Stylevault



Reviews: 7000 (3.9 stars)
Downloads: 1M+
Launch: Sep 2016

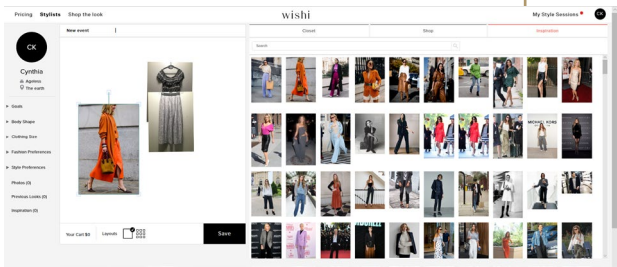


XZ Closet

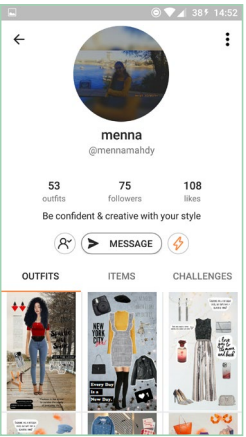


Reviews: 1000 (2.8 stars)
Downloads: 100K+
Launch: Sep 2014

Wishi (website)



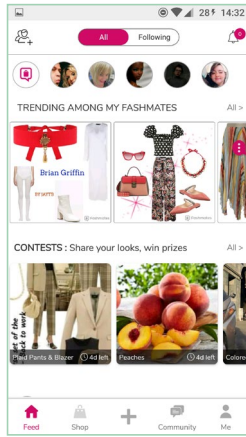
Combyne



Reviews: 52000 (4.7 stars)
Downloads: 1M+
Launch: Feb 2017



Fashmates



Reviews: 774 (4.2 stars)
Downloads: 50K+
Launch: May 2018

Wardrobe apps that focus on building a creative community

Figure 47 an overview of digital wardrobe apps that were analysed.

Main takeaways - Chapter 6.5:

- The concept should lean more towards the creative and sustainable 'community-feel' spectrum as its peer-styling aspect is its most unique selling point.
- The wardrobe overview must be simple and connect to several item upload functions.
- The visual quality of the outfit creations and the ability to personalise these will influence the overall feel of the concept.

The Re:Create app

The previous chapter concluded that the concept should emphasise how one can 'shop in their own wardrobe' before shopping for something new. It determined two types of users: Peer Stylists and Wardrobe Owners (a user can be either or both).

Small-scale design tests with KL colleagues and peers confirmed that Peer Styling can be valuable and enjoyable; suggesting desirability in the concept. However, Peer Stylists desired creative stimulation through specific challenges.

From a Wardrobe Owner's point of view, the wardrobe digitalisation can be an emotional rollercoaster ride that people need to be guided through in order to make the process motivating.

Comparing the concept with other existing wardrobe apps, it was decided that the concept should lean more towards the creative and sustainable 'community-feel' spectrum, since its peer-styling feature is its most unique selling point. Furthermore, the final stage of the concept (when mixing and matching just doesn't work out anymore) must be accounted for by including a second-hand webshop in the app.

Chapter 7 delivers the final concept (the Re:Create app):

The previous design explorations allowed for the creation of a general concept which takes behavioural, sustainability and business considerations into account. These general considerations will be summarised through a value proposition model, a circular economy business model framework and an overview of applied Behaviour Change Techniques.

In this sense, this chapter serves as a summary of the final design result. More details that connect how the considerations are applied in the service features will be given in the next chapter. As for the rationale behind the choices, most of them have been a result of the design journey throughout the 'Discover', 'Define' and 'Develop' phase.

This chapter and the following ones mark the final stages of the 'Deliver' phase, and with this, the near-conclusion of this thesis.

Process summary so far



Chapter 6:

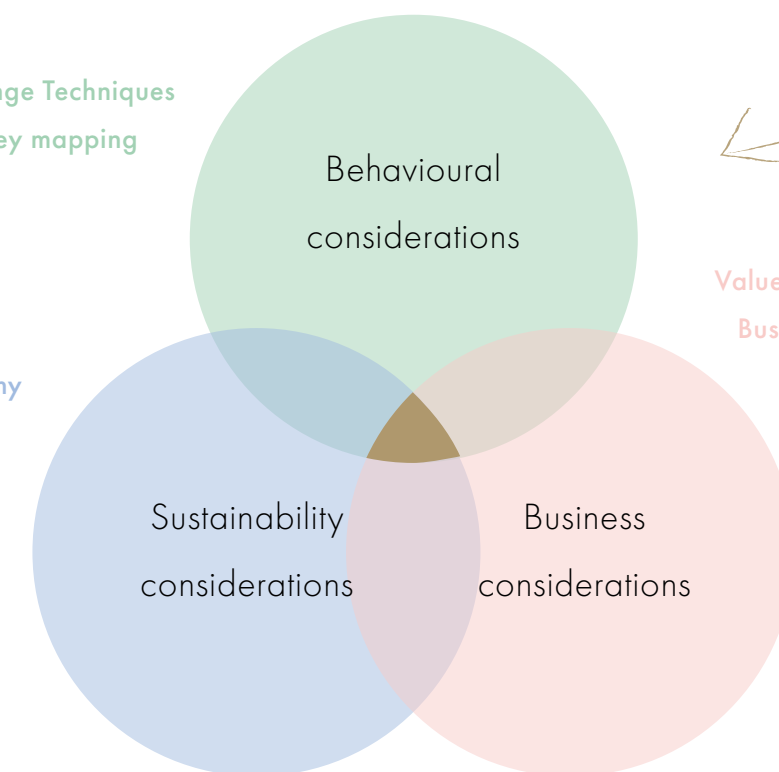
- KL colleague test (n = 2)
- Sustainability exploration
- Peer design test (n = 4)
- Wardrobe app comparison

We are now going here with Chapter 7

Behaviour Change Techniques
Customer journey mapping

Circular economy
business model
framework

Value proposition model
Business model canvas



General concept



7.1 Concept overview

1. Re-organise your wardrobe

Create peace in your wardrobe chaos by sorting your clothes bianually.

2. Create your digital wardrobe

A step-by-step journey of self-discovery: the more items you upload, the more tailored content you get.

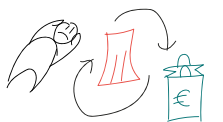
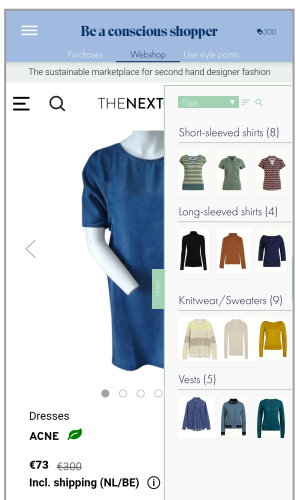


3. Rediscover yourself through peers and tailored content

Gain personal outfit suggestions from peers, browse through general mix&match ideas from brands or use creative content to get crafty.

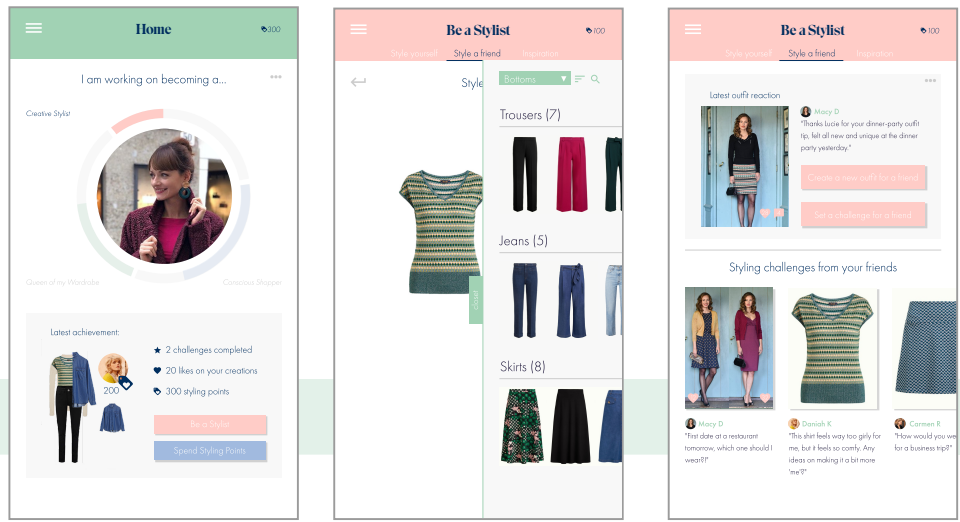
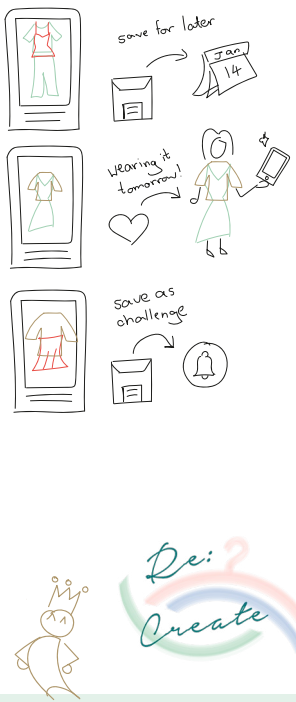
4. Shop pre-loved items based by matching these with your digital wardrobe

If nothing works out: buy or sell pre-loved items. Take responsibility of your wardrobe.



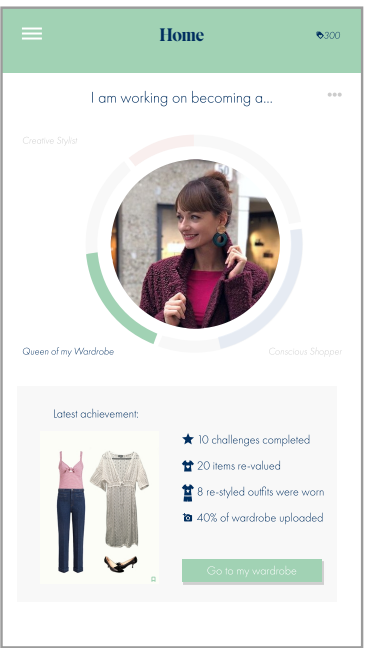
5. Work on your own fashion identity

Become a Queen of your Wardrobe, a Creative Stylist or a Conscious Shopper.



6. Become a creative Peer Stylist

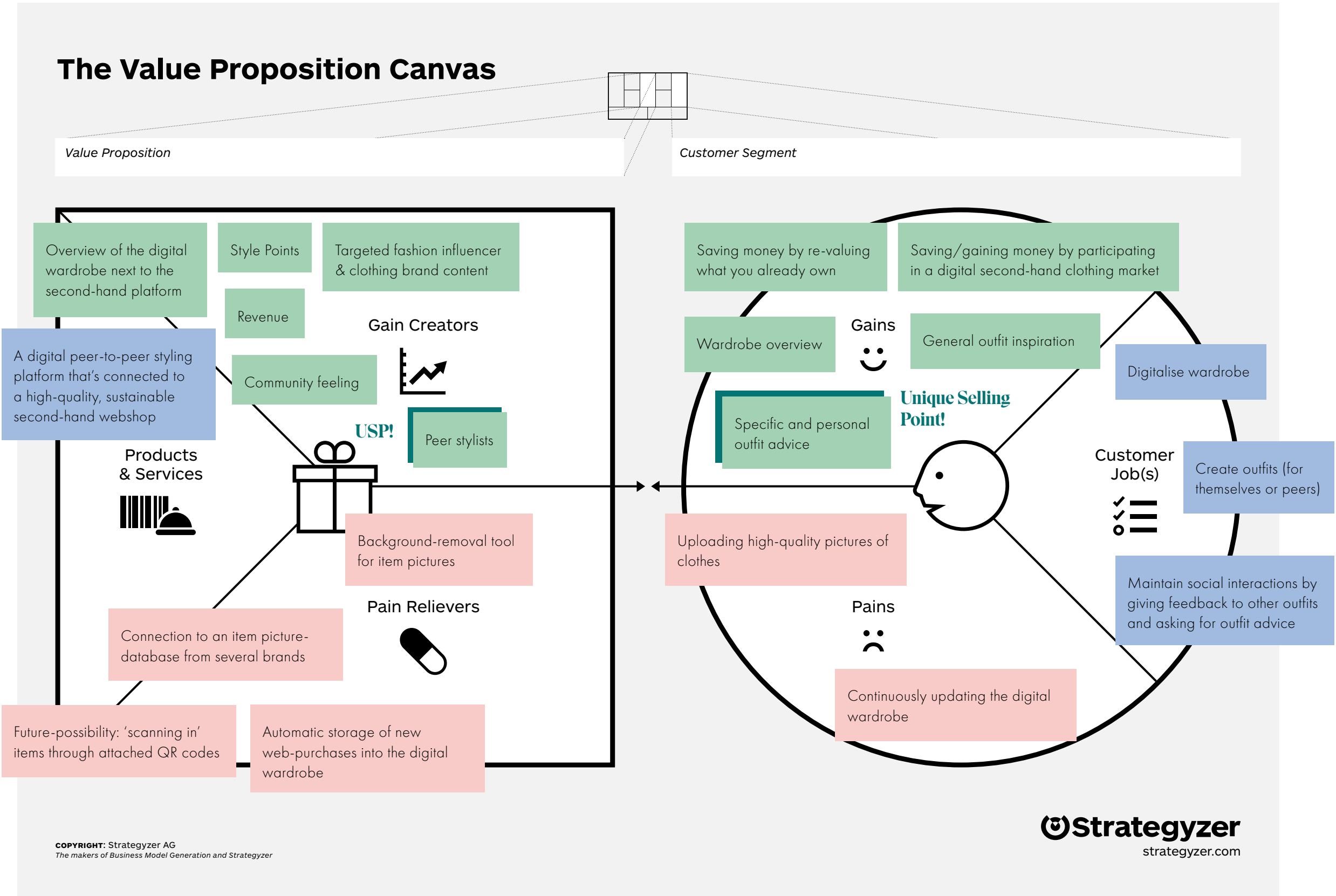
Use items from your peer's digital wardrobe and help them love their clothes by suggesting new outfit combinations.



7.2 Value proposition

Apart from serving as a stepping-stone for the business model canvas, the value proposition canvas was used to compile the most important insights from the ideation and conceptualisation stage. This allowed the designer to clearly see the Unique Selling Points and potential desirability of the concept, ensuring that these would not get lost, whilst thinking of solutions to reduce pain points.

The business considerations in the business model canvas (next chapter) stemmed from a compilation of expert insights during the ideation and conceptualisation phase. Further details from the business model canvas will be discussed in the concept details.



7.3 General business considerations

The Business Model Canvas

Designed for:

Designed by:

Date:

Version:

<div>Key Partners</div> <ul style="list-style-type: none">Sustainable fashion brands to partner with (these should not be style competitors; the platform flourishes best if the beauty of different styles comes together, so that brands can reach new target segments).Style Point partners (sustainable products, services or experiences).Social media fashion influencers.A second-hand webshop such as The Next ClosetPeer stylists.	<div>Key Activities</div> <ul style="list-style-type: none">Moderating content for mixed-brand lookbooks and outfit challenges.Securing more partners. <div>Key Resources</div> <ul style="list-style-type: none">Content produced by Peer Stylists and Wardrobe OwnersContent from influencers and partner-brands.Style Point products/services/experiences.Cloud-based server for the storage of brand-pictures and user information.	<div>Value Propositions</div> <p>See previous page:</p>	<div>Customer Relationships</div> <ul style="list-style-type: none">Indirect interaction by providing mixed-brand outfit lookbooks.Direct interaction by hosting styling challenges.Direct interaction potential by linking app usage with targeted newsletter campaigns. <div>Channels</div> <ul style="list-style-type: none">The appSocial media (e.g. pinterest, instagram, facebook, youtube, wordpress)E-mail newsletters	<div>Customer Segments</div> <ul style="list-style-type: none">'Experiential clothing users': women (around their 30s) who enjoy having (many) clothes, love thinking about clothes and who consider the usage of clothing as a part of their hobby.
<div>Cost Structure</div> <ul style="list-style-type: none">App development costsUX/app maintenance costsInfluencer recruitmentBrand partnership maintenanceMarketing costs		<div>Revenue Streams</div> <ul style="list-style-type: none">Premium user membershipsContributions from fellow fashion brand partnersCommissions from second-hand purchasesAffiliate marketingCustomer data		

7.4 General sustainability considerations

Using a circular business model framework to position the concept

Tunn and colleagues (2019) have conducted an expert study to develop a circular business model framework “that includes production and consumption side aspects of a business model” (Figure 44). The combination of these aspects makes it an appropriate framework to position the concept, due to the project’s focus on both sustainability and business considerations.

Main sustainability strategy: increasing emotional durability

According to the expert study, “the most promising business models for sustainable consumption are those that reduce overall consumption levels and consumer effort”. The proposed concept (give it a name!) mainly targets the first aspect: reducing overall consumption by increasing emotional durability (re-valuing the self-expression potential of old clothes when combined in a new way). To get here, an increased consumer effort is however needed. Although this may be deemed as a weakness of the concept, this weakness does not necessarily have to reduce the desirability of the concept, especially if proper, inspiring behavioural techniques are applied (see Chapter 4.3).

As was mentioned before in Chapter 4.3, the main design attitude that spurred the concept was the belief that acting sustainably through positivity-inducing service concept can add value to consumer lives rather than being a hassle. This was deemed more efficient than tackling functional durability through supply chain efforts resulting in product changes. After all: “eco-design with a service approach aims to fulfil existing user needs in new ways, but the organizational and economic incentives for manufacturing companies to invest in radical product changes are frequently lacking” (Heiskanen and Jalas, 2003).Furthermore,

sustainable service design can have a positive impact on “customer orientation, relationship marketing and customer retention (see, e.g., Stahel, 2001)”, supporting the business potential for the concept.

Secondary sustainability strategy: encouraging second-hand purchases

‘Product-life extension services’ are one type of sustainable product-service systems (Roy, 2000): examples are related to take-back schemes or repair services. However, from a business perspective, cycling of products and materials can be sustainable too, paired with ‘multiple subsequent owners’ (Tunn et al, 2019). This is the reason why a second-hand webshop was included in the concept (whilst strategically dismissing renting or sharing initiatives, see Chapter 6.3).

The second-hand webshop is a sustainability add-on, in case new purchases are truly needed. This was considered on the grounds of ethicality. A research paper by Pettersen and Boks (2008) argued that “designers can contribute to more sustainable consumption patterns without compromising quality of life, individual freedom and democratic rights”. Wever and Van Kuijk (2008) further argue that a user-centred approach to sustainable behaviour design is a promising direction, given how the environmental impact of a product’s life cycle is partly influenced by user behaviour.

However, purchases from the second-hand webshop should still be done consciously and not cause a rebound effect (Gifford, 2011), i.e. spurring unnecessary ‘impulse purchases’ due to an increased purchase temptation from frequent exposure to ‘new’, ‘ethical’ items. More about this will be considered in the concept details explanations.

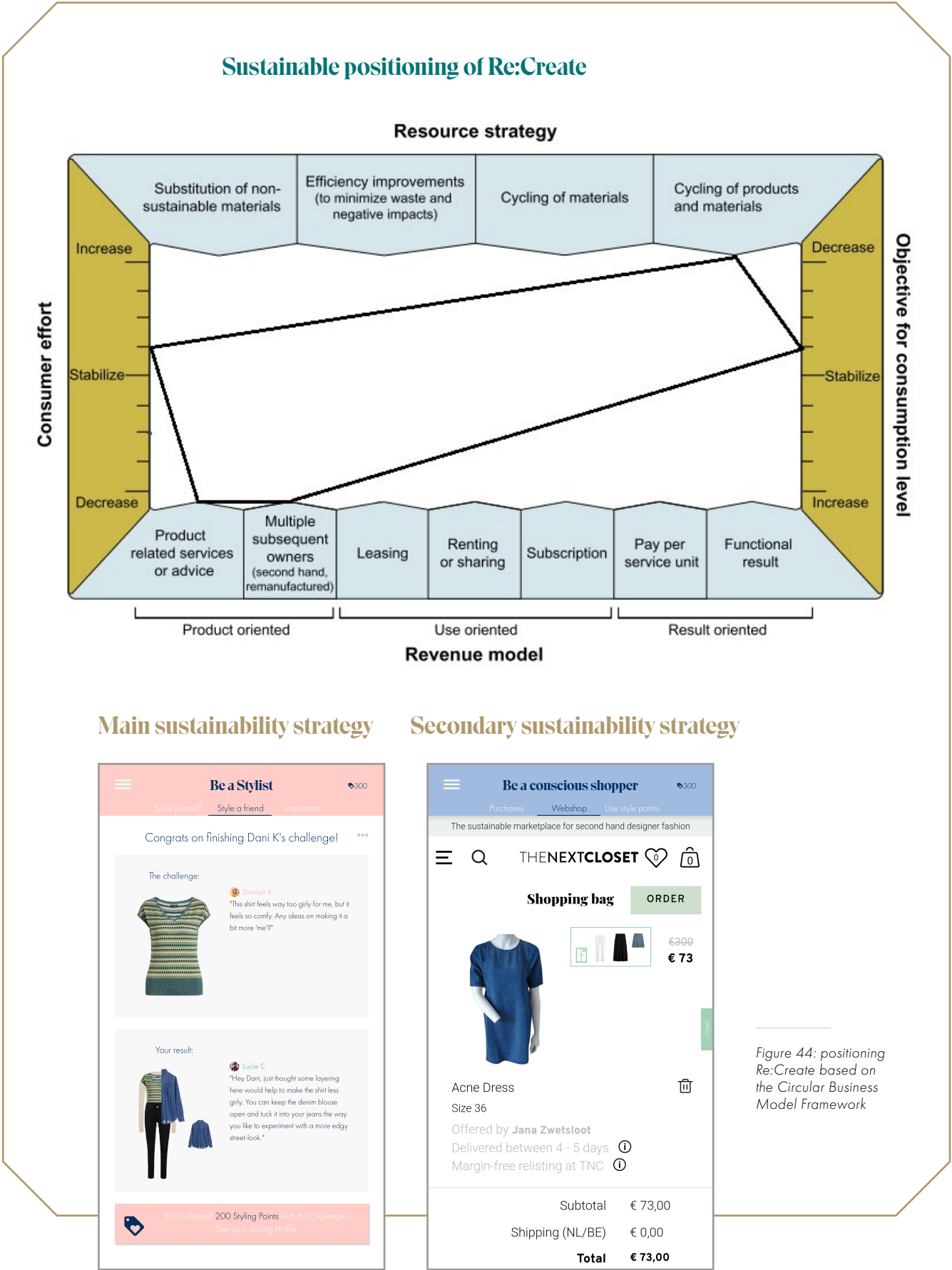


Figure 44: positioning Re:Create based on the Circular Business Model Framework

7.5 General behavioural considerations

BCTs for Re:Create's customer journey

Now that a clearer idea of the concept is formed, details should not only be added from a designer's perspective but also a behavioural scientist's. This is where the selection of BCTs comes into play. Three intervention functions were chosen before concepts were made, each of which have a set of possibly appropriate BCTs. Michie et al (2014) have created a table for this (Appendix K). Each BCT was considered according to their fit to the concept across the most important customer journey stages (Figure 45).

