

The circular economy (is) in fashion

An investment decision support tool for fashion brands interested in circular fashion rental services



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May 10th 2019

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0: the content

The executive summary

- The context**
- The goal**
- The tool**
- The report**

The reader's manual

- The Executive**
- The Professional**
- The Researcher**
- The think boxes**

1: the introduction

C&A Foundation

The fashion rental model

The current situation

- The circular economy & services**

The gridlock

The function of design

- The trouble in the fashion industry**

2: the research

The research question

The research approach

- The inventory phase**
- The research phase**
- The design phase**
- The validation phase**
- The Dead Animal Shelter**

The design brief

The positioning

- The success indicators**

3: the operations

The introduction

The service design process

The service design steps

The touch points

The service blueprint

The design tool overlap

- The CSMC vs. BMC**
- The DST application**

The service design complexity

4: the customers

The introduction

- The bright side of consumerism**

The service design relevance

- The brand identity**

The theory applied

- The DST application**

2

4

4

4

4

5

6

6

6

7

7

8

8

9

10

11

12

13

14

16

16

17

18

19

19

20

21

21

22

24

24

24

25

26

27

30

31

34

34

36

36

39

40

42

42

43

5: the business

The rental market

The price of renting

- The profit-driven service design**

The business case design

The sensitivity analysis

The rental models

- The DST application**

The dynamic model

6: the decision support tool

The introduction

- The business case as a tool**

- The relationships & parameters**

The DST in general

The DST questions

- The value of style**

The parameters & questions

The safety margins

- The advice**

The DST in action

7: the DST's implications

The business & research implications

- The research**

- The theory**

- The design tool**

- The parametric business case**

The assessment of the DST

8: the recommendations

DST recommendations

Personal conclusions

- The acknowledgements**

- The graduation lessons**

- The first lesson**

- The second lesson**

- The third lesson**

- The fourth lesson**

9: the references

44

44

45

46

46

47

49

49

50

52

52

52

53

53

54

59

62

64

64

65

68

68

68

68

68

68

69

70

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71

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71

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71

72

72

74

"Fashion repeats itself.
Cycles and recycles should happen
until someone breaks the rules.
And that person becomes part of history."

Vogue Italy, September 2010

The executive summary

The context

In May of 2019 Accenture and Fashion for Good joined forces¹ and produced the first large-scale research report detailing the possibilities of circular economy services for existing fashion brands. In June of 2019 C&A Foundation and TU Delft published the report you are reading now: an investment Decision Support Tool (DST) that gives an indication of the potential profitability of a circular fashion service. The DST is based on in-depth research, extending the scope of the report by Accenture and Fashion for Good into actionable advice.

The research behind this report is a combination of qualitative and empathic consumer research, quantitative and data-driven research and design research, where assumptions are continuously validated. The design approach adds a new dimension to the existing research on this topic, by demonstrating how to apply the acquired knowledge and effectively capitalise on it. The field of strategic service design concerns itself with three interrelating fields:

- Operations: the feasibility of a rental service design
- Customers: the desirability and (hidden) need for rental services
- Business: the viability of a new circular service model

This report focuses on rental services in which products remain in the brand's ownership and are rented out to customers instead of sold. Newcomers and start-ups using this model are growing exponentially, while fashion companies are lagging behind.

The tool

The decision support tool (DST) was designed to help these fashion companies by simplifying the fuzzy front end of creating a service in a traditionally linear company. The DST is unique in its kind: it is a parametric business case that predicts the potential profitability of a circular fashion service. The tool collects data on the company's current situation, which is translated in the adaptive and predictive model, generating investment advice based on the unique profile of the specific fashion brand.

The model is based on a service model created to maximise the value of the company's existing assets, knowledge and supply chain. It simultaneously builds on an outsourcing strategy, radically decreasing the overhead costs and making the business scalable for any company.

This advice and the service model serve as a foundation for companies to build on. It covers the basics needed to offer the service, but it can easily be expanded to meet the specific needs of the company and their customers. A new service design canvas was created, for the basic rental service and any extension to it, guiding companies in the service design process after they have decided to engage with it based on the tool's advice.

The report

This report is a summary of all the research and