Furthermore, four general behavioural principles related to social influence (Chapter 4.3) were added, to strengthen the leverage of social influences.

The wardrobe organisation stage was not included for detailing, because this is something that most women already do. What happens after clothes run out of value (the second-hand market aspect of the concept) was also not detailed according to BCTs as this is not the main Unique Selling Point of the app. Furthermore, most KL customers are already used to second-hand purchases (Chapter 2.3).

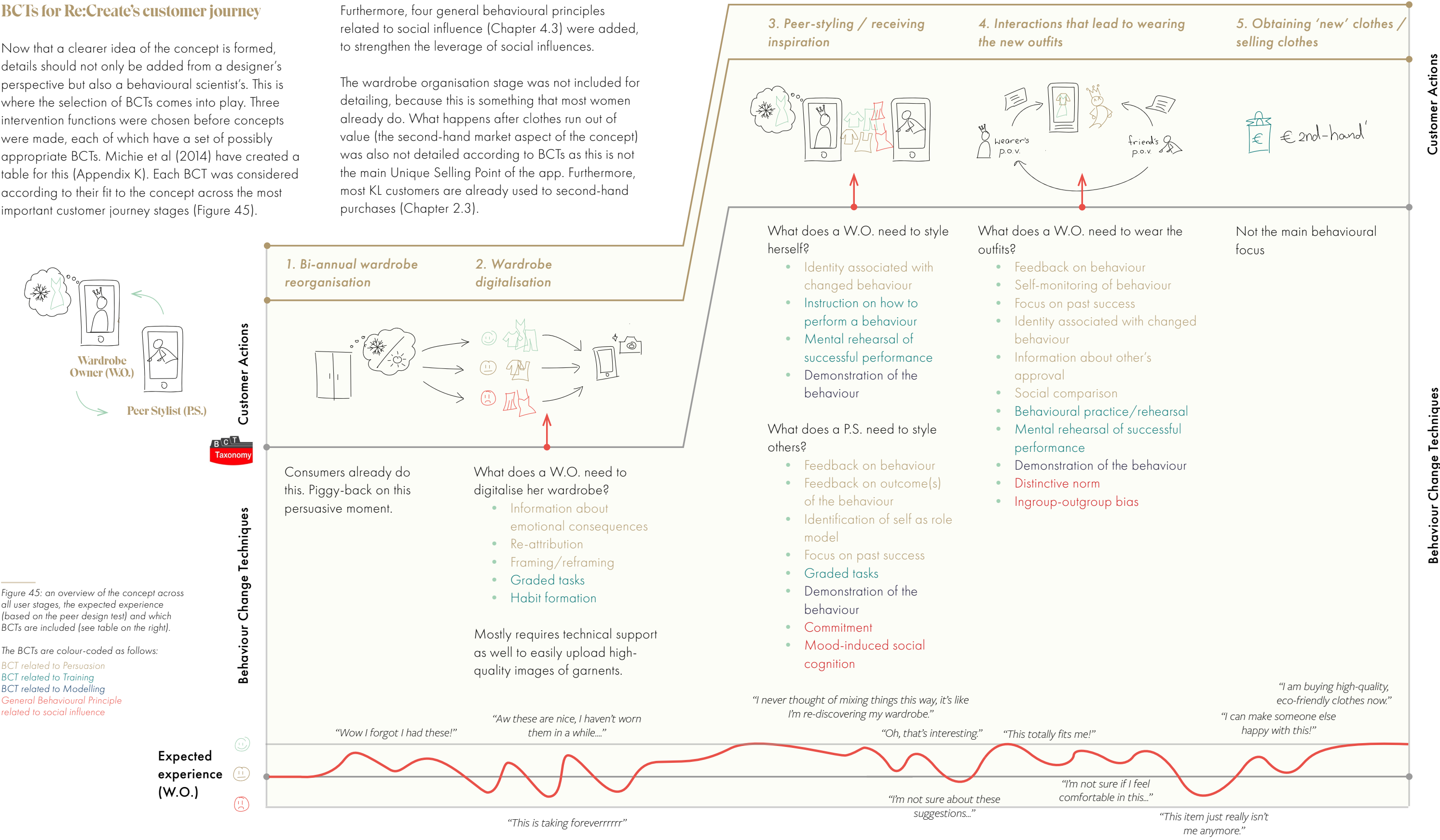


Figure 45: an overview of the concept across all user stages, the expected experience (based on the peer design test) and which BCTs are included (see table on the right).

The BCTs are colour-coded as follows:
BCT related to Persuasion
BCT related to Training
BCT related to Modelling
General Behavioural Principle related to social influence

8 Design details

The previous chapter summarised the concept's general customer journey and its BCTs, value proposition model and business model canvas.

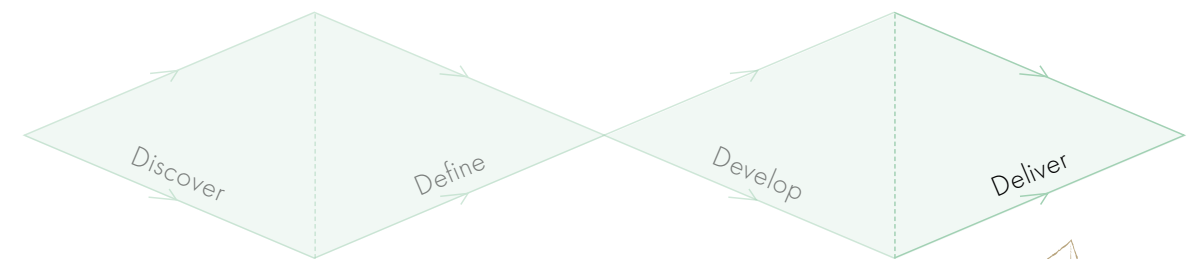
Chapter 8 covers the development of specific User Interfaces:

Now that a general overview has been given of the concept, each consideration will be incorporated in the design details of the User Interfaces. The behavioural, business and sustainability perspectives are still applied in these details. Although, understandably, some of these perspectives are not relevant for certain User Interfaces, and have therefore been omitted where such is the case. Since we are now diving into the details of the service, some technical considerations have been added as part of the business perspective, given that the development/implementation requirements for the app could influence whether a company would decide to invest in the service or not.

The following User Interfaces will be explained in this chapter:

- 8.1 Account set-up / app demo
- 8.2 Home screen
- 8.3 Wardrobe digitalisation
- 8.4 Wardrobe item overview
- 8.5 Outfit suggestions from peers
- 8.6 Peer-styling
- 8.7 Styling yourself
- 8.8 Second-hand webshop

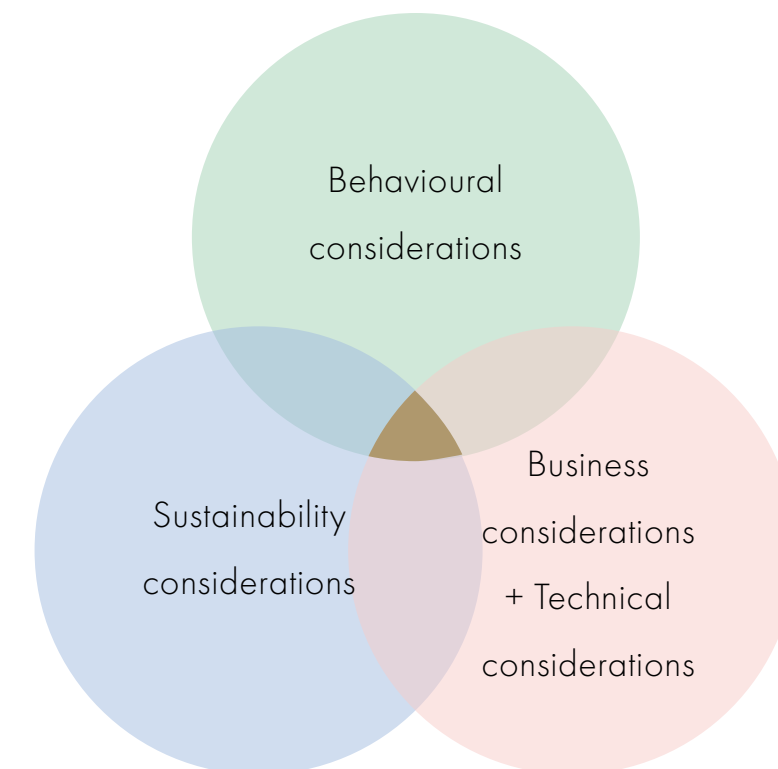
Process summary so far:



Now we are going
here with Chapter 8

Chapter 7:

- Value proposition
- Business model canvas
- Circular economy business model framework
- Behaviour Change Techniques
- Customer journey mapping



User interfaces

8.1 Account set-up / app demo

Necessities for an account

Most wardrobe apps (Appendix J), especially the ones with more features, will have a comprehensive account set-up flow. This usually consists of a few simple questions about general information (name, age, etc), the clothing style (either described through words or style pictures which have to be chosen by the user) and possibly questions about what kind of items the user has in her wardrobe. These are easy, effective ways of setting up a style profile, but probably do not help to encourage wardrobe digitalisation from a behavioural perspective.

Behavioural considerations

The assumption is that we can transfer the emotional effects from a physical wardrobe-reorganisation to the wardrobe digitalisation process. The account-setup phase is a good opportunity for this, as it will immediately set the tone for the rest of the app's impression: namely that is is not an ordinary digital wardrobe or style inspiration app: it is an app that takes you on a journey of self-expression.

First, we need to 'Reframe' the act of digitalising a wardrobe into a process of self-discovery, rather than a tedious task to inventorise one's wardrobe. We can do this by sharing 'Information about emotional consequences': emphasising on the possibility to understand your own style better (the good and the bad) in order to feel good about oneself.

It is important to consider 'Graded tasks' for this: start with something that is simple and enjoyable, and then gradually increase the difficulty of the tasks. This is also known as the 'Foot in the door' technique (Lieren et al, 2018): when you ask for a simple request, people are more likely to say yes to a more complicated request afterwards.

The following tasks could be considered, starting with the easiest and ending with the most difficult:

- **Exploring 'The woman I want to be'** (Guy & Banim, 2000): what is the user's ideal, favourite outfit that totally represents their 'true self'? Ask her to put that outfit together, and take a picture of each item separately.
- **Exploring 'The woman I am most of the time'** (Guy & Banim, 2000): which clothing items does the user pull out of their closet without a single thought? Ask her to photograph these, starting with a good mix of bottoms and tops.
- **Exploring 'The woman I fear I could be'** (Guy & Banim, 2000): what is the user's worst case scenario in terms of clothing? Or what clothes have they not worn in a while? Ask her to put that outfit together, and make a picture of each item separately.

All of these tasks do not have to be done immediately. The account set-up should be a gateway towards 'Habit formation': after this users could do more of these tasks as part of a app demo or a challenge. It is important that small tasks are requested over a longer time span: essentially letting the user digitalise their wardrobe step-by-step rather than all at once.



Figure 46: One of the possible screens when setting up an account: encouraging the upload of separate items by thinking of outfits related to self-exploration.

8.2 Home screen

Behavioural considerations

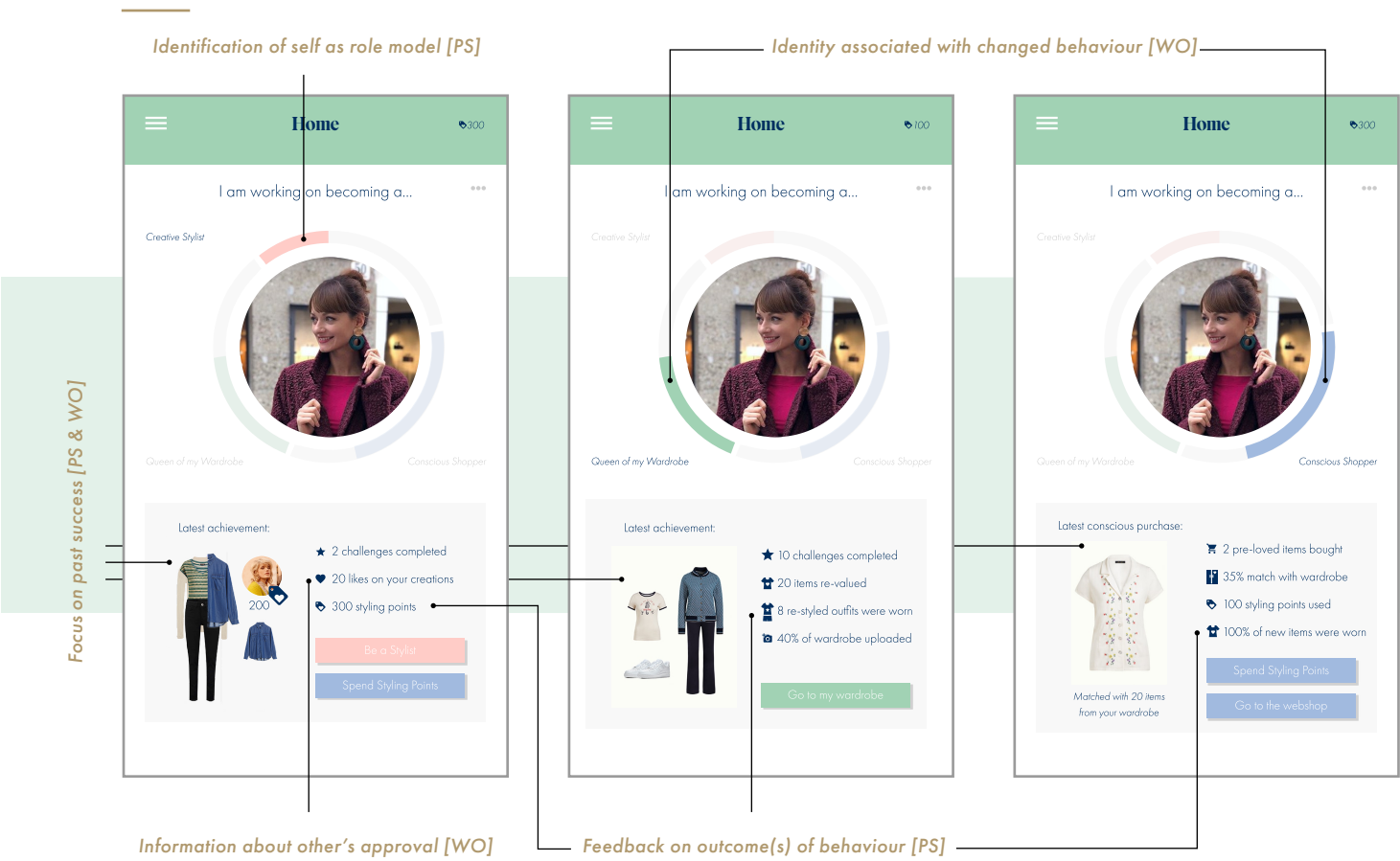
The homescreen should be both inspirational and informative, as this will create a clear view of the emotional consequences of using the app and the functional results of the app.

The emotional consequences are accounted for by emphasising on the 'Identification of self as a role model' (e.g. "I am a creative stylist for my peers") and the 'Identity associated with changed behaviour' (e.g. "I am a queen of my wardrobe" and "I am a conscious shopper"). Each type of 'identity' is clearly distinguished from each other based on colour and results. The colours were chosen based on the importance of the identities.

- Peer-styling is the app's USP, and should have a more prominent, 'popping' colour compared with the other two identities.
- An overview of the wardrobe is a necessity to enable peer-styling, and is therefore second in line of importance. King Louie's brand-colour was used for this.
- The second-hand webshop is a secondary part of the app and should not ask for too much attention (out of concern for rebound effects), a calmer, less attention-grabbing blue was therefore used.

In terms of results, most apps give numerical statistics. A more persuasive way of bringing the results to life is by always highlighting the latest 'Past success' through images alongside statistics.

Figure 47: Homescreen exploring the three main components of the app, The circle-bar envisions the progress per 'identity'.



8.3 Wardrobe digitalisation

Behavioural considerations

As stated before, most of the behavioural work will need to be done in a more inspirational way in order to encourage a full digitalisation of the wardrobe. Most of this has already been discussed in Chapter 8.1. More of such inspirational, behaviourally-driven challenges can be a part of this section of the app to keep stimulate ‘Habit formation’.

Technical considerations

As we know from the COM-B model, behaviour change does not only depend on the user’s motivation.

Users need to have the Capability to make high-quality pictures (e.g. knowing how to find a good spot in the house with a neutral background and sufficient light so that each garment can be clearly seen). The first few times a picture is taken of a garment, pop-up messages should therefore be included to ensure these technical requirements are satisfied.

We can also create the Opportunity to make the wardrobe-digitalisation process easier (Figure 48). If brands have a database of their products (including high-quality images with a neutral/transparent background), this could be linked to the app. Users could browse through this database to find the garments they own.

In the future, selecting pictures from brand databases could be made even easier by making use of scannable labels. Superdry (a Japanese clothing brand) already has QR-codes on their labels which directs you to a websearch of the item (Figure 49). The correct sweater was found this way, although not immediately in the correct colour. It however shows great potential, making it much easier for the user to upload their wardrobe if they can simply ‘scan it in’.

- A few concerns should however be accounted for:
- **Costs of putting such a label into each new collection type.** Currently, all similar garments from the collections have the same washing label which significantly reduces costs. It is however possible to consider the same type of QR-code for similar items/prints.
 - **Maintaining the clothing database.** Storing data costs money for a company. The longer you store something, the more digital storage space is needed which means more investment costs.

Sustainability considerations

The usage of scannable labels can be linked to an industry-wide trend: when attending sustainability events, ‘transparency’ is one of the most frequently mentioned buzz words. Fashion Revolution (2020) recently even published a Fashion Transparency Index. Many companies are talking about being able to track their supply chain and communicate this with their consumers, to share information about social sustainability (where is it made) and ecological sustainability (what materials were used, the carbon footprint from production and transport, etc)

Business considerations

Discussing this with KL, scannable labels can also be handy for retailers: currently, if they lose the product price label they cannot find the product information anymore. More information can also be included in barcodes (currently, retailers only use these for information about the price).

If users digitalise their wardrobe by connecting with a brand database, brands will also know exactly which types of clothes are owned by their customers and how people match them. This could give style insights for marketing initiatives and spur more user-centred garment designs for new collections.

Business opportunity: gaining a consumer’s wardrobe data to guide clothing design and marketing initiatives

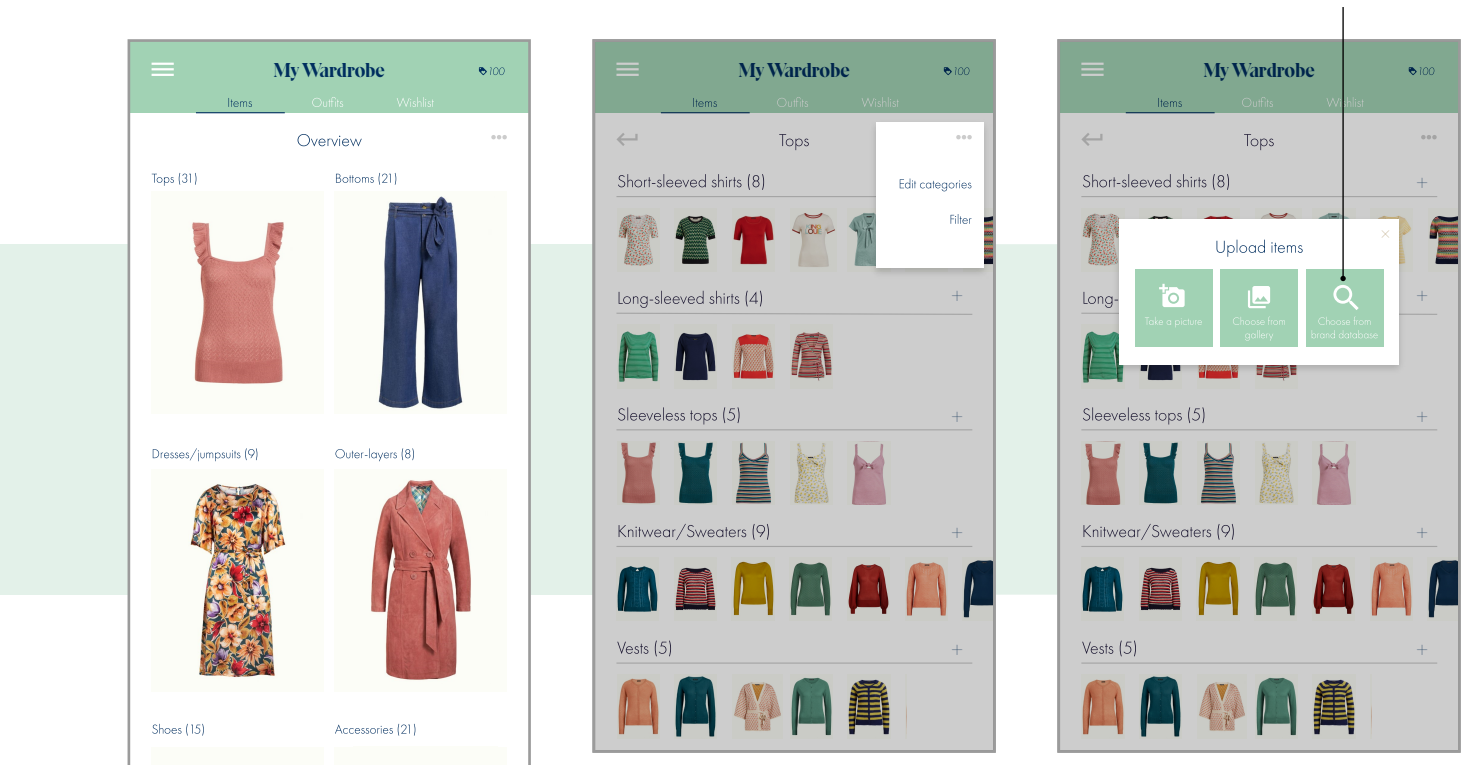


Figure 48: Going from a broad wardrobe overview to an overview of items per (editable) category. Several options can be used to upload a picture of a new item.

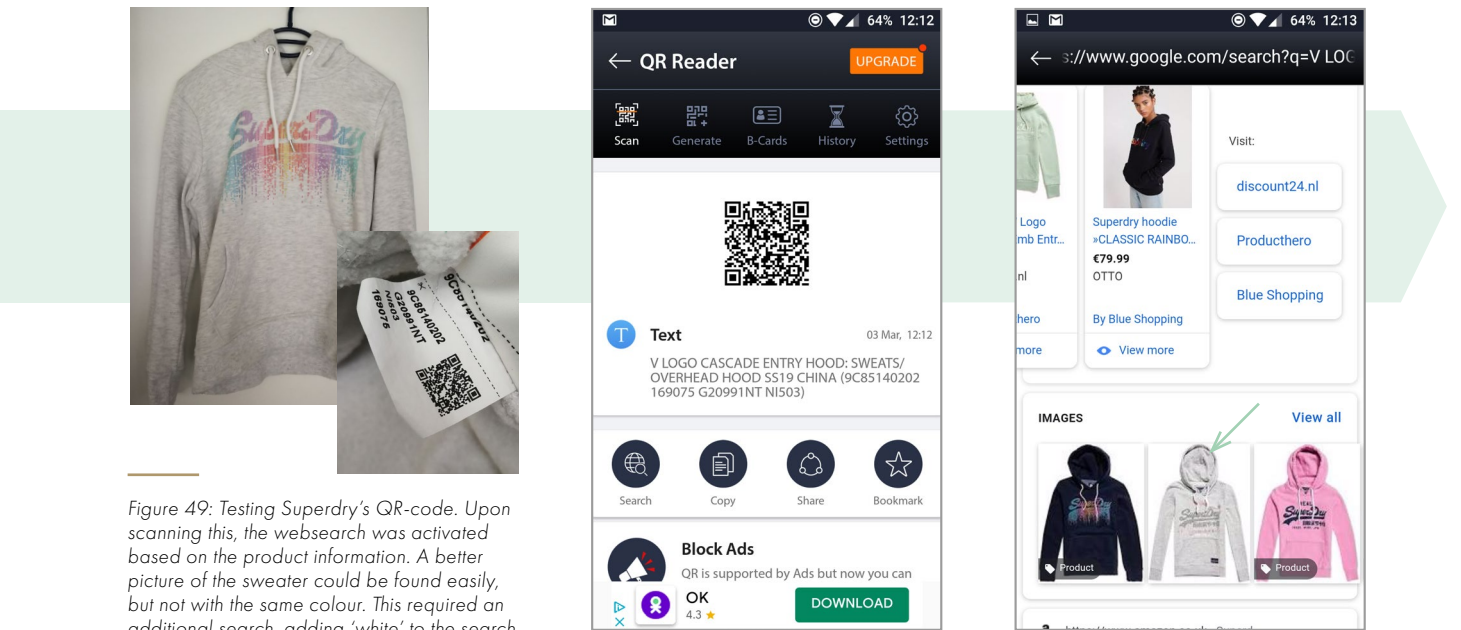


Figure 49: Testing Superdry’s QR-code. Upon scanning this, the websearch was activated based on the product information. A better picture of the sweater could be found easily, but not with the same colour. This required an additional search, adding ‘white’ to the search bar.

8.4 Wardrobe item overview

Behavioural considerations

Each wardrobe item should contain the tools to help the user ‘re-discover’ the item, especially if the are items that people have difficulties with (Figure 50). Users can therefore add information about the garment if they deem this necessary.

Basic information about the item’s brand, material and colours are practical for a Peer Stylist looking into the item, to get a better idea of it. What’s important for the Wardrobe Owner is to know how much they currently love the particular item and why, so that any change of ‘love’ towards the item can be put into perspective (‘Information about emotional consequences’).

Further inspirational material that could lead to an active exploration of the garment should be included automatically by the platform. Examples based on the BCT ‘Graded Tasks’ could include matching the item differently or even transforming it. It is important to keep up the ‘re-attributed’ perspective that it’s not about the item, but how you match it and to emphasise on the identity of being a ‘creative’ when doing these tasks.

Technical considerations

The addition of inspirational material can be linked directly to social media feeds such as Pinterest, Instagram, Youtube and Wordpress. These platforms use meta-information such as hashtags which could help determine whether certain content fits a particular item (based on the author’s experience in digital marketing). This should be somewhat curated through machine learning, only showing a handful of links/ images based on hashtags so that the user does not get overwhelmed (e.g. if we are talking about a KL item, a potential social media post which is marked with #dress and #kinglouie should be linked to the item). More relevant content can be determined

through image recognition techniques. Moreover, boundaries must be set in the code relating to quantity and quality (e.g. only showing the top 3 rated search items based on likes).

As peers create more outfit suggestions based on the Wardrobe Owner’s items, these should be prioritised above automatic content. The user should be able to choose which content is saved in the item feed to create a concise and useful inspiration board.

Sustainability considerations

The app mostly encourages the usage of ‘old’ clothes again without transforming it. However, sometimes a new way of wearing a garment is not sufficient to re-love it. This is one of the reasons that content about clothing transformations is also included for those who are more creative, daring and skilled.

The sustainability downside of the inspirational content is that it might awaken a desire for users to buy items they do not own yet, due to the branded outfit suggestions. This should hopefully be accounted for in the second-hand webshop feature of the app (see Chapter 8.8).

Business considerations

The main business opportunity in this feature lies in the ‘Re-discover your style’ section. Brands could either upload their own outfit suggestions of a particular item (this could even happen automatically if the item was added through the brand database by the user), or create Mixed-Brand-Lookbooks by working with other brands.

The business advantage of the latter is that this creates brand exposure in a possibly new target segment. For example, if an outfit suggestion is based on items

from King Louie, Alchemist and Acne Studios (all of which are high quality, sustainability-related brands), it means that customers from all three brands could come across this outfit suggestion and possibly discover a new brand. Acne Studios has a very different, younger target group compared to King Louie, but a Mixed-Brand-Lookbook-Image might inspire a customer from Acne Studios to try out a few King Louie garments.

Information about emotional consequences [WO]

Re-attribution [WO]

Business opportunities:
- Brand exposure
- New target segment potential due to mixture of brands

Demonstration of the behaviour [WO]

Identity associated with changed behaviour [WO]

Graded tasks [WO]

Instruction on how to perform the behaviour [WO]

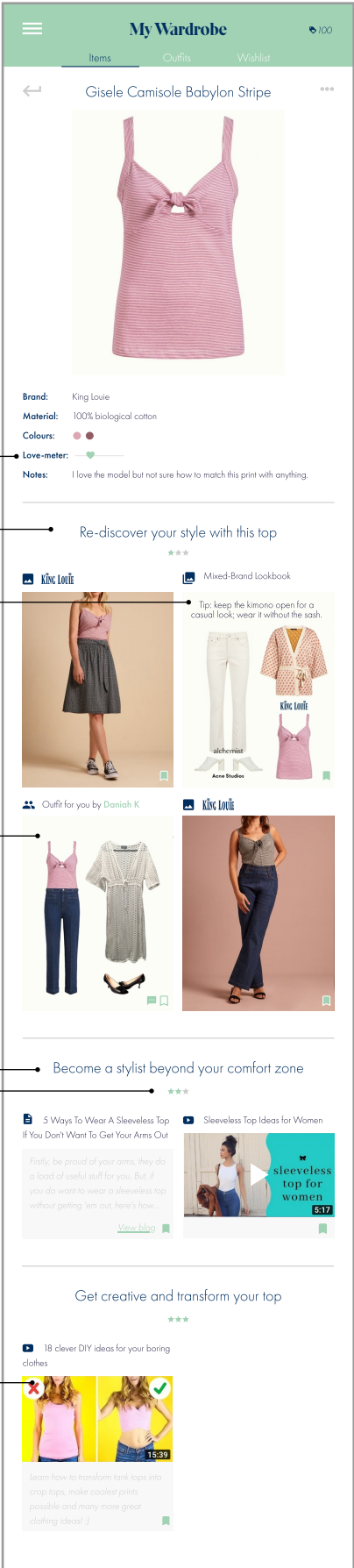


Figure 50: The possible information that’s attached to each garment (inserted by the user, or extracted from a database) and its inspirational content.

8.5 Outfit suggestions from peers

Behavioural considerations

When peers suggest outfits, they may not be liked by the Wardrobe Owner. For a Peer Stylist, it would be nice to receive ‘Feedback on the behaviour’ (the styling behaviour), either through text or an adjustment of the outfit (Figure 51). For the Wardrobe Owner, this is also a way of identifying themselves as a stylist, encouraging creativity and discussion around the outfits to create a dynamic back-and-forth interaction.

If a Wardrobe Owner does like an outfit, she might still not be inspired to wear the outfit. In this case, it helps to do a ‘Mental rehearsal of successful performance’ by imagining the context in which the outfit could be successfully worn. An user should therefore be able to add outfits to (editable) categories (Figure 52).

Technical considerations

Outfit creations should in some way be editable by the Wardrobe Owner. An outfit creation from a Peer Stylist will probably lose all properties of editability if it is turned into a JPG/PNG image. Keeping the editability of each outfit creation is therefore essential. This is technically possible, judging from some collage-making apps where you can return to your collage to edit it.

However, keeping the edibility of every outfit creation would probably result in a memory-heavy app, in which case a big cloud-based database is necessary to store the app’s data.

Sustainability considerations

Editing outfits on the app might not encourage users to actually try the clothes out in real life. It should be considered whether Wardrobe Owners be encouraged to adjust the outfits in real life as well, sending pictures of a worn creation instead of adjusting it digitally.



Figure 51: A Wardrobe Owner reacts to a Peer Stylist's outfit creation by editing the outfit and adding a comment.

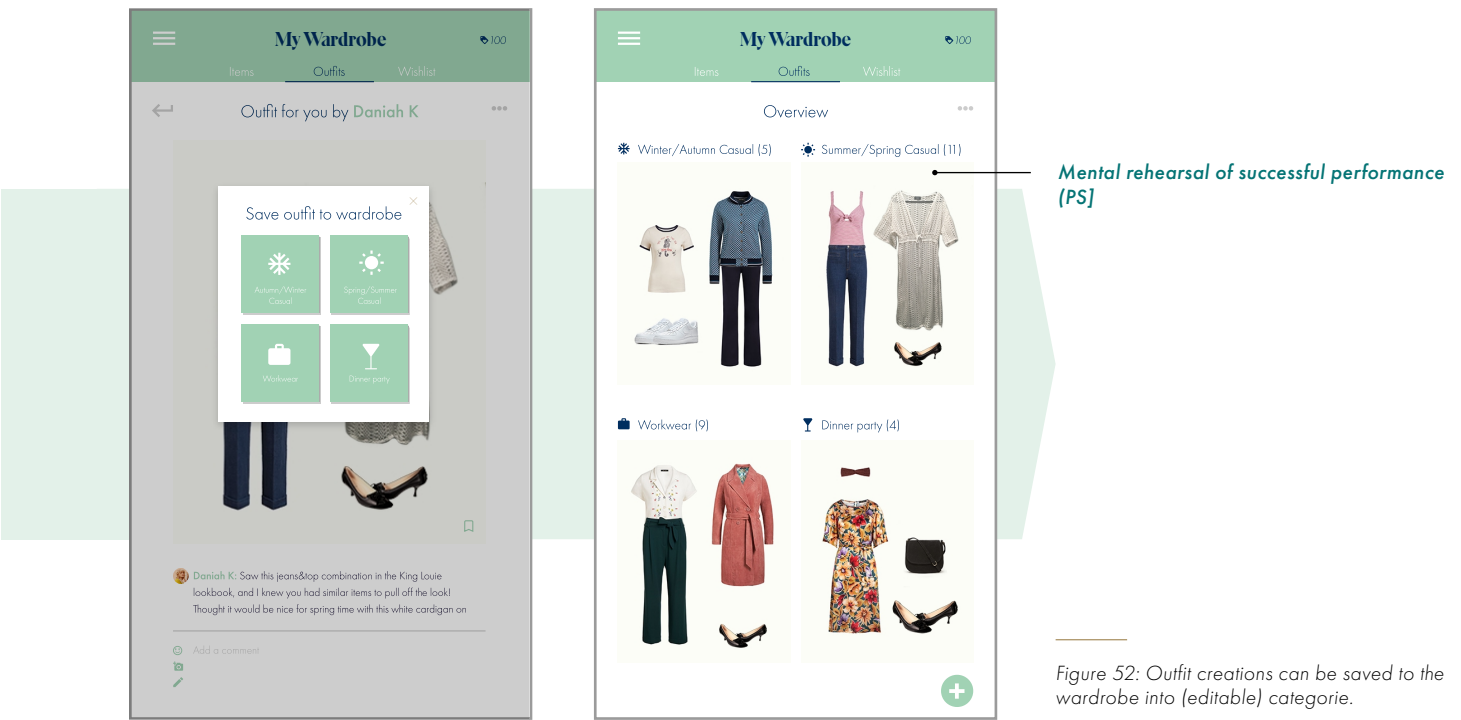


Figure 52: Outfit creations can be saved to the wardrobe into (editable) categorie.

8.6 Peer-styling

Behavioural considerations

Styling a peer takes effort, and can be discouraging without seeing the results or getting a little bit of feedback. Whenever a Wardrobe Owner uploads a picture of themselves wearing an outfit that was styled by the Peer Stylist, this should be highlighted in order to ‘Focus on past success’ and gain ‘Information about other’s approval’.

‘Graded tasks’ should however be implemented, because someone might not always be in the mood to fully style a peer. Gradually increasing the level of difficulty, the following ‘tasks’ can be suggested:

- Voting on an outfit poll.
- Styling a peer according to an item.
- Styling a peer according to a theme.
- Styling a peer in ‘freestyle’ mode, meaning that the Peer Stylist can start wherever she wants.

When an outfit is created, this ‘Demonstration of the behaviour’ is the main component from which a Wardrobe Owner should change their usual clothing behaviour. An additional ‘Instruction on how to perform the behaviour’ can be included by the Peer Stylist, by adding a comment to the outfit.

The harder the challenge and the more engagement is created from the outfit, the more Styling Points will be gained by a Peer Stylist as a means of incentivisation. Each finished challenge will also include persuasive messages relating to ‘Commitment’ and ‘Mood-induced social cognition’, leaving the Peer Stylist with a positive, accomplished feeling after each styling sessions which hopefully inspires other styling sessions.

Sustainability considerations

The Peer Styling feature will only include clothes of the Wardrobe Owner, rather than additional items from webshops as is the case in some wardrobe apps (Appendix J). This is to prevent the Peer Stylist from getting overwhelmed by choice, but also to ensure a sustainable outcome is emphasised in the usage of the app. Adding purchase suggestions to old clothes may revitalise the wardrobe, but this decision should be made consciously by the Wardrobe Owner rather than unnecessarily tempting her with new purchases.

Business considerations

Styling Points can be gained to stimulate further styling efforts from users, but can set an interesting business case for a customer loyalty programme as well. KL is currently already looking into hiring more employees wo will research the desirability and creation of a customer loyalty programme.

The most straightforward usage of loyalty points is to gain discount on further purchases. Especially if a new target segment is attracted to a new brand due to the multi-brand partnerships within the platform, this could give further encouragement to explore a new (preferably sustainable) brand. If customers then purchase from their new-found brand, this could be the most attractive feature from a business perspective (more about this in Chapter 8.8).

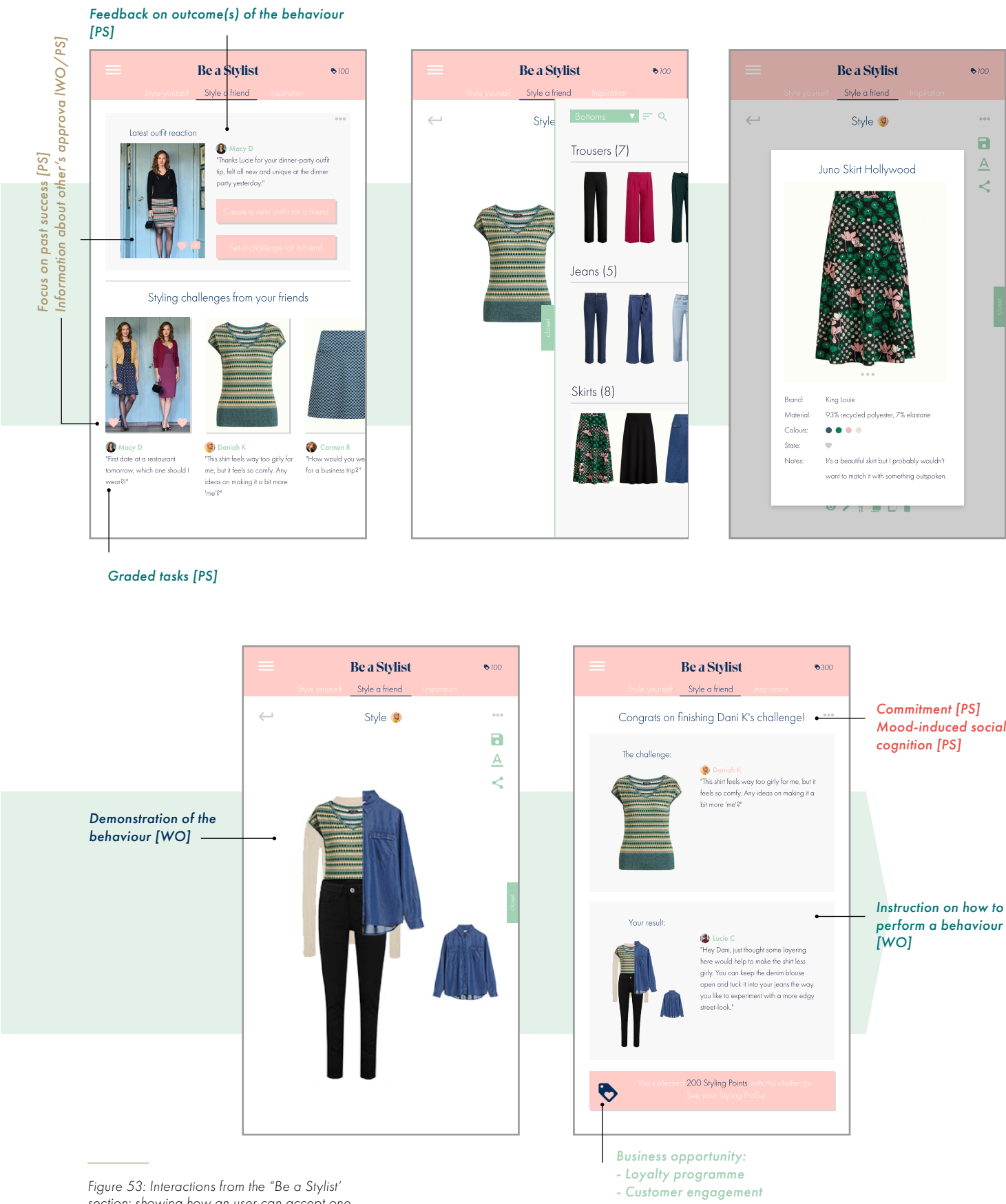


Figure 53: Interactions from the “Be a Stylist” section; showing how an user can accept one of their peer’s challenges, create a new outfit of this, and gain Style Points accordingly.

8.7 Styling yourself

Behavioural considerations

Users can use the app to style themselves digitally as well, rather than letting peers do this for them. This feature is mostly incorporated in order to encourage more items being added to the digital wardrobe, by thinking in terms of outfits rather than items. Doing this reframes the wardrobe digitalisation experience. As part of a ‘Habit formation’ process, similar challenges as the one described in the Chapter 8.1 will be released on a weekly basis, see Figure 54.

As explained in Chapter 4.3, social influences can cause a strong ripple effect for behaviour change. Being part of a few digital community groups with similar style preferences could encourage this. People like to be with people they identify themselves with (‘Ingroup-outgroup bias’), herding behaviour is also not uncommon due to ‘Distinctive norms’ (i.e. doing something because you see someone else doing it too).

However, even within groups, especially related to clothing, people still like to show off their distinctiveness. This biases can be used to encourage the ‘Behavioural practice’ of actually trying out new outfits and consequently the ‘Demonstration of the behaviour’ to others by posting pictures of this. This is what sets the ripple effect of behaviour change in motion.

Technical considerations

Depending on whether the community groups are small-scale private groups or larger-scale public groups, the content might need to be slightly moderated to ensure respectful behaviour amongst users. This means a moderator should have access to these groups.

Business considerations

This part of the app can include mixed-brand lookbooks based on the style of the community group, rather than the item-based mixed-brand lookbooks from Chapter 8.4. The business implications are however the same: encouraging a multi-brand platform could result in a mixture of target groups and more brand exposure.

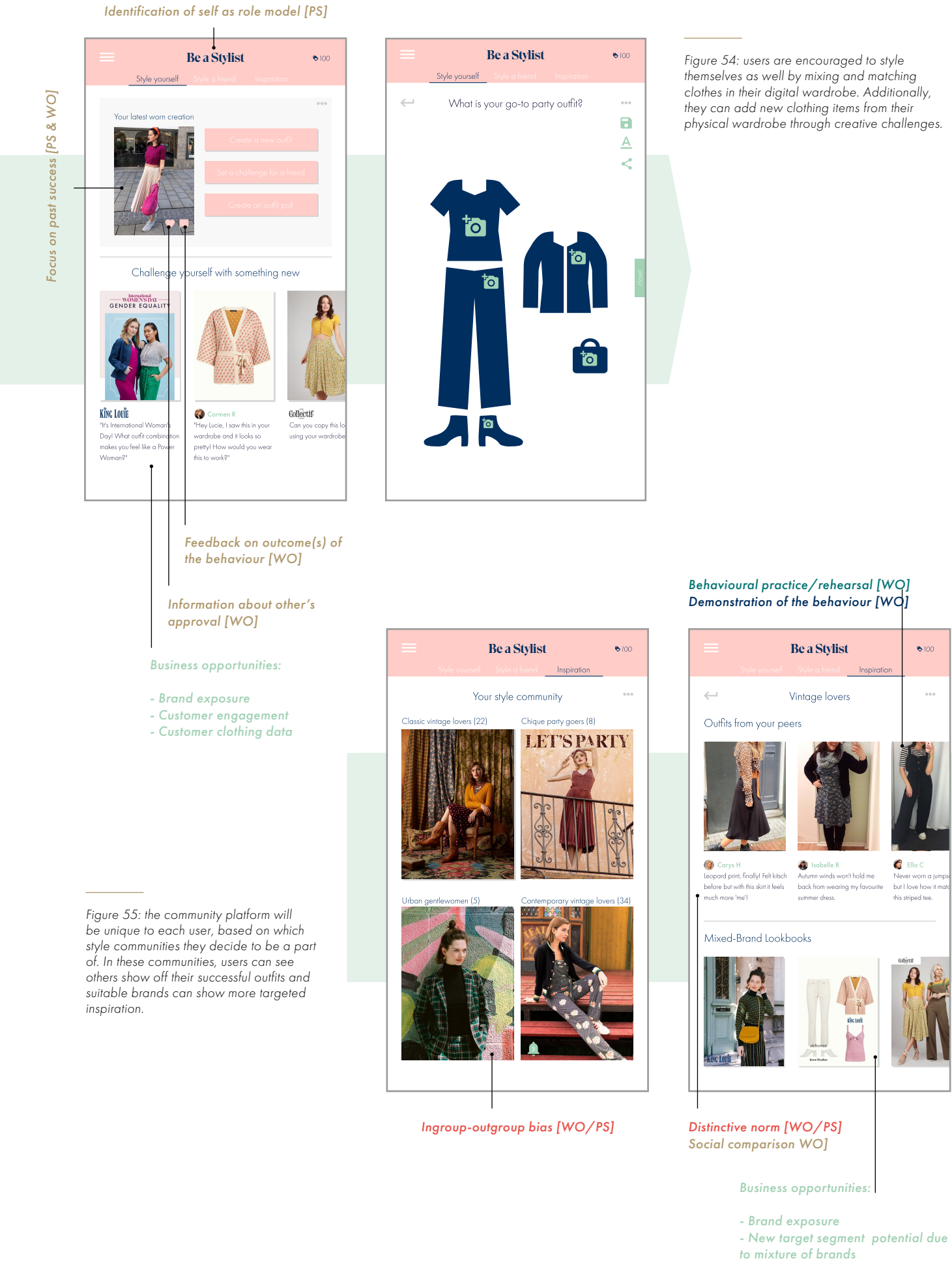


Figure 54: users are encouraged to style themselves as well by mixing and matching clothes in their digital wardrobe. Additionally, they can add new clothing items from their physical wardrobe through creative challenges.

Figure 55: the community platform will be unique to each user, based on which style communities they decide to be a part of. In these communities, users can see others show off their successful outfits and suitable brands can show more targeted inspiration.

8.8 Second-hand webshop

Behavioural considerations

This part of the app did not consider any BCTs, since encouraging second-hand purchases is only a secondary purpose of the app. The only BCT that has been applied was the ‘Identity associated with the changed behaviour’, since this is the main design vision which was displayed in the homescreens already (Chapter 8.2).

Sustainability considerations

Sometimes women just physically and emotionally grow out of a garment, and no amount of mixing or matching could fix this. In this case, women should still be able to shop, but they might need help to do this more consciously.

For this reason, Re:Create is connected to a second-hand webshop called TheNextCloset (see Chapter 6.3 for secondhand market considerations). This webshop has high-quality items and puts labels on sustainable brands. Due to the selectiveness of the webshop, it is easier for users to make an informed decision about their potential purchases.

The webshop should be connected to the user’s digital wardrobe for two reasons:

- Users can see whether they already own a similar item that they are thinking of purchasing.
- Users can see how their potential purchase might match with other garments in their current wardrobe.

Technical considerations

Plugging into another webshop is feasible, since other digital wardrobe also allowed the possibility of loading webpages within the app. This way, users stay within the platform whilst gaining access to another digital platform.

The addition of the own digital wardrobe as a ‘drawer’ menu on the side simply means that a pop-up feature has to overlay the loaded webpage. There are many apps that can overlay themselves over other apps, such as Facebook messenger and Blue light filters. Overlaying an app feature over a webpage should therefore not be technically impossible.

Business considerations

Chapter 6.3 already highlighted some bussiness opportunities arguing for the inclusion of a second-hand webshop in the app, some of which may even result in a revenue stream. These benefits are however most optimal for a company if they have control over the platform themselves.

Due to the high implementation costs of the rest of the app, a more strategic first step is to roll out Re:Create with a secondhand webshop plug-in first (such as a plug-in to TheNextCloset). This is cheaper and could attract an initial user stream from TheNextCloset.

In the future, when the Minimum Viable Product of Re:Create has proved its success, a new platform could be created by KL and its partners to create a fully sustainable, high-quality secondhand shop where revenue benefits can be better controlled.

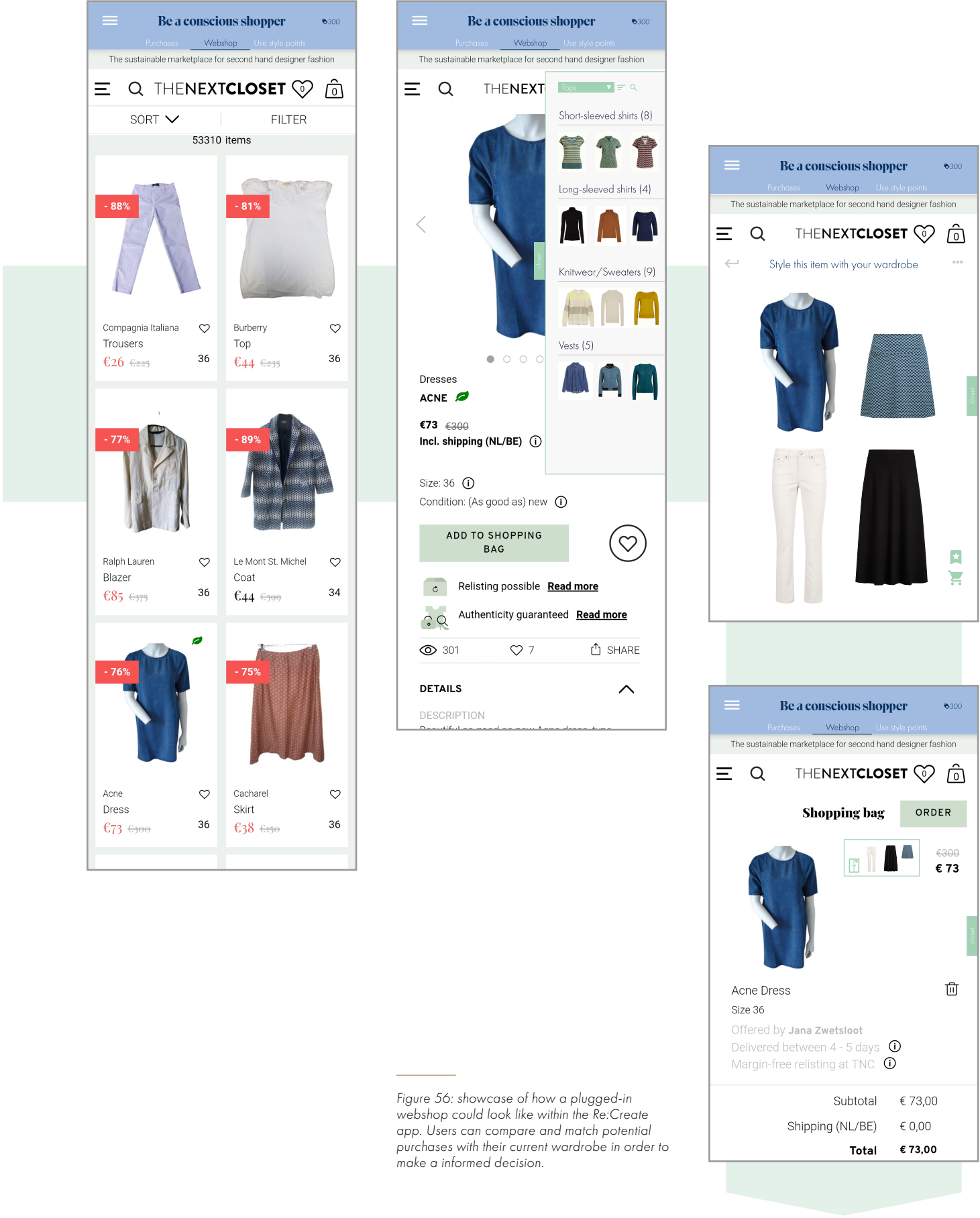


Figure 56: showcase of how a plugged-in webshop could look like within the Re:Create app. Users can compare and match potential purchases with their current wardrobe in order to make a informed decision.

Concept validation

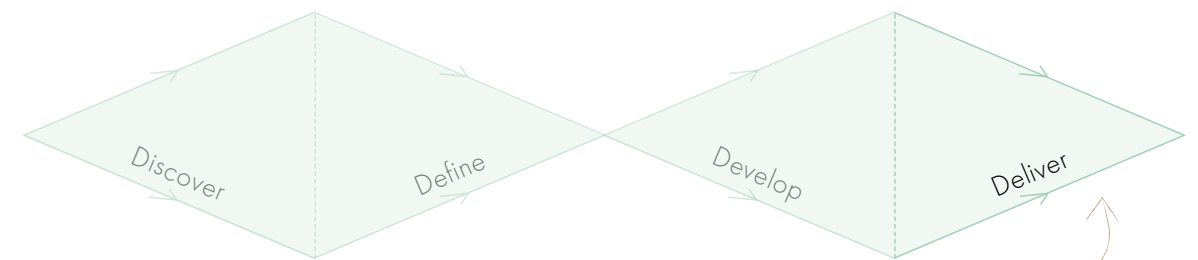
Chapter 8 explained the first Re:Create prototype in detail, showing the User Interfaces, behavioural implications, business implications and sustainability implications where appropriate.

This chapter will test Re:Create's main principles in the Delivery phase.

Due to technical restrictions, the Re:Create prototype cannot be used to test its behavioural implications with KL customers. A work-around will be used to still test the main behavioural principles through a 6-day Whatsapp test. Research participants will be asked to do a task each day, similar to what the Re:Create app would ask from its users.

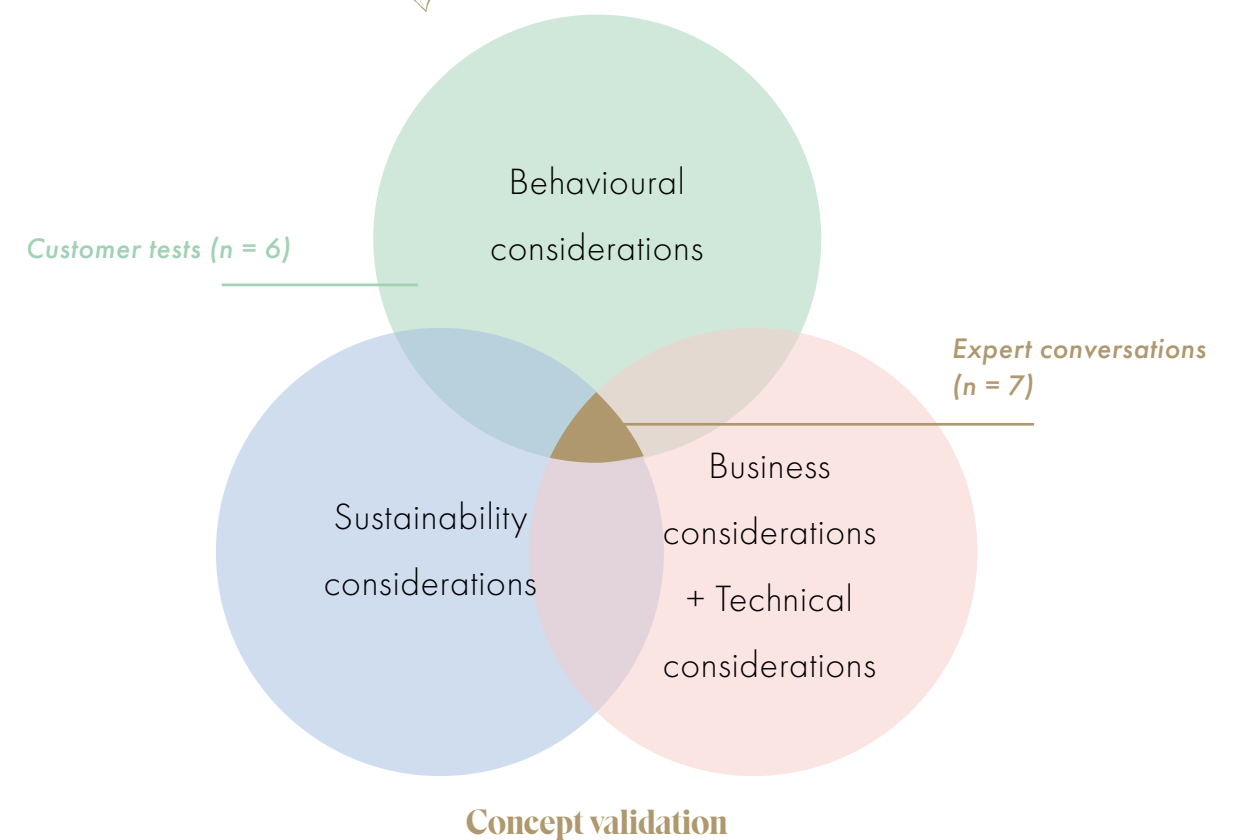
Several experts will also be consulted to improve the concept (as detailed in Chapter 8) further, based on business, sustainability and behavioural recommendations. Conversations with these experts will be initiated by showing a video demo of the Re:Create app.

Process summary so far:



Chapter 8:
• User interfaces

Now we are going
here with Chapter 9



9.1 Customer tests - results

Research aim

Now that a concept has been developed, we need to validate the behavioural implications of the Re:Create app on a motivational, individual level and an inspirational, peer-to-peer level (which was the design direction). Although the desirability of styling a peer has been tested before, that test had a very limited view on the Wardrobe Owner's perspective.

The focus of this test will mostly be on the wardrobe digitalisation and peer-to-peer styling sections of the concept, as these are deemed most behaviourally relevant to encourage sustainable behaviour.

Research questions

- How does reframing the wardrobe digitalisation process into an outfit-based (rather than item-based) self-discovery journey influence a Wardrobe Owner's experience of the activity?
- What kind of social interactions will arise from the exchange of Outfit Creations?
- To what extent does interacting with a Peer Stylist influence how a Wardrobe Owner values her clothes?

Research set-up

The test consisted of three parts (see Research Timeline on the next page and Appendix L1). Part 1 took place through Whatsapp. In Part 2, two participants were paired together in a Whatsapp groupchat. Outfits were created through an external Collage App (InCollage); the Outfit Collages were then forwarded in the Whatsapp group.

It was decided to use mobile tools because it would make it easier for the participants to do the exercises whenever they wanted.

To gain an overall understanding of the exercises and the desirability of the real app, a 30-minute phone interview was scheduled with each participant after Day 6 of the research timeline.

Before the interview, participants were sent a compiled PDF of their pictures, outfit creations and captions as a memory aid. They were also reminded of the prototype showcase (video file) they had received at the beginning of the research, to put their exercises into the 'real', ideal scenario when the app is launched.

Recruitment

6 participants aged 30-40 were recruited from a KL database. These women agreed/were neutral to statements of having too many clothes and the need to have variety in their wardrobe. See Appendix L1 for the full recruitment process.

Results

The customer tests produced a lot of different data:

- **Part 1** - Pictures and comments from the individual exercises (Appendix L2).
- **Part 2** - Pictures from the paired exercises (Appendix L2).
- **Part 2** - Whatsapp transcripts from groupchats (Appendix L3).
- **Part 3** - Interview notes (Appendix L4).

See Figure 57 and 58 on the next pages for relevant visual results.

Research timeline

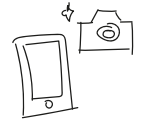
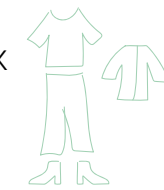
Part 1: Individual wardrobe exercises (3 x 15 min)

Day 1:

- 2 Outfit pictures that express the 'ideal self'.
- Individual item pictures from these outfits.

The woman I want to be

2x

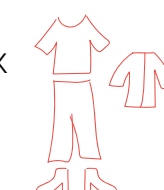


Day 2:

- 2 Outfit pictures that express the 'least ideal self'.
- Individual item pictures from these outfits.

The woman I fear I could be

2x



6 x 5 x 5 x 5 = 750 outfit combinations possible

Day 3:

- Pictures of a few items, selected impulsively by the participant. The amount of pictures that were requested depended on how many items were still necessary to create a sufficient Digital Wardrobe for the next research phase.

The woman I am most of the time

Ideally (in total with step 1 and 2):

6x



5x



3x



5x



5x



Break time

- Setting up Group whatsapp chats
- Sharing Collage App download instructions
- Sharing Style Guides

Part 2: Paired styling exercises (3 x 15 min)

Day 4:

- Choose one item from each 'less ideal' outfit from the other and create minimally 2 new outfits in the Collage app

2x



Day 5:

- Style the other the way you want and create minimally 3 new outfits in the Collage App.
- Use additional basics if necessary.

3x



Day 6:

- Put 3 outfit suggestions from your Peer Stylist together in real life.
- Wear your favourite one and share a picture with the group and a close friend.

1x



3x



Part 3: Individual phone interview (30 min)

Figure 57: Example of results
(A PDF document shared with participants at the end of Part 2. For all participant results, see Appendix L3.)

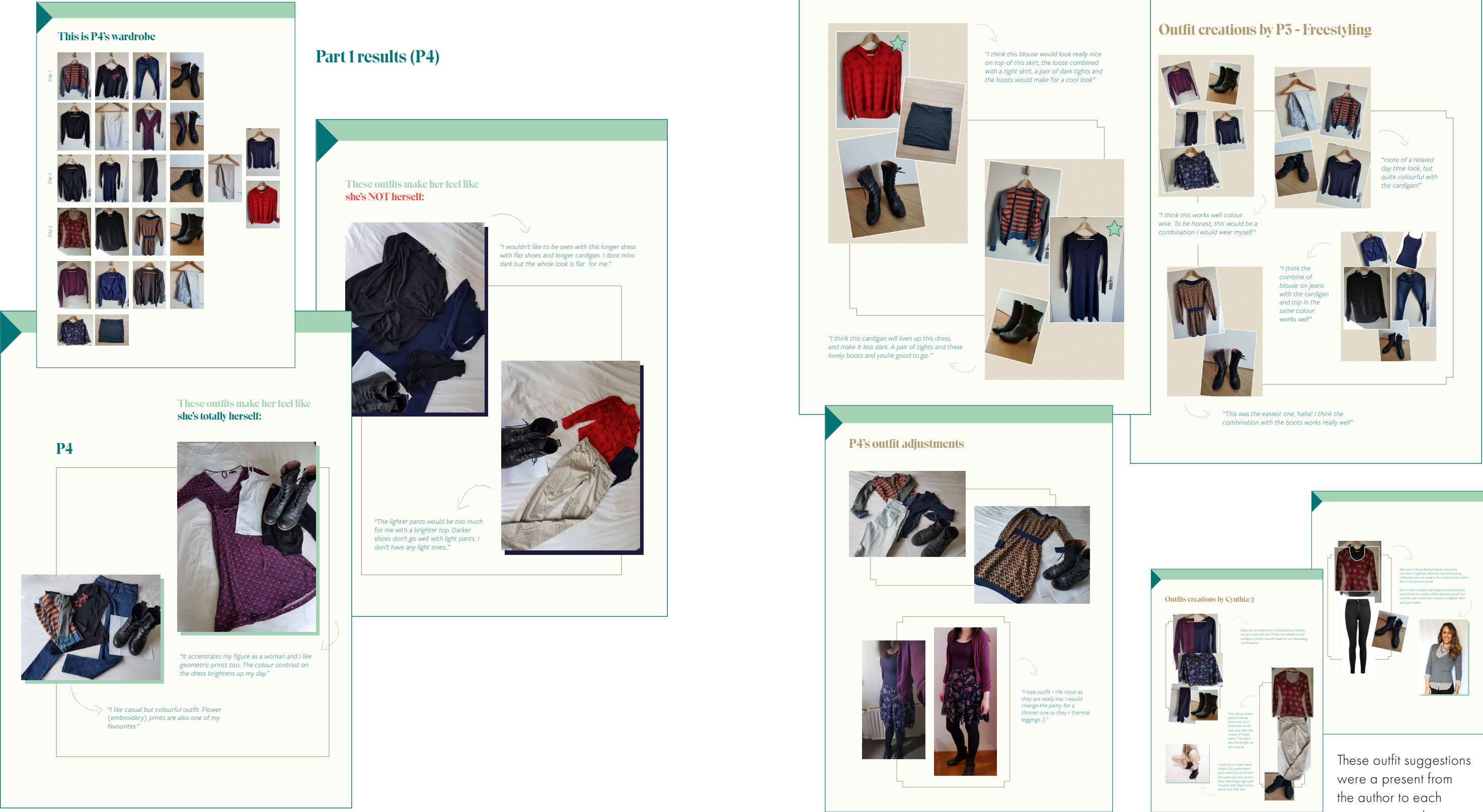


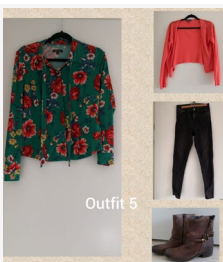

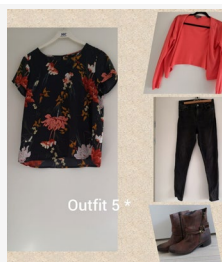



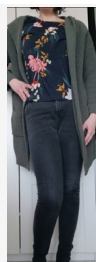



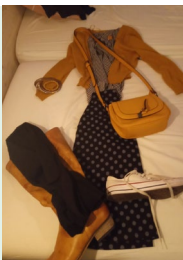
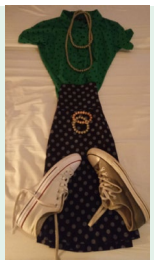

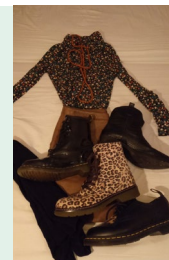
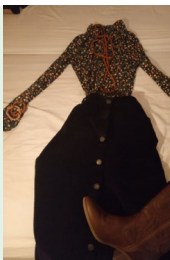







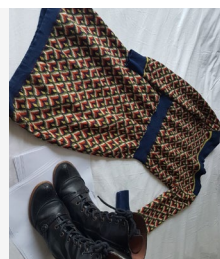





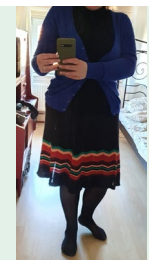

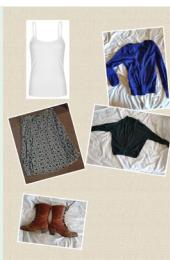
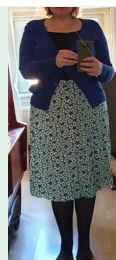




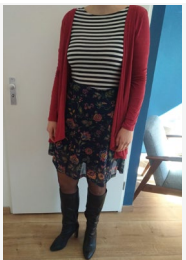


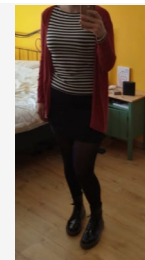


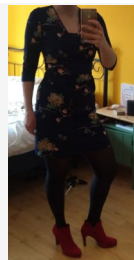





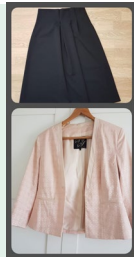
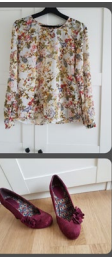
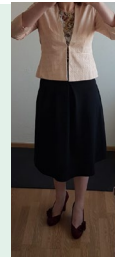
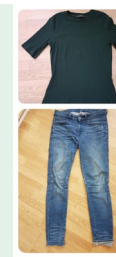

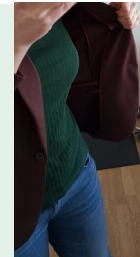


Figure 58: Visual overview of re-valued clothes

Would never wear this (Made by Wardrobe Owner)			Not sure if this works (Based on Peer Stylist's suggestion)			Yes! I would wear this. (Based on Peer Stylist's suggestion)			Peer Stylist:								
Participant:				 Outfit 5		 Outfit 5 +			 Outfit 8			Peer Stylist: P5					
P5																	P6
P4																	P3
P3																	P4
P2																	P1
P1																	P2

Analysis

1. Visual analysis

The behavioural outcome (i.e. wearing new outfits with undesired clothes) was analysed by looking over the images that were submitted, the outfits that were suggested, and the outfits that were worn (whilst keeping the context of the Whatsapp conversations in mind).

2. Whatsapp analysis

The Whatsapp group conversations (Appendix L2) were analysed by reading them, determining what the most interesting moments were, and putting them into context per research pair. This resulted in answering the following two research questions:

3. Interview analysis

Interview notes were written down during the interview and directly typed down for details right after the interview. These notes were then marked according to whether the notes were interesting in a positive sense or a negative sense (see Appendix L4). The coloured notes were then clustered, from which an answer on the 3 research questions was formulated.

Insights

How does reframing the wardrobe digitalisation process into an outfit-based (rather than item-based) self-discovery journey influence a Wardrobe Owner’s experience of the activity?

Most people found it easy and fun to create outfits that represented their ‘true self’. The exercise was easy to do because this involved picking clothes that they would frequently wear. On the other hand, many participants found it difficult to create an outfit that did not feel like themselves at all. For some, it was just a matter of picking the clothes they hadn’t worn for a while and putting those together. Others claimed to love all their clothes already or having donated the ones they didn’t like already due to their bi-annual wardrobe clearance.

Even though the exercises were enjoyed, photographing each item was practically difficult for some because they had to find a neutral background or were picky about the time of the day (i.e. photos taken in daylight would be more beautiful). When asked whether they would photograph their whole wardrobe, they admitted that it would be a lot of work

and they were not sure if they would do that. One of the ‘negative’ comments about the individual exercises involved the time that it cost them to do it (~30 minutes per exercise, according to P3).

Nonetheless, in retrospect they did see the value of digitalising their wardrobe for several reasons: gaining an overview of their wardrobe, easily sharing outfit ideas with friends and getting styling ideas from others. Due to this, they thought that they would probably not mind investing time in digitalising their wardrobe once they start doing so. They mentioned that perhaps not the whole wardrobe would be digitalised. Ordinary items (e.g. black pants) would not be uploaded twice. A selection of favourite items and items they needed help with would probably be more realistic for them.

To what extent does interacting with a Peer Stylist influence how a Wardrobe Owner values her clothes?

Almost all participants either pictured more outfits than requested, or tried on more outfits than requested (Figure 59). 4/6 participants also ended up picturing an outfit which included an initially undesired item (Figure 58). Based on this, we can say that the perspective on their clothes has somewhat changed.

This is further supported by the Whatsapp and interview results. All participants enjoyed being styled by someone else and 5/6 participants gained at least one new outfit idea that was both surprising and fitting to their taste. The one participant (P6) who did not find something new mentioned that the outfits she wore for the final exercise were outfits that she would usually wear, and that some of the outfits used cardigans with awkward lengths.

Clothing perspectives of the remaining 5 participants were positively changed regarding the following 3 aspects:

1. Old items can be loved again.

Participants mentioned specific items that they had long forgotten about or never knew how to wear. For example, P4 once got a blouse as a present from her mother, but she never liked it and several attempts of mixing and matching didn’t make her like it more. Her

Peer Stylist then suggested wearing the blouse with a simple pair of jeans, which surprisingly P3 had never thought of herself. Now she loves the blouse again, and she has even been wearing it all day already.

2. The same item can be used for different styles.

Participants discovered new styling trips that fit their personalities. For instance, P5 mentioned that some of her garments felt too ‘netjes’ (neat) or too ‘braaf’ (innocent) to her, which prevents her from wearing them. Through her Peer Stylist, she realised that combining these items in a different way could also make something feel ‘stoerder’ (cooler).

3. New colour combinations are possible.

Some participants discovered new colour combinations. For example, P5 got inspired to do a whole mix and match session in her bedroom (before knowing this would be the final exercise) after her Style Buddy made an outfit suggestion which combined dark blue with an ochre yellow. She said her whole bedroom became a mess but it was fun to be ‘shopping in her own closet’.

What kind of social interactions will arise from the exchange of Outfit Creations?

Interactions varied by pair and which exercise the participants were busy with, but the messages could be divided in mainly three types (Figure 60):

- **‘Positive encouragement’ or ‘Respectful doubting’.** These were messages relating to feedback on either the suggested outfits or the worn outfits. Some were one-off ‘likes’ on comments (especially between P3&P4) but others managed to create a longer text chain by thoroughly reacting on each other’s picture captions.
- **‘Asking for clarification of items’.** Sometimes participants were not sure about the colour or the material of a garment, so they would ask about it. This could sometimes lead to further discussions regarding outfit ideas, especially between P5&P6.
- **‘Spontaneous desires to try it out in real life’.** 2/3 pairs casually mentioned trying things out in real life due to the inspiration they got from their Peer Stylist, even before they were asked to do so in the final research exercise.

Research overview per participant

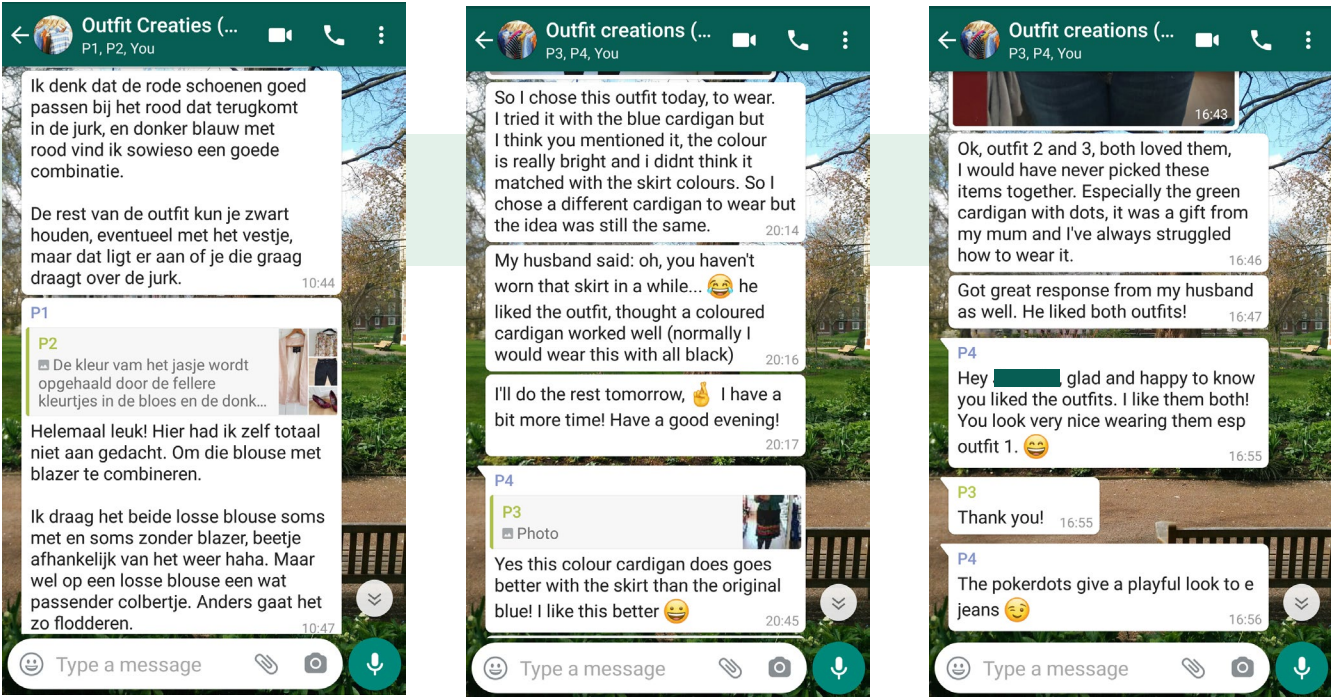
	Age	Top - Main	Top - innerlayer	Top - outerlayer	Pants	Skirts	Tights	Dresses	Shoes	Extras
P1	32	6		5	3	2		3	5	
P2	32	6		5		5	2	3	5	2
P3	36	6		5	1	4	1	4	5	1
P4	41	6	1	5	3	2	1	3	4	
P5	33	5	2	5	3	3	2	2	5	2
P6	40	5		5	2	2	3	3	4	0

	Style task 1	Style task 2	Style task 3
P1	4 outfits created	3 outfits created	2 outfits pictured, 2 tried on
P2	2 outfits created	5 outfits created	3 outfits pictured, 3 tried on
P3	2 outfits created	4 outfits created	3 outfits pictured, 3 tried on
P4	4 outfits created	6 outfits created	4 outfits pictured, 2 tried on
P5	3 outfits created	6 outfits created	5 outfits pictured
P6	2 outfits created	3 outfits created	4 outfits pictured, 1 tried on

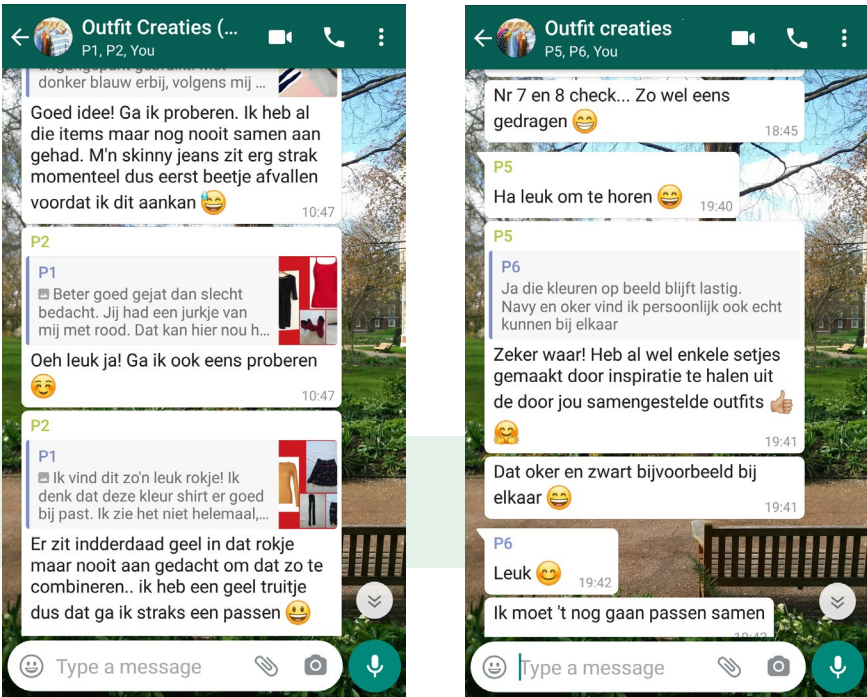
Figure 59: the amount of items and outfits that were submitted by each participant.

Figure 60:
Whatsapp group Interactions

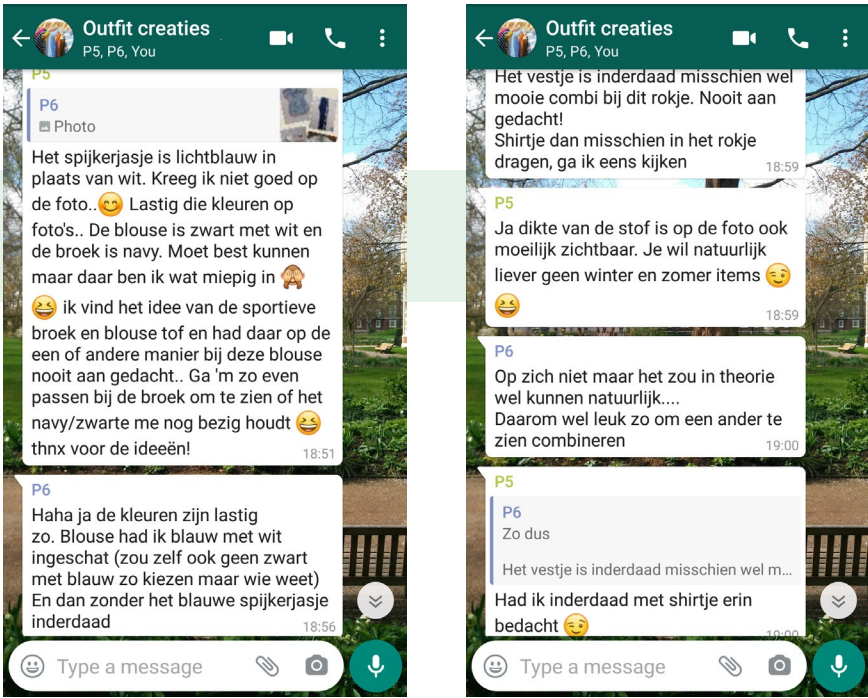
Positive encouragement



Spontaneous desire to try it out in real life



Asking for clarification of items



Clothing adjustment tip



Respectfully doubting of outfit suggestions



Overall, interactions did not last very long: at most 2 or 3 extra back-and-forth messages in reaction to the captions they were supposed to write as part of the exercises. Most participants did not think too much of the conversations, they felt either ‘gezellig’ (fun), interesting or practical (just focussing on doing the ‘assignments’ together). The latter was related to gaining more ideas or desiring feedback from the other. P4 and P5 both liked their Style Buddy’s feedback as a means to develop their styling skills together and being able to help their Style Buddy better. P2 and P3 did not find the feedback useful, though, especially because they did not know each other. P2 felt like P1 only gave feedback to the outfits that she liked but did not dare asking her opinion about the other outfits.

Additional insights

Aside from answers on the research questions, 5 interesting insights came to surface through the interviews and Whatsapp observations.

1. The collage-making process varied a lot per participant due to their own logic of how the clothes would appear clearest.

Some participants used frames to put each item in, others just freely let outfits float around on the canvas. Nevertheless, they all did it the way they did due to practical reasons (Figure 61):

- 1) creating a clear contrast between the clothes and the background;
- 2) showing which item they started styling the outfit with, by making it bigger or putting it centrally/at the top of the canvas;
- 3) putting the items in a logical layout where tops were put on top and bottoms at the bottom.

Nobody used any decoration, even though stickers and text tools were available in the Collage App.

The visual results surpassed the author’s expectations. Especially when put in frames, the results did not seem too visually displeasing despite the non-perfect item pictures. It is therefore worth considering the format in which outfits are made, assuming that the quality of pictures by users will not always be optimal.



Figure 61: example of how users would set up their canvas differently in order to show the garments most clearly.

2. The quality of pictures influenced the styling experience, but women’s workarounds created interesting social dynamics

Not surprisingly, the item pictures were not optimal due to the quality of lighting and backgrounds. It was already anticipated that this would be a problem during the styling exercises. Some of the conversations therefore led to questions from participants asking their Style Buddy whether a certain item was a certain colour or not. During the interviews, it was also mentioned that it was difficult because of the lack of details (e.g. 3 black cardigans all looked the same), a confusion of colours (e.g. whether something was blue or black) and different ideas of fitting/length.

In the user interface, this was already accounted for by including garment information when uploading something to a digital wardrobe. However, it has not been researched whether everyone would do this.

Nonetheless, participants managed surprisingly well whilst working with sub-optimal pictures. Through conversation, some of the confusion could be resolved. Participants also did not mind if the other casually swapped some items around when putting the suggested outfits together in real life; this actually spurred more conversations.

This dynamic between working with digital imperfections and changing things around in real life could be fostered in the app, as it encourages creativity and experimentation. When asked about the final exercise, most women thought it was one of the most enjoyable experiences because they got to experience how things ‘felt’ like in real life (style and colour). Taking a picture of the outfit afterwards made one of the participants feel like they just went shopping and came home with new purchases.

3. The need for additional items to style with.

The most frequently mentioned ‘downside’ of the styling exercise was that there were not enough items to choose from, even though each participant got around 25-30 items in total from their Style Buddy and 20 additional ‘basic items’ from the author in the second styling exercise. Some participants were happy to use these additional items, such as P4, who mentioned that her Style Buddy’s clothes were mostly loose-fitting whereas she herself preferred a more ‘body-hugging’ clothing style, so she used more of the basic items to create such a look for P4.

4. The connection to a webshop was appreciated.

All participants saw a demo video of the actual concept, and some of them mentioned liking the webshop because then they could see how new purchases could fit their current wardrobe.

5. The notion of strangers versus peers, and how it affects creativity and/or comfortableness.

When asked whether the participants would use the ‘real’ app with their friends, it was surprising to see that a part of the participants liked the idea of styling strangers. They said it would give them a new perspective, as working with new items or unfamiliar styles could be creatively stimulating. One participant (P5) also mentioned that styling strangers would give them more creative freedom, since they might be biased when styling friends (e.g. thinking they would never wear a certain combination anyway, and therefore not suggesting an initially creative outfit idea).

Whilst appreciating the idea of diversity when styling others, they were not sure if they would want to be styled by friends either, most often because they don’t have the same style (e.g. liking King Louie) or because they don’t see clothing as their hobby.

Some people had doubts about putting their wardrobe on the internet because you never know who’s going to see it and what they will think, while others did not care because clothes are just stuff. Doubt from most participants was mostly related to pride: wanting to show their ‘best’ items only, or alternatively also the clothes they have difficulties with.

Main takeaways - Chapter 9.1:

- There’s value in reframing the wardrobe digitalisation process into an outfit-based, self-discovery journey. The individual exercises were enjoyed, even though photographing each item still revealed practical issues (such as proper lighting). In retrospect, women did see the value of digitalising their wardrobe, although they may not choose to digitalise their whole wardrobe.
- Interacting with a Peer Stylist helped women learn several lessons: 1) Old items can be loved again; 2) The same item can be used for different styles; 3) New colour combinations are possible.
- Social interactions were promising in the test, mostly because these triggered messages of ‘Positive encouragement or ‘Respectful doubting’; ‘Asking for clarifications of items’ and ‘Spontaneous desires to try it out in real life’.
- The collage-making process varied a lot per participant due to their own logic of how the clothes would appear clearest.
- The quality of pictures influenced the styling experience, but women’s workarounds created interesting social dynamics
- The most frequently mentioned ‘downside’ of the styling exercise was that there were not enough items to style with.
- The connection to a webshop was appreciated.
- Interacting with strangers may positively affect creativity but raised privacy questions which might negatively influence comfortableness.

9.2 Customer test - design recommendations

Wardrobe digitalisation

- Framing the digitalisation process around three types of identities ('The woman I want to be', 'The woman I fear I could be' and 'The woman I am most of the time') was thought-provoking and should be kept in the app.
- A background removal tool and other technical solutions to make the digitalisation easier is still required (e.g. a connection to pictures from a brand-database).
- Users should not be forced to upload their whole wardrobe. Women distinguished between items they loved and items they had difficulties with. Once using the app, women should be encouraged to upload a sufficient amount of items from both categories. A wardrobe of around 25 items should suffice in the beginning, since the research participants already received valuable outfit suggestions based on this number of items.
- Pictures of basic items in different colours (e.g. shirts in different lengths and cuttings or pants in different lengths) should be available in the app to help the digitalisation process. This also helps peer stylists get more creative with layering.

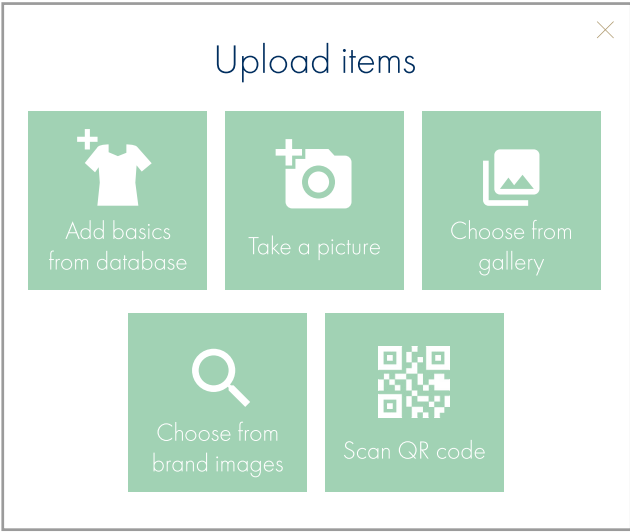
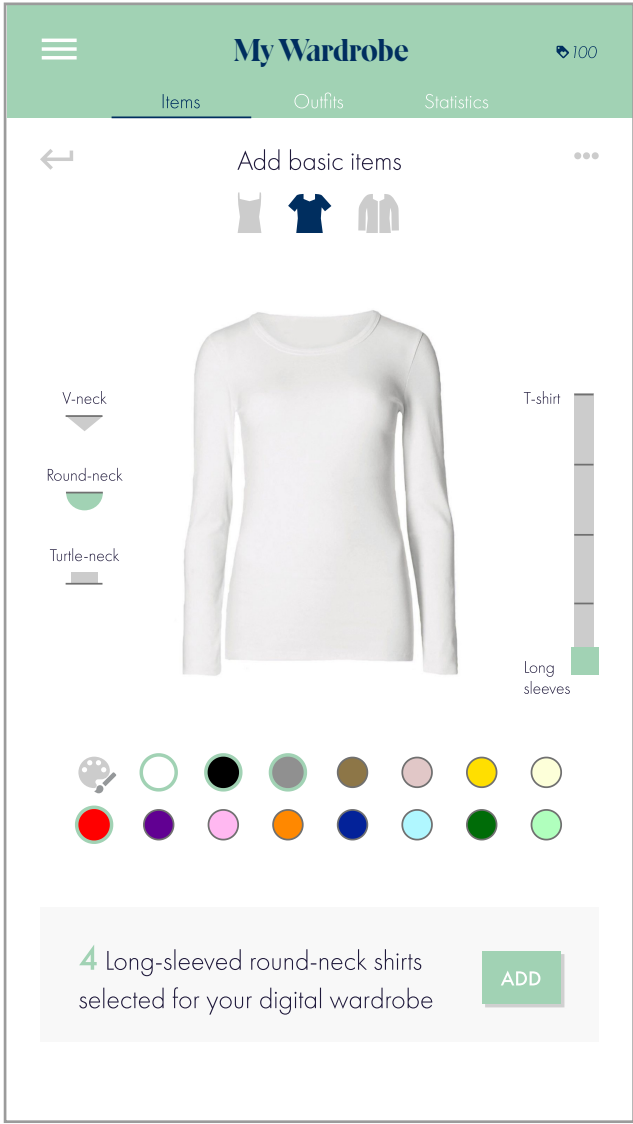


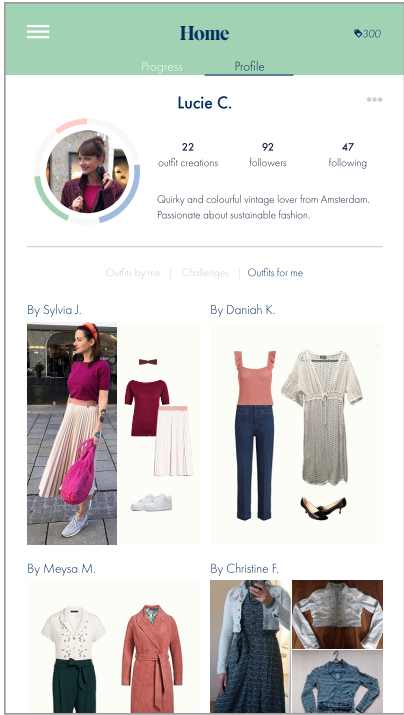
Figure 62: an additional option of uploading items could be that certain basics from a database, in different lengths and colours, can be added to the digital wardrobe.

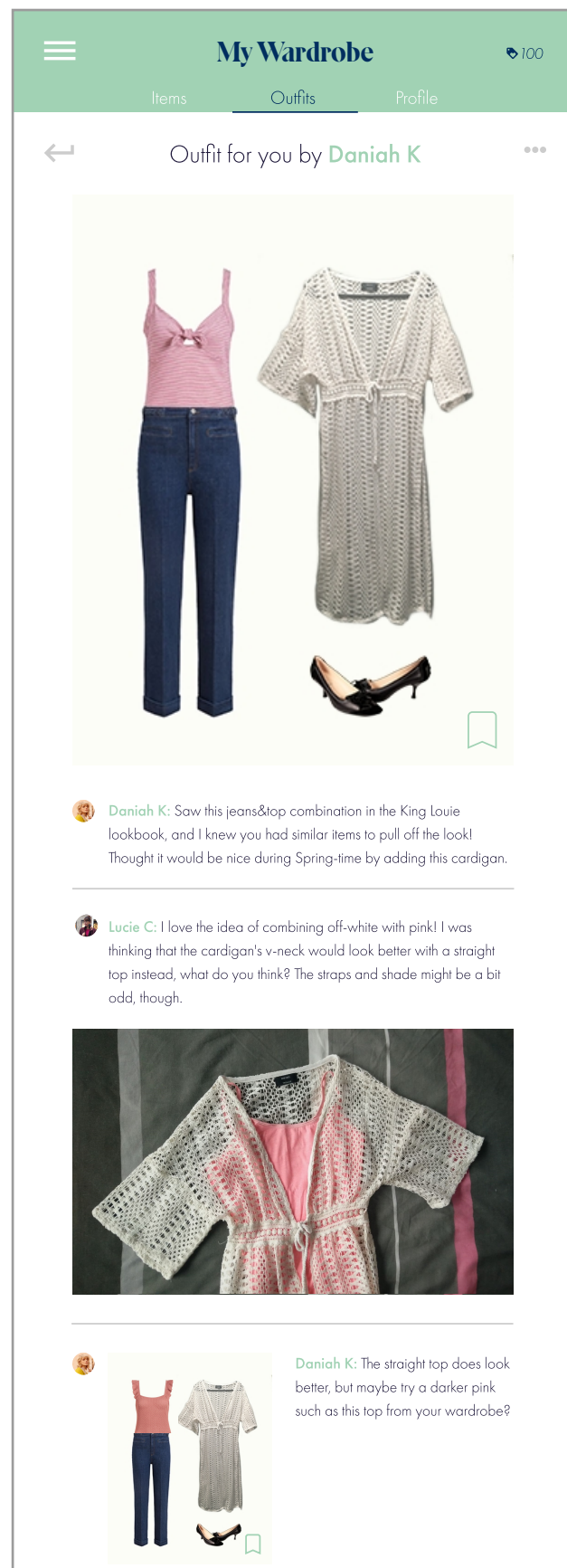


Peer styling

- Consider also working with framed collages rather than outfit collages using free-floating images. The latter only works well if pictures are of high quality and don't have a background anymore. Assuming that most pictures will be imperfect, framed collages can make the result more visually appealing.
- Imperfect pictures and combinations can spur more social interaction. Rather than fighting against the imperfection of pictures and the confusion around materials/colours, this can be used to an advantage. Next to text-based feedback, the app should allow image-based feedback so that Wardrobe Owners are also encouraged to see how outfits work in real life.
- Privacy settings should be included, which means there's a distinguishment between followers 1) who are allowed to see a Wardrobe Owner's items, and therefore style them and 2) who can only see Peer Creations. It could be that some people are considered 'friends' whereas others are seen as 'fans'. Like some social media platforms, perhaps the difference between 'following' and 'befriending' should be encouraged.

Figure 63: the (public) profile of a user will not show individual items, but only whole outfits. Users only gain access to someone's wardrobe when they have styling permissions.





Interactions that lead to wearing

- As mentioned in the 'Peer styling' design implications, users should be encouraged to share pictures of the outfits in real life. This can be by wearing it, or just by laying it out.
- People distinctly remember which clothes they haven't worn in a while, and receiving lovable outfits for these items is even more impactful. This should be highlighted for both the Wardrobe Owner and the Peer Stylist, by not only reacting on how much they like the outfit but also rating the new level of appreciation for some of the items that were used.
- The participants learned different things from the peer styling experience, and this learning can be emphasised and shared. A short rating-scale can be included with each outfit suggestion, allowing Wardrobe Owners to tick off boxes such as "I discovered a new colour combination", "I am using an item I haven't worn in a while" and "I have learned a new fashion trick."

Second-hand webshop plugin

- The combination of a webshop plug-in next to the digital wardrobe should be kept.

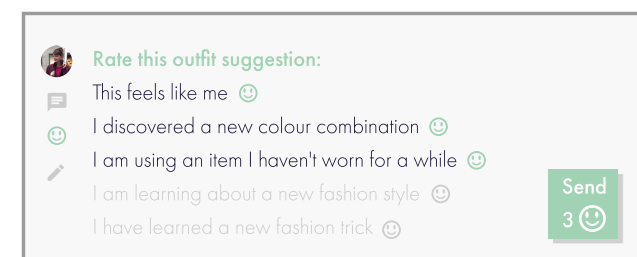


Figure 64: adjusted interaction options that encourage trying outfits out in real life, sharing the adjustments, and giving 'likes' based on how much someone learned from it or appreciated it.

9.3 Expert validation - results

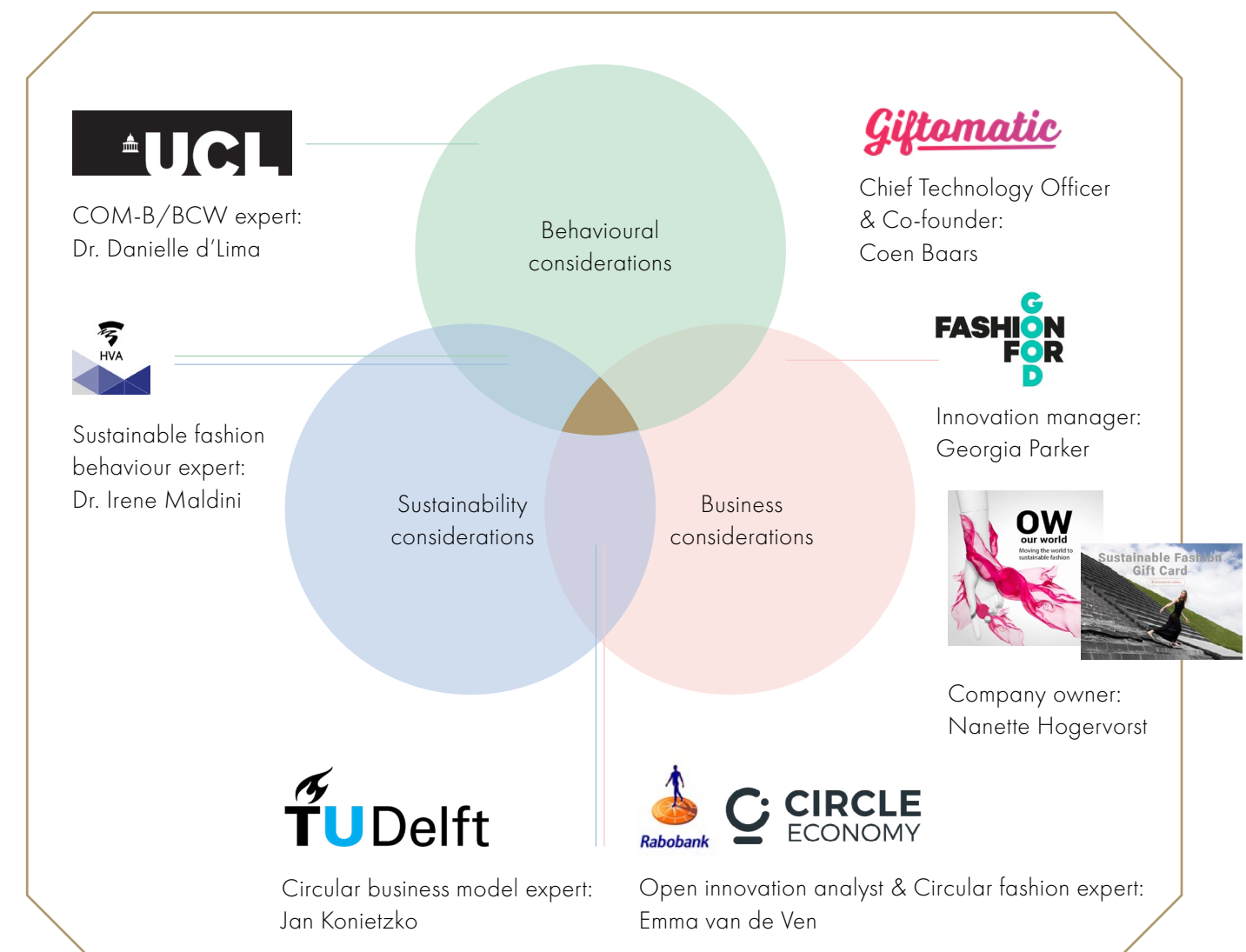
Research aim

The behavioural implications of Re:Create have been well-supported through the customer tests. Customers can however only validate the concept based on their own desires and personal experiences. On the other hand, experts can give more critical feedback in terms of wider sustainability and business goals. The expert validation sessions are therefore regarded as open conversations to seek improvement if Re:Create were launched on the market.

Research question

- Which design or research recommendations can be formulated to improve Re:Create from a business, behavioural or sustainability perspective?
- What is needed to create a convincing business case for Re:Create during the implementation phase?

Figure 65: overview of the different experts that were approached. Some experts shared knowledge in multiple fields (double lines).



Research set-up

7 experts were approached, striking a balance between academic and industry experts (Figure 65). The concept was explained by sharing a live-demo of the clickable prototype through screen-sharing software during a video call. This spurred an open discussion about what could be improved (based on the expert's field of expertise) and how implementation could be realised (mainly from the business experts). See Appendix M1-2 for all expert conversation notes.

Results

All business experts were mostly concerned about the revenue strategy. A revenue strategy is not only vital to cover development costs, but also to convince investors. Given the current COVID-19 pandemic, most fashion brands will not be able to invest in a big side-project out of Corporate Social Responsibility. It is however likely that a novel sustainability project can attract investors. The current political climate may even spur governmental support for new sustainability initiatives.

To convince investors and set a compelling business case, the following must be investigated:

- What's the revenue strategy? (E. van de Ven; C. Baars; G. Parker; N. Hogervorst)
- What is the Unique Selling Point of the app compared to others, from a business and user perspective? (G. Parker)
- What's the growth strategy? (C. Baars)
- Which fashion brands will partner up with KL; what are the sustainability and size criteria? (G. Parker; N. Hogervorst)
- What is the role of KL in the implementation strategy; how many users can they contribute? (E. van de Ven)
- What does the implementation team look like; who will oversee implementation? (C. Baars; E. van de Ven)

The input from experts regarding these questions will be incorporated in the implementation strategy (Chapter 10.1).

In terms of sustainability and behavioural implications, the perception of ReCreate was mostly positive. There is however a fine balance that must be struck between business and sustainability benefits. Behaviours such as increased consumption would create more revenue for fashion brands, but defeat the bigger purpose of the app. This leads to the following questions:

- How can sustainable purchasing behaviour be encouraged through Re:Create?
- Which broader pro-environmental behaviours are part of the 'ecosystem' in which Re:Create operates?

These questions will be answered in Chapter 9.4 through concrete recommendations.

Potential for sustainable investors in Amsterdam

In April 2020, the Amsterdam Municipality released its Amsterdam Circular Strategy for the years 2020-2025. The strategy focuses on several action points, such as those related to reducing consumerism and encouraging circularity in the textile industry (Gemeente Amsterdam, 2020a). Currently, 200 circular initiatives are being supported by the municipality (Gemeente Amsterdam, 2020b). The transition agenda recognises that the textile industry has a large impact and therefore aims to increase sharing, renting or reparation services and encouraging the decrease of consumerism. Re:Create fits the latter action point.

Pro-environmental business changes through government regulations due to COVID-19

"Air France ordered to curb competition with rail in France

One of three conditions imposed on Air France in exchange for a €7bn coronavirus aid package is to stop competing with 'Train à Grande Vitesse' services where rail offers a viable alternative."

-- International Railway Journal (May, 2020)

9.4 Expert validation: sustainability and behavioural recommendations

Striking a balance between inspiration and long-term sustainability

Based on the expert conversation with J. Konietzko, Re:Create can be seen as an effective sustainability initiative that's based on the assumption of product lifespan extension, which then decreases consumption. Tackling consumption quantities is also the best and easiest sustainability option (I. Maldini). Whether sustainability goals are reached in the long term depends on the materials that go in and out of the wardrobe (J. Konietzko), especially since users have access to a second-hand webshop through the app.

D. D'Lima (behavioural expert) was also concerned that an unintended consequence of giving people inspiration may be that women will desire more items based on their new-found understanding of what looks good on them. I. Maldini confirms that adding value to clothes may promote consumption because people get excited about what they learn and the quality of clothes, so they buy more. People with the biggest wardrobes (300-700 items) were often into sustainable fashion. Replacing the superficial interaction we have with clothes, with a deep interaction such as photographing/reflecting on them, could be effective, as long as the app emphasises the philosophy of buying less.

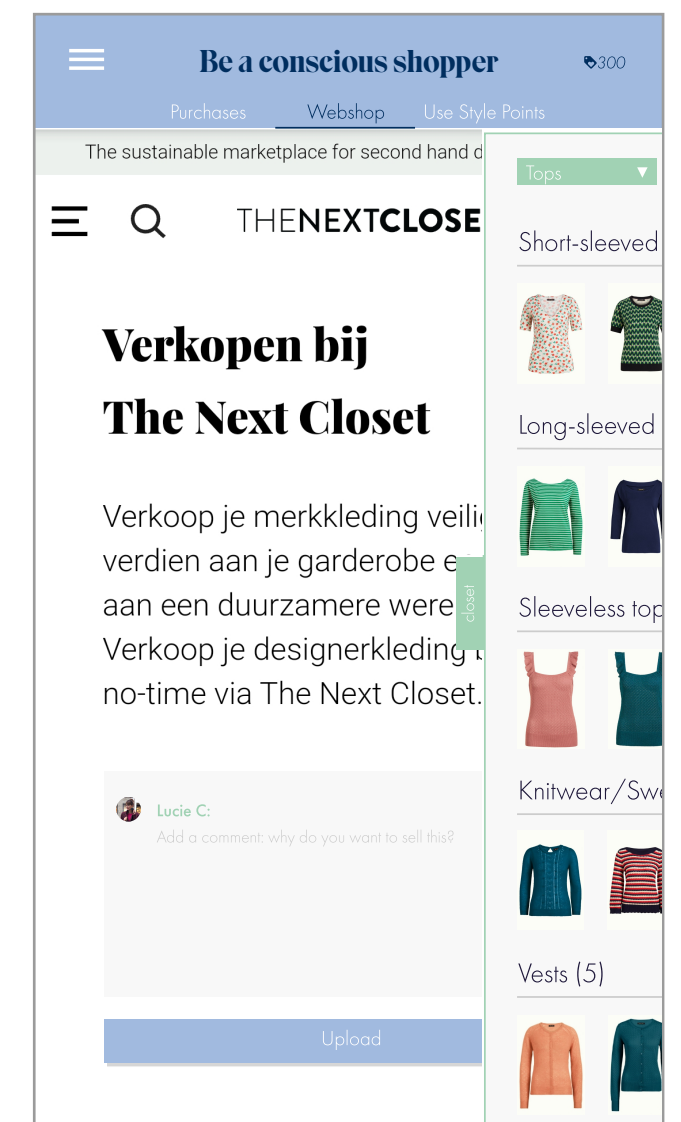
Design recommendations:

- The webshop-section should not immediately show new purchasing options, but rather the option to re-circulate clothes by selling them. This way, consumers are not immediately faced with new purchase options.

Figure 66: addition of an upload function within the second-hand webshop that allows direct exportations from Re:Create's digital wardrobe to the selling platform.

Research recommendations:

- An Outcome Evaluation to determine whether consumption has truly decreased compared with the amount of clothes that are purchased (D. d'Lima).
- A Process Evaluation to determine which features in the app have actually stimulated the product lifespan extension of clothes, so that these features can be enhanced and other features possibly omitted (D. D'Lima).



Using Style Points to encourage sustainability beyond the app.

Re:Create works with conflicting interests, as it is meant to reduce consumption but also create business benefits. Conversing about the use of Style Points, business experts would recommend discounts on clothes, whilst sustainability experts would discourage this.

From a business perspective, partnerships with non-clothing companies can still be valuable through affiliate marketing. Fashion brands can gain commission if Re:Create users purchase certain products/services/experiences through the app. From a sustainability perspective this can be justified as long as these purchases can enhance overall pro-environmental fashion behaviour.

Design recommendations:

- Style Points should be exchanged for something that can re-boost the value of clothes (Figure 67). These may be products, experiences or services that help women to take better care of their clothes (= practical value) or to personalise/transform their clothes (= self-expression value).
- The principle of 'graded tasks' can be used when deciding over the amount of Style Points that need to be exchanged for certain benefits (Figure 68). A small amount of Style Points can be exchanged for 'easier' care tasks (e.g. using sustainable washing detergent), more Points can be exchanged for 'medium' services (e.g. letting someone else repair/personalise your items) and the most 'difficult'/challenging task would require more Style Points (e.g. workshops and products to create/repair/embellish items yourself). See Appendix N1 for an overview of Style Point partners.

Research recommendations:

- A Minimum Viable Ecosystem should be created to determine which partnerships are needed to ensure long-term sustainability when clothes need to be repaired or eventually recycled once they can no longer be worn or circulated amongst users (J. Konietzko).

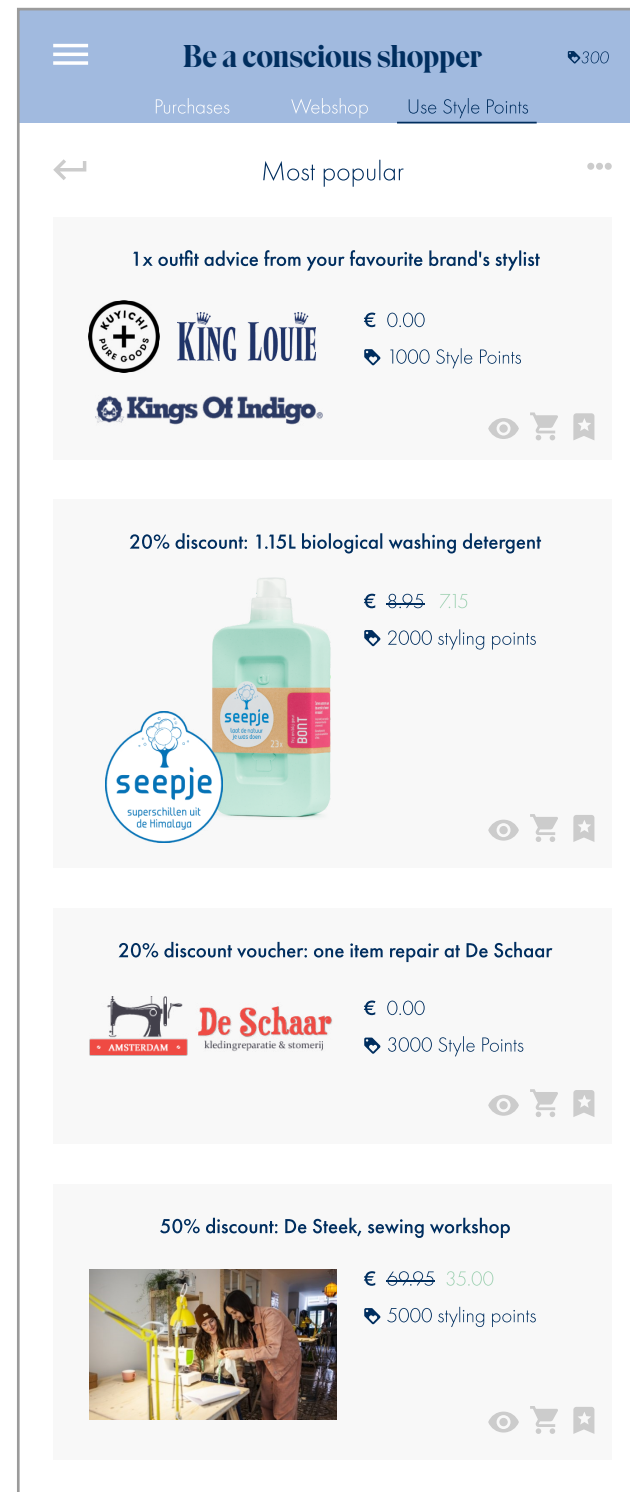
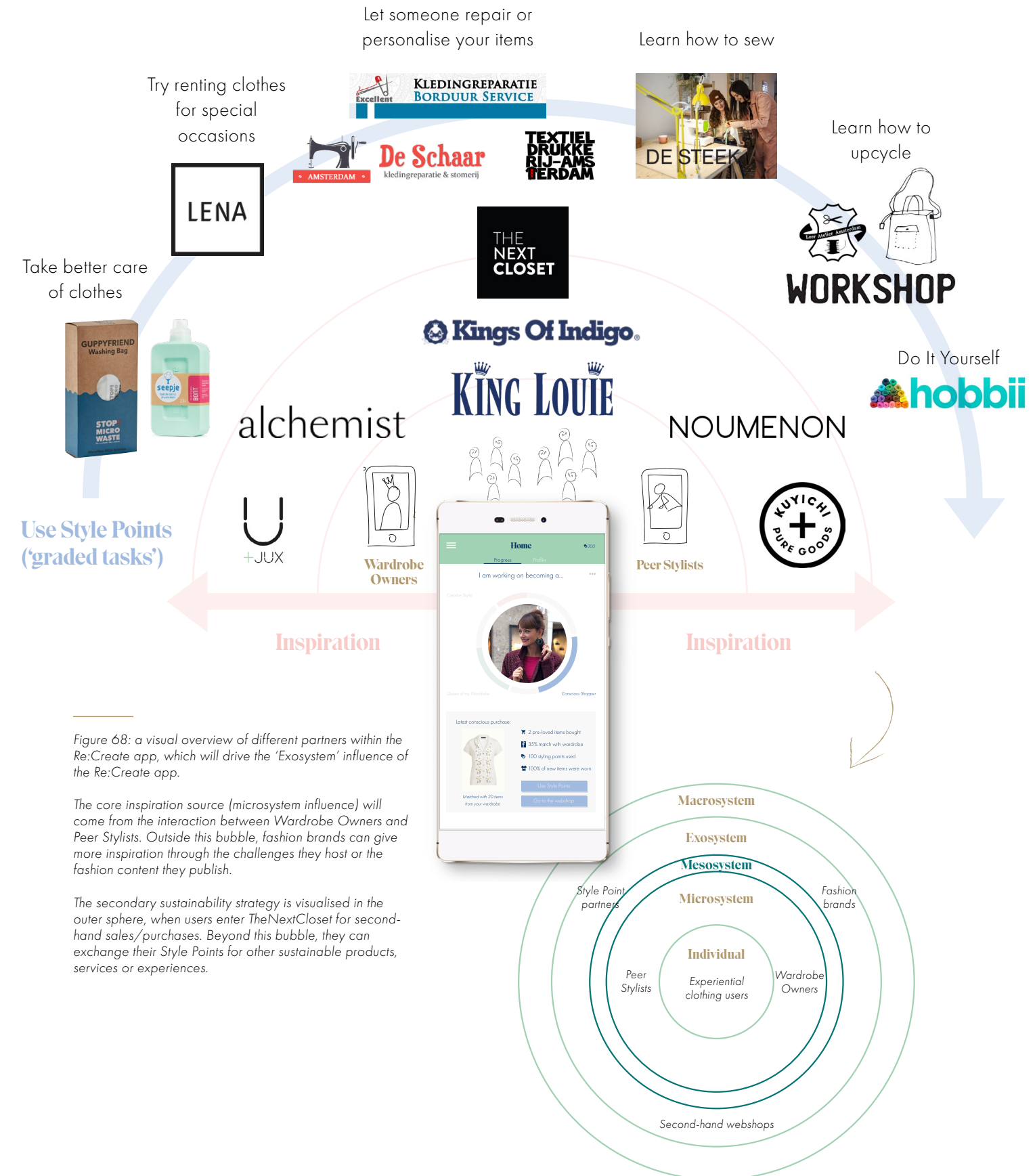


Figure 67: example of the interface

Various levels of sustainable inspiration through Re:Create



10 Implementation

The customer tests in Chapter 9 pointed out the positive behavioural impact of Peer Styling and reframing the wardrobe digitalisation process into an outfit-based, self-discovery journey. Interacting with a Peer Stylist helped women learn several lessons: 1) Old items can be loved again; 2) The same item can be used for different styles; 3) New colour combinations are possible. Social interactions were promising in the test, mostly because these triggered messages of 'Positive encouragement or 'Respectful doubting'; 'Asking for clarifications of items' and 'Spontaneous desires to try it out in real life'.

A few design recommendations were made:

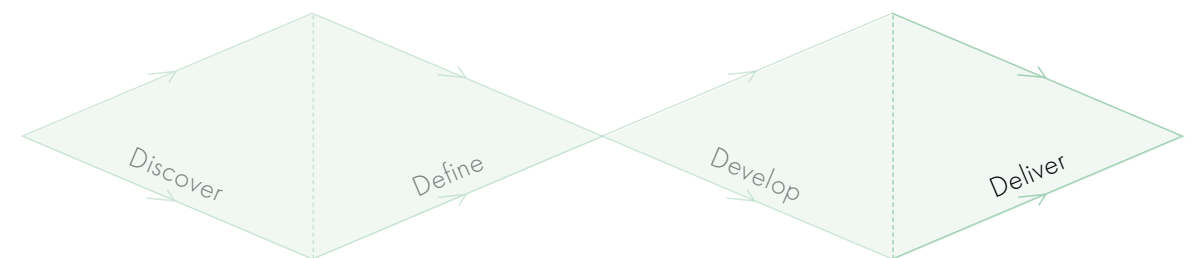
- Making the Wardrobe Digitalisation process easier with additional upload functions.
- Improving the Peer Styling experience by implementing new collage options and stimulating more interactions. Rather than fighting against the imperfection of pictures and the confusion around materials/colours, this can be used to an advantage.
- Boosting interactions by showing appreciation through what is learned from a new outfit suggestion rather than a simple 'like'.

Expert conversations pointed at the need to strike a balance between inspiration and long-term sustainability, which requires an emphasis on decreasing consumption when users enter the second-hand webshop. Style Points can further encourage sustainability beyond the app, by exchanging them for sustainable care products, services or experiences.

Chapter 10 finalises the Delivery phase with an implementation strategy.

Advice from the business experts in the previous chapters will be taken into account in order to create an implementation strategy. This includes a strategy on how growth will be achieved to cover initial development costs (revenue strategy), which potential fashion brand partners can support this and how the service blueprint will look like of the final concept.

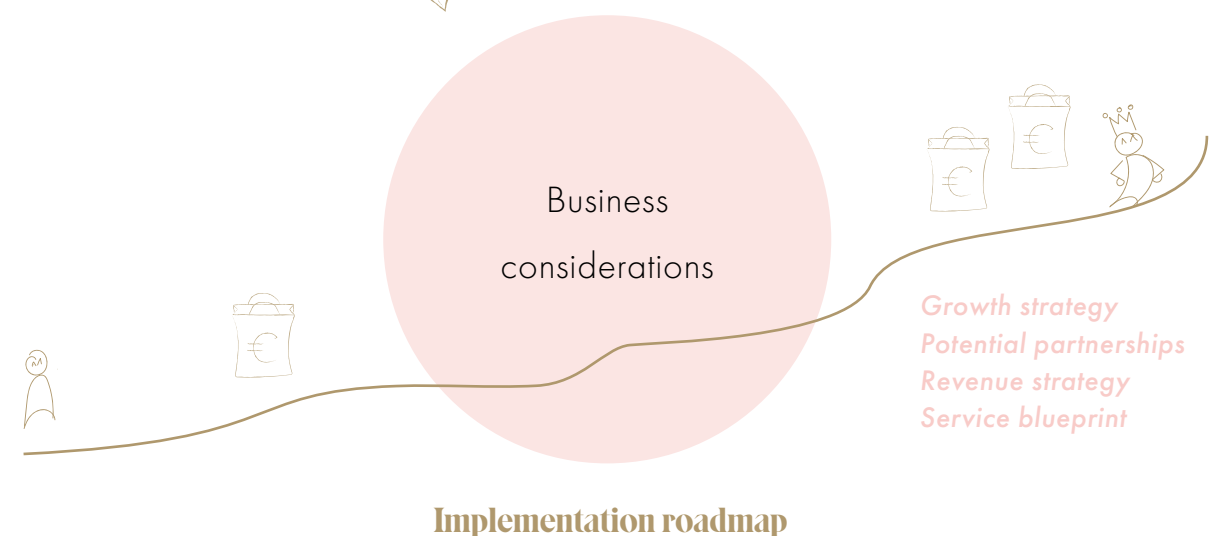
Process summary so far:



Chapter 9:

- Customer tests (n = 6)
- Expert conversations (n = 7)
- Design and research recommendations

Now we are going
here with Chapter 10



10.1 Business recommendations - strategy and roadmap

Growth strategy

The importance of user growth was emphasised by all business experts. The value of the app namely lies in its 'network effect' (Figure 69) and how a larger user base will generate both user benefits (i.e. more peer stylists) and business benefits (i.e. more brand exposure and the possibility of entering a new market segment if customers from two different brands get exposed to the other brand).

From a strategic point of view, Re:Create's full potential will not come to fruition if it is solely marketed by King Louie, due to its current main reach of women between their 40-60s interested in colourful vintage fashion. The more diverse and creative users take part in Re:Create, the more attractive the app will become. In that sense, it is comparable to dating apps: even though there are hundreds of dating apps available, each one of them have a certain vibe and attract a certain set of people (E. van de Ven).

Re:Create should therefore be marketed as a collective fashion brand effort. However, to accelerate the initial development process, it is easier to let KL implement the first Minimum Viable Product (MVP). This was decided after careful consideration of other Dutch sustainable womenswear companies, among which KL remains one of the biggest players with a potential maximum reach of ~80k users based solely on their Facebook and Instagram following (see Appendix N2 for brand comparison).

Potential partnerships

The platform should encourage high-quality and sustainable usage of clothes. Brands that are associated with the platform will therefore not be fast-fashion chains (especially since these are not accepted for second-hand sales in TheNextCloset either). Users are free to upload all their clothes in their

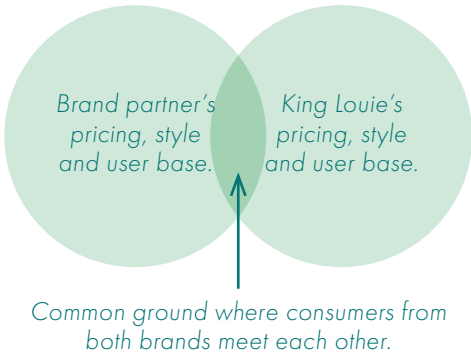
digital wardrobe, regardless of brand, but those that do upload 'high quality' or sustainable brands will have a better, more personalised app experience if the brand is connected to the platform. It would give access to high-quality item pictures from the brand itself and mixed-brand lookbooks.

A few potential brand partners were chosen based on the following criteria:

- **Sustainability:** A positive rating on the 'Good on You' app because it involves thorough sustainability reviews of several fashion brand's (G. Parker). If brands are not included in the rating, it should at least be positively included in either Project CeCe (a Dutch sustainable fashion platform) or TheNextCloset (given its criteria for high-quality clothes and sustainability tags).
- **Size:** not too big compared to KL, but also not too small; a social media reach of 5K+.

Since the concept is based on the Dutch womenswear market, a collaboration with fellow sustainable, Dutch brands seems most viable for success (e.g. Noumenon, Kings of Indigo, Kuyichi, Alchemist and Studio Jux; Appendix N2).

Once the app has gained traction, other similar brands in the EU can be considered. Ideally, the app should attract women who love high-quality clothing and being creative with fashion. Given King Louie's interest to find a younger target segment, collaborations with other brands that have such a target segment could prove valuable. There must however be a common ground between all fashion partners:



Revenue strategy

Currently, the app features that cost most money don't seem to be the ones that generate revenue (E. van de Ven). The most obvious revenue stream is the connection with the second-hand market, but this is not the USP of the app. A clear revenue strategy should at least cover initial development costs, if investors are to be convinced.

Developing a first Minimum Viable Product can cost about €50-80k (C. Baars), assuming a front-end and back-end developer is used from the Netherlands. Technically, using just these two developers is feasible given that most code-heavy features are already available from open source tools that are provided by Amazon or Google (AI-powered, targeted fashion content per item and collage-making features). Since a project manager is also needed, an initial development cost of €80k is assumed.

The business experts suggested a few revenue options:

- Membership fees for the app: creating a high-end 'lock-in' effect that encourages commitment.
- Fashion brands that 'buy' a position in the app.
- Commissions from purchases on TheNextCloset.
- Affiliate marketing from targeted advertising (not necessarily clothes, can be fashion-related products and experiences)
- Paid blogposts from influencers.

All these revenue options are a possibility, but mostly once Re:Create has gained traction. The most significant and constant revenue streams would probably come from membership fees and fashion brand partnerships (E. van de Ven; N. Hogervorst). However, users are unlikely going to pay for an unknown app from the start. Membership fees for premium services cannot be introduced until the app has created positive reviews and generated popularity. Similarly, brands will need a proof of concept before joining into the platform.

Re:Create will therefore not generate sufficient revenue until a certain user base is reached, which will be further explained in the implementation strategy.

Implementation strategy

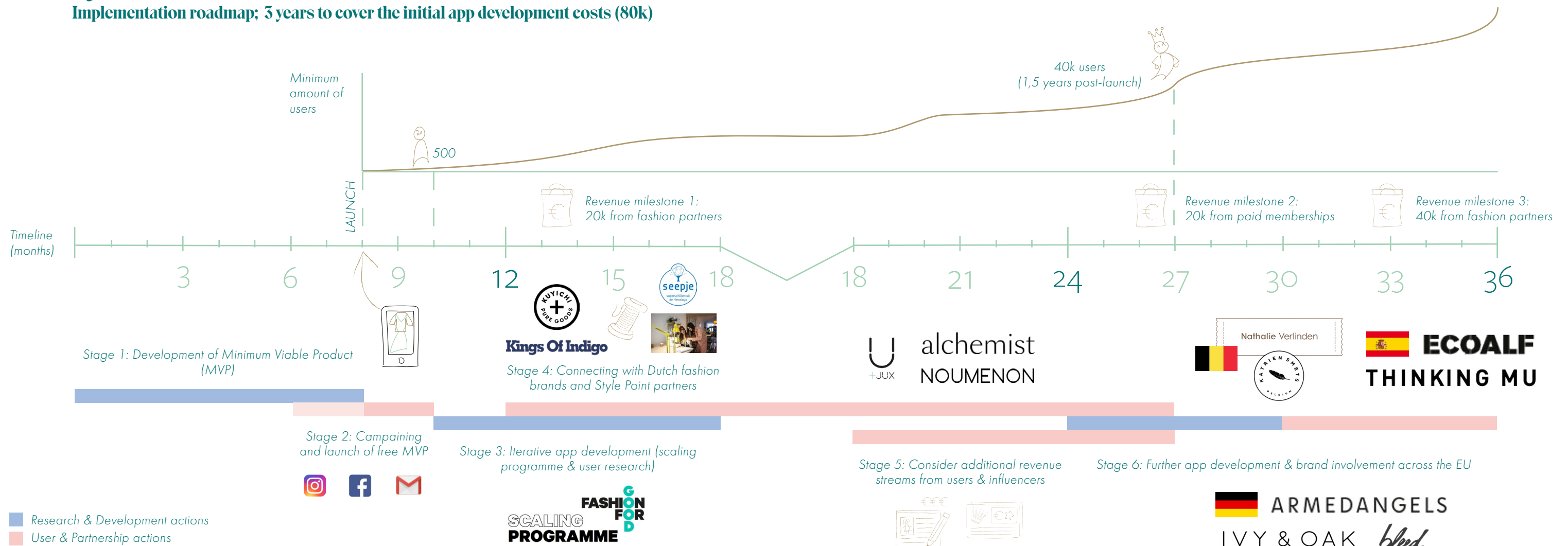
Bringing the growth strategy, revenue strategy and potential partnerships together, an implementation roadmap was developed (page 158-159). This roadmap aims to generate minimally €80k and 40k users in 3 years, in order to convince investors about the viability of covering initial development costs and further development options.

This strategy is however built on a few assumptions (Figure 70). See Figure 71 on page 158-159 for a visualisation of the implementation strategy.

Assumption	Based on...	Recommended next steps
1: Development of the first MVP will cost €80k and take about 8 months.	Expert conversation with C. Baars.	Negotiate with a digital design agency and discuss the project outline to confirm this.
2: Enough traction for a first user validation is gained at 500 users.	Expert conversation with C. Baars.	Once this amount of users has been reached, conduct user tests with 10% of this target group to ensure validation.
3: A target of 500 users can be reached within a month.	See growth calculation (Appendix N3). Ideally, 1050-1750 users can be attracted within a month by KL itself, if no membership costs are required. 500 users therefore seems viable.	Conduct a large-scale survey amongst KL customers, where a demo video of the app is shown and desirability is measured.
4: 40K users can be reached in 1.5 years if other brands are willing to collaborate.	See growth calculation (Appendix N3). Similar apps have reached 50K+ users in less than 2 years.	Conduct partnership research, sourcing interest from fashion brands by laying out the USP's of the app (from a user and business perspective).
5: Each fashion partner (based on their size) would be willing to pay about €10K to be a part of the platform. This willingness is higher when the app has more users.	KL mentioned that investing around €10K in a marketing campaign is not uncommon.	Conduct partnership research (see Assumption 4).
6: At least 5% of the users will be willing to pay for the app once it has gained traction, at a membership fee of around €10 a year.	See growth calculation (Appendix N3). The percentage was based on KL customer's willingness to pay for a personal online stylist; the fee is based on experience from the marketing team.	Conduct a large-scale survey amongst KL customers, where a demo video of the app is shown; options for premium services are explored and the willingness to pay is measured. Test behavioural economics tactics to shape information architecture (i.e. how pricing options are presented), to 'nudge' people towards choosing the membership option.

Figure 70: a table showing how the implementation strategy is based on several assumptions that may need further research activities to confirm the viability of the strategy.

Figure 71:
Implementation roadmap; 3 years to cover the initial app development costs (80k)



Stage 1 (1-8th month):

- Development of the first Minimum Viable Product (MVP) by King Louie.
- [See Chapter 10.2 for MVP development]

Stage 2 (6-10th month):

- Campaigning: attract the first users through a targeted campaign such as KL's 'ReLove' campaign which encourages people to take photos of their wardrobe and have a taste of the idea before even downloading the app.
- Launch the first MVP in the 8th month. At this point, membership is free because the concept must still prove itself (KL).
- At ~500 users with positive reviews, the first proof of concept is reached (C. Baars).

Stage 3 (10-18th month):

- Compete in e.g. Fashion for Good Scaling programme to further app development; ensuring multi-brand compatibility of the app.
- Upon successful completion, conduct UX tests and Process Evaluation to determine which features should be further developed/omitted (D. D'Lima).

Stage 4 (12-27th month):

- Secure initiatives so users can exchange Style Points for professional stylists, sustainable products, creative or sustainable clothing experiences (Chapter 9.4).
 - Source Dutch fashion brands to pay for a place on the platform. Even if 2 Dutch brands such as Kings of Indigo and Kuyichi are willing to join in already (10k each), it will cover 1/4th of the initial development costs.
- [See Chapter 10.1 for Potential Partnerships]

Stage 5 (18-27th month):

- Consider membership fees for premium services. At 40k users, 2000 premium members could be secured (e.g. 10 euro/year = 20k revenue).

- Since traction has been gained, influencers can start buying a place on this platform for targeted content (paid blogposts).
- [See Appendix N3 for user growth estimation]

Stage 6 (24-36th month):

- By now the app should be sophisticated enough and have different kinds of users already. The remaining 40k can be paid by involving more fashion partners and bloggers within the EU.
 - Further app development: consider control over second-hand webshop for added revenue.
- [See Chapter 10.2 for app development steps]

Main takeaways - Chapter 10.1:

- The importance of user growth was emphasised by all business experts. The value of the app namely lies in its 'network effect' and how a larger user base will generate both user benefits and business benefits.
- The more diverse and creative users take part in Re:Create, the more attractive the app will become. KL will have to collaborate with other fashion partners that are 1) equally (or more) interested in sustainability; 2) not too big, nor too small in size compared to KL; 3) a matching potential with KL's clothing style but not a direct style competitor.
- Developing a first Minimum Viable Product can cost about €50-80k. The roadmap aims to generate minimally €80k and 40k users in 3 years, in order to convince investors about the viability of covering initial development costs and further development options. This is however built on assumptions that must be further researched.
- A few revenue options include: 1) Premium membership fees for the app; 2) Fashion brands that 'buy' a position in the app; 3) Commissions from purchases on TheNextCloset; 4) Affiliate marketing from targeted advertising and 5) Paid blogposts from influencers.
- All these revenue options are a possibility, but mostly once Re:Create has gained traction. The most significant and constant revenue streams would probably come from membership fees and fashion brand partnerships

10.2 App development stages and service blueprint

Depending on the success of the aforementioned implementation strategy, the app can be further developed from its first MVP to its full concept potential and even beyond (if additional concept tests are conducted). The following suggestions for features are made based on what is currently believed to be the value proposition of Re:Create (Chapter 7.2), starting with MVP #1 and building up to MVP #3 based on funding opportunities.

Features for MVP #1

- Ability to upload pictures to a digital wardrobe.
- Ability to let peers make Outfit Collages for each other, using the aforementioned digital wardrobe.
- Web-plugin of TheNextCloset, integrated in the app.
- Style Points can be exchanged for outfit suggestions from KL stylists/designers.

Features for MVP #2

- Features from MVP #1
- Connection with a select few fashion brand databases to ease wardrobe digitalisation.
- Ability to create/be part of community groups.
- Style points can be exchanged for selected, sustainable products/services/experiences.

Features for MVP #3

- Features from MVP #1-2
- AI-powered, targeted fashion content (mixed-brand lookbooks, social media content, paid blogposts, etc) based on specific wardrobe items.

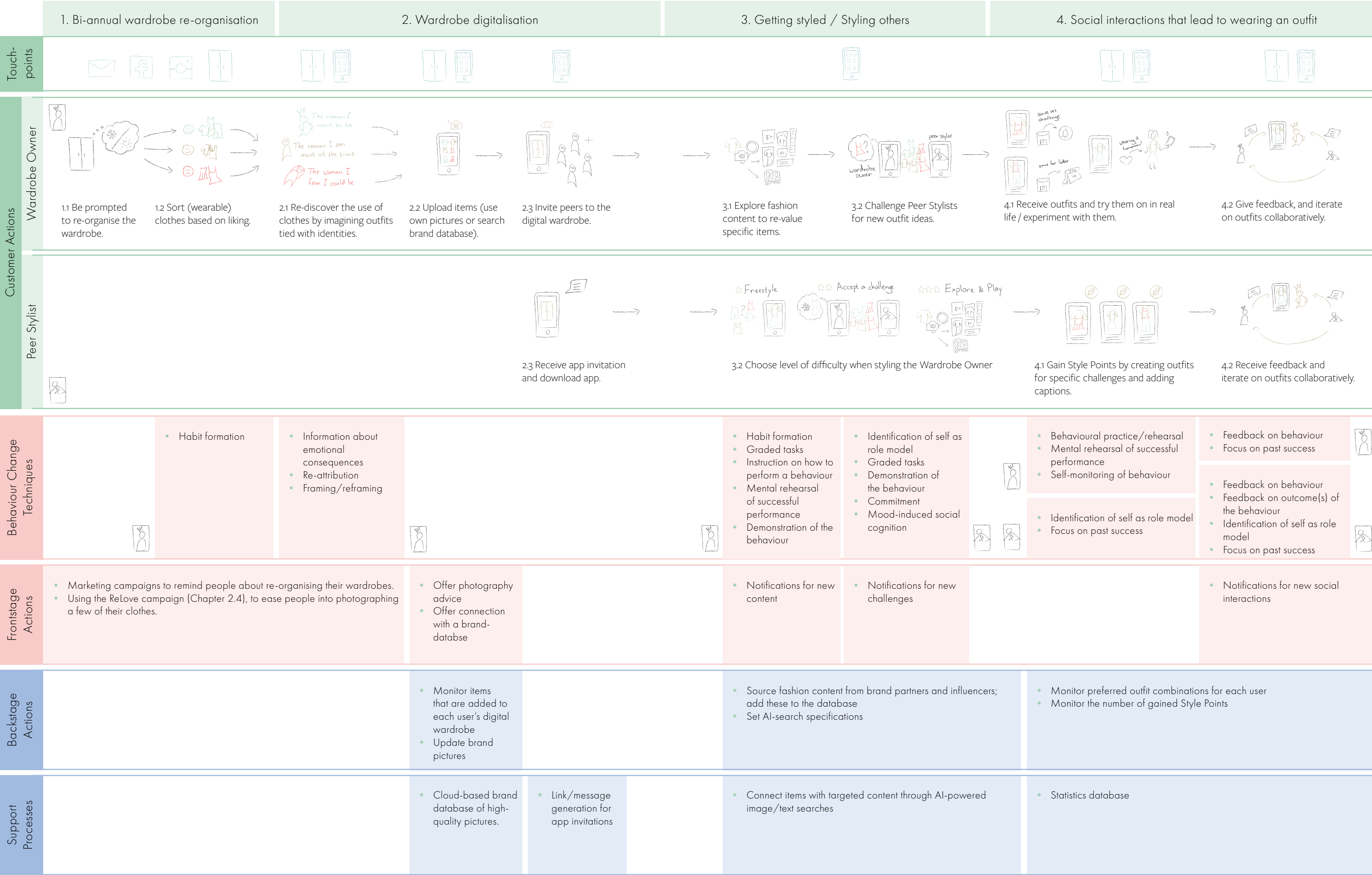
Service blueprint

A service blueprint was laid out for MVP #3 (see Figure 72, p162-165), to show which behavioural and technical considerations have been made when designing the final version of the app.









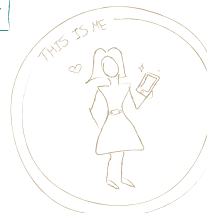





Future features:

- Implementation of premium memberships (content to be determined).
- A second-hand webshop owned by the brand partners.
- Connection of app data with targeted newsletter campaigns.
- Scannable QR-labels to ease wardrobe digitalisation.

Figure 71: Service Blueprint for Re:Create (MVP #3)



Continued Service Blueprint for Re:Create (MVP #3)

4. (continued)		5. Creating conscious		consumer behaviour		6. Reflection		Touch-points
								
<p>4.3 Building groups based on style interests.</p> <p>4.4 Gaining Style Points through additional interactions.</p> <p>4.5 Exchange Style points for products or experiences that enhance the appreciation of clothes (wearable or in need of repair).</p> 		<p>5.1 Sell items on a second-hand market when their self-expression value can no longer be boosted anymore.</p> 		<p>5.2 Only buy additional second-hand items when necessary; consciously matching them with current wardrobe items.</p> 		<p>6.1 Reflect on different identities through progress statistics.</p> <p>conscious shopper</p> 		<p>6.2 Consider becoming a Peer Stylist too.</p> 
<p>4.3 Joining groups based on style interests.</p> <p>4.4 Gaining Style Points through additional interactions.</p> <p>4.5 Exchange Style points for products or experiences that enhance the appreciation of clothes (wearable or in need of repair).</p>						<p>6.1 Reflect on different identities through progress statistics.</p> <p>Queen of my Wardrobe</p> 		<p>6.2 Consider becoming a Wardrobe Owner too.</p> 
<ul style="list-style-type: none">Feedback on behaviourIdentity associated with changed behaviourInformation about other's approvalSocial comparisonBehavioural practice/rehearsalDemonstration of the behaviourDistinctive normIngroup-outgroup biasIncentivisation 						<ul style="list-style-type: none">Focus on past successIdentity associated with changed behaviourSelf-monitoring of behaviour 		Wardrobe Owner
<ul style="list-style-type: none">Moderate the community according to community guidelines to ensure respectful behaviour		<ul style="list-style-type: none">Notifications about new Style Point benefitsOffer styling sessions from in-house designers/stylists		<ul style="list-style-type: none">Plug into second-hand webshop		<ul style="list-style-type: none">Plug into second-hand webshop		Peer Stylist
<ul style="list-style-type: none">Source fashion content from brand partners and influencers; add these to the databaseSet AI-search specifications		<ul style="list-style-type: none">Source partners for discounts/benefits and add these to the databaseMonitor usage of Style Points				<ul style="list-style-type: none">Connect item purchases with affiliate linksCollect commissions from purchases		Customer Actions
<ul style="list-style-type: none">Connect community groups with targeted content through AI-powered image/text searches		<ul style="list-style-type: none">Statistics database				<ul style="list-style-type: none">Affiliate link databaseStatistics database		Peer Stylist
								Customer Actions
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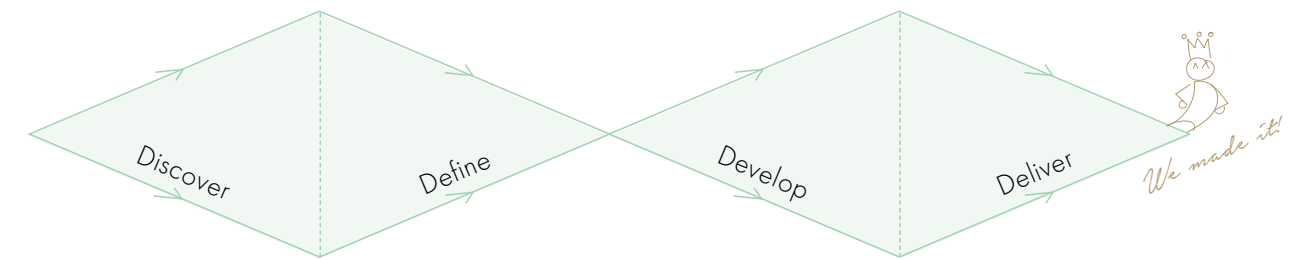
11 Discussion

Chapter 10 discussed a potential implementation roadmap; concluding that a user growth of 40k within 3 years could possibly help cover Re:Create's initial development costs. This should be possible paired with several brand partnerships, and hopefully convince investors about the viability of the app. The accompanied service blueprint showed which actions must be taken throughout the Re:Create service in order to keep traction going. With this, the design iterations have come to an end (at least in this project).

This final chapter will finalise the design project through reflection.

When the author embarked on the adventure of this design project, a behavioural goal and a business goal was set. These goals will be reflected upon. Additionally, this project has brought together two disciplines (behavioural science and design). Up until now, the BCW approach has rarely been combined with service design. Furthermore, this is also one of the first projects which applies this approach in the fashion industry. This methodological novelty asks for some reflections as well.

Process summary



Chapter 1:

- Literature research (behaviour, business & sustainability)
- Methodological frameworks

Chapter 2:

- Marketing Mix
- Social media research
- KL sustainability research

Chapter 3:

- Literature research
- Surveys (n=78; n=163)
- Interviews (n=10) and COM-B analysis
- Intervention Functions

Chapter 4:

- Design guidelines
- Design goal (target group & creative territories)
- Design rationale

Chapter 5:

- Influencer research
- Expert conversations
- Ideation
- Conceptualisation

Chapter 6:

- KL colleague test (n = 2)
- Sustainability exploration
- Peer design test (n = 4)
- Wardrobe app comparison

Chapter 7:

- Value proposition model
- Business model canvas
- Circular economy business model framework
- Customer journey mapping
- Behaviour Change Techniques

Chapter 8:

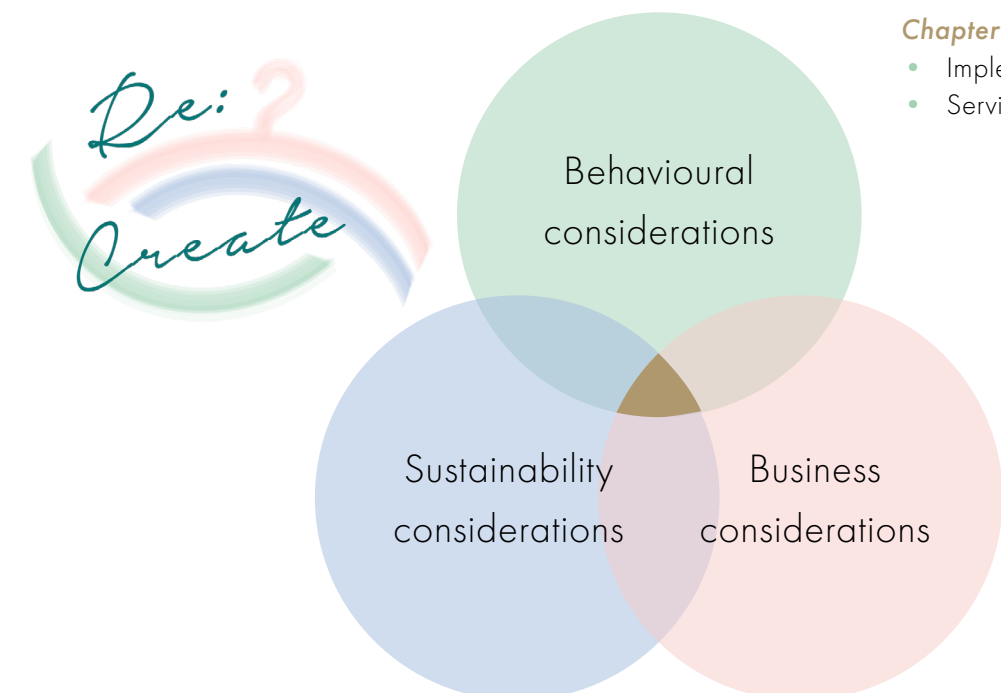
- User interface prototyping

Chapter 9:

- Customer tests (n = 6)
- Expert conversations (n = 7)
- Design and research recommendations

Chapter 10:

- Implementation roadmap
- Service blueprint



11.1 Reflecting on the design outcome

Has the behavioural goal been reached?

The purpose of the project was to design a behavioural intervention that could reduce clothing consumption and decrease underutilisation of clothes. Based on the concept tests, the latter has somewhat been achieved for the participants, judging on the desirability of the app. Each of the participants expressed enthusiasm in the way they 're-discovered' their wardrobe and have found at least one new outfit from previously unloved clothes. These outfits have willingly been worn in real life as well. Contrary to the author's expectations, they did not mind having to photograph their items despite the time and effort that was needed. This was because, in retrospect, they saw the value of doing this (getting a wardrobe overview and gaining peer styling suggestions). The tasks also helped them look at their wardrobe with new eyes.

However, these behavioural effects have only been determined by a very small sample, in a research setting during a narrow time period. Furthermore, women were likely to have more time to do the exercises: COVID-19 has made the tests a welcome distraction. It is unclear how long women will make use of the app when lives go on as usual, how many 'unloved' clothes can be re-appreciated, and whether this will be due to a boost of its self-expression value or not. The long-term behavioural effects have not been measured through the tests, which means no conclusion can be made on whether clothing consumption and underutilisation of clothes will actually decrease. Furthermore, the app is connected to a second-hand webshop, but the potential amount of 'new' purchases' versus what is kept has not been taken into the equation.

A bigger test should be done with the developed app, where participants can also be tested on the effectiveness of the BCTs rather than just the overall outcome. If a design test is only done based on its outcomes, it is hard to determine which elements of the app truly encouraged the behavioural change.

As mentioned in the expert validation write-up (Chapter 9.3), the following research activities should have been conducted if time allowed this:

- A long-term 'Outcome Evaluation' comparing clothing quantities before and after the design intervention.
- A 'Process Evaluation' to determine which BCTs/features led to actual behaviour change.

Has the business goal been reached?

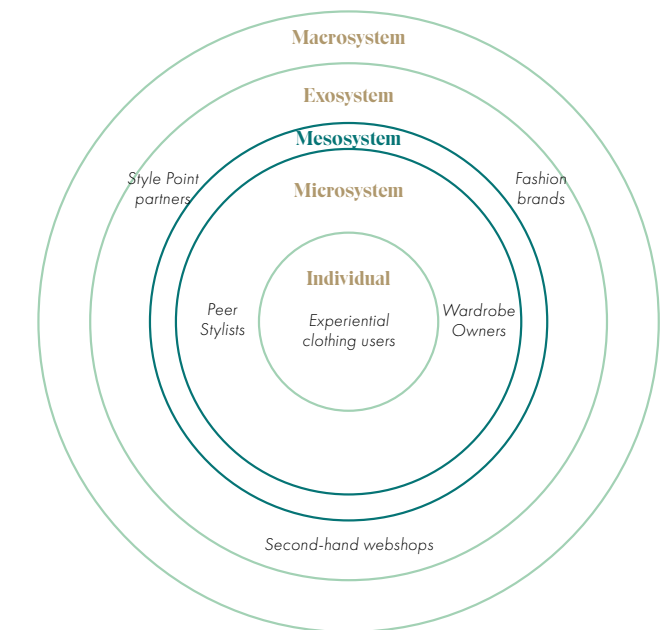
The business goal was mostly to formulate a new circular business model for KL, meaning there should be a balance between the business and sustainability outcomes of the concept.

At first, the author was eager to explore access-based business models only (such as renting or sharing initiatives). This was mainly driven by a desire to start the project with something specific to do a behavioural analysis on, and the author's personal interest in the sharing economy. Based on the supervisory team's advice and the research insights, the project has taken a broader starting point, creating a new type of service based on consumer needs. The business case was then built around this service, made tangible through a completed business model canvas, value proposition, revenue strategy, growth strategy, implementation strategy and service blueprint. These design results show that a sustainable service can be feasible and viable.

Although the result has proven to be suitable and behaviourally promising in the end, the circular business implications of the project have not been very deeply researched. Some tools and literature were used based on circular economy principles. The final concept does focus on product-life extension through individual and collaborative reuse of products, but not a deep understanding has been cultivated of other circular business models. In that sense, the currently proposed business model cannot be compared with existing business models to determine whether the proposed effects will truly have a positive environmental impact.

The wider business-implications, in terms of a more system's thinking approach, has also been neglected due to the scope of the project. However, the author does believe that creating true impact in the fashion industry would require both a bottom-up and top-down approach. In this case, a bottom-up approach was chosen which may put a lot of emphasis on the consumer (individual level of influence according to the socio-ecological model). Mapping out potential fashion brand partners and Style Point partners have created the first steps towards a 'Minimum Viable

Ecosystem' (expanding into the microsystem and exosystem-level of influence according to the socio-ecological model). Future projects should determine the wider systematic influences from a top-down view to decrease consumerism as well (macrosystem-level):



In terms of the revenue strategy, a few options have been given but the main revenue streams will be dependent on the network effect of the app (i.e. how many users can be attracted). It is therefore not possible to make a conclusion about whether the currently proposed business model will be profitable for fashion companies, but its potential of attracting new consumer segments does create a business case.

As mentioned in the expert validation write-up (Chapter 9.3 & 10.1), the following research activities should have been taken if time allowed for this:

- Partnership research to strengthen the business case and create a Minimum Viable Ecosystem.
- A large-scale, quantitative desirability measurement amongst users.
- A large-scale, mixed-method research measuring the willingness to pay for a premium service, what the contents of the premium service should be and how these can be made more desirable through behavioural economics.

11.2 Reflecting on the methodology

General remarks: placing the method in an academic context

This design project was unique because it is one of the firsts that uses the BCW approach in the fashion industry, whilst combining it with a service design approach. Using this combined approach was a challenge, especially because of the different mindsets between disciplines.

The author is part of only the second cohort from the Behaviour Change course at University College London (UCL); the behavioural science programme that invented the BCW approach. The method was created as a systematic way of matching intervention types/features, the behavioural target, population and context of an intervention (Michie, Van Stralen & West, 2011). It is clearly divided by several steps/tools where intervention designers are urged to make evidence-based, systematic decisions.

This method has gained a lot of traction in literature, especially in the health sector, but the author has had doubts about the applicability of the method in commercial settings. Furthermore, it has rarely been combined with a design approach.

The main concern was that the evidence-based, linear approach from the BCW (compared to an explorative, context- and business-based, iterative design approach) would lead to a loss of context and creativity, 'sterilising' any design solutions. It seemed impossible to combine the two disciplines, but the paper that 'Aligned and Combined' a COM-B analysis with a customer journey mapping approach (Elizarova and Kahn, 2018) offered some perspective. Following it, the hope was to use a concrete, evidence-based behavioural method without designing a behavioural service design method from scratch.

Difficulties during the project

1. A mismatch between the analysed behaviour and the newly-designed behaviour

The first difficulty already appeared in the first three steps of the BCW: 1) Define the problem in behavioural terms, 2) Select target behaviour and 3) Specify the target behaviour. As a designer, the author was used to finding a problem by doing explorative research. This problem will often be 're-framed' to create a design opportunity. This difference in mindsets (analysing one specific problem versus finding an opportunity) already led to difficulties determining a specific target behaviour. Oftentimes, a designer might spur a new behaviour that has not been researched before, which makes it impossible to do a 'behavioural analysis' based on the COM-B model.

In this case, the author conducted in-depth interviews to understand several behaviours and attitudes across the whole customer clothing journey. This meant that she was analysing several behaviours, as opposed to one specific behaviour. This resulted in finding an unforeseen behavioural opportunity (wardrobe reorganisation); but applying a COM-B analysis to this did not seem helpful if the actual behavioural outcome was supposed to be a decrease in clothing consumption. There was a mismatch between the COM-B analysis and the target behaviour, so to speak.

2. Juggling between an iterative mindset and a systematic mindset

The second difficulty was swapping between a designer's and a behavioural scientist's mindset; having to decide when iteration was appropriate or whether behavioural science was merely 'reverse-engineered'

into the design due to a lack of systematic decision-making. The breadth of the COM-B analysis made it questionable whether jumping from Intervention categories straight into BCTs would be wise. It felt like more design explorations were needed before specifying a concept through BCTs, since the 'new clothing behaviour' (created through the concept) had not been specified yet.

The BCW approach was therefore left aside during the ideation and conceptualisation phase, whilst only vaguely keeping the chosen Intervention Functions in mind. Ideating without rigidly clasp onto the BCW approach allowed the author to develop out-of-the-box solutions and an understanding of other context-appropriate IFs, especially since the BCW-matrix pointed out that every IF could be possible based on the chosen COM-B factors. Choosing the IFs was therefore more of an iterative process, where the initial choice of 'Modelling' was first used to spur ideation, but further ideas tapped into the potential of using 'Persuasion' and 'Training' as IFs.

Despite the author's concern about this iterative approach, the expert validation with D. D'Lima (UCL) however confirmed the appropriateness of using the method with such flexibility if decisions were well-argued and transparent.

3. The perceived lack of behavioural theories

Thirdly, the actual use of behavioural theories (using BCTs) was pushed very late into the process. As mentioned before, it did not make sense to detail a concept based on BCTs without understanding the context and potential interactions with the desired concept. The integration of BCTs into the concept was therefore also very iterative. At one point, it was decided that the BCTs did not leverage enough social influences. Other, general behavioural theories related to social influences had to be employed from literature in order to create the desired behavioural effect.

If time allowed it, the author would have liked to make use of principles from behavioural economics. However, given that the method is different, mixing these would have made the design process even more difficult.

Conclusion

These three points show that the BCW approach can be useful in guiding designers towards the appropriate type of behavioural theories, but that it is also just a tool in the end that must be tailored to the design method. Furthermore, the guidance of literature is crucial to truly understand the BCTs and additional theories that might be employed during the design process.

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Appendix

Appendices have been included in a separate document, and contain the following content:

- A. Graduation proposal: TU Delft
- B1. KL's sustainable garments (Winter 2019)
- B2. KL's supply chain
- C1. Survey A: set-up
- C2. Survey B: set-up
- C3. Relevant survey results
- D1. Consumer interviews: set-up
- D2. Consumer interviews: transcript
- D3. Consumer interviews: insights with quotes
- D4. Dismissed Intervention Functions
- E. KL Facebook group interactions
- F1. Ideation: notes from casual chats
- F2. Ideation: clusters
- F3. Ideation iteration: scamper



- G1. Design exploration: KL colleague results
- G2. Design exploration: summarised results
- H1. Peer design-tests: set-up
- H2. Peer design-tests: individual results
- H3. Peer design-tests: Wardrobe Owner's view
- H4. Peer design-tests: summarised results
- I. Renting/sharing considerations
- J. App analysis: digital wardrobes
- K. Behaviour Change Techniques: selection
- L1. Customer concept tests: set-up
- L2. Customer concept tests: Whatsapp transcripts
- L3. Customer concept tests: visual results
- L4. Customer concept tests: interviews
- M1. Expert notes (business/sustainability)
- M2. Expert notes (behaviour/sustainability)
- N1. Potential Style Point partners
- N2. Potential fashion brand partners
- N3. Potential growth calculation



De:Create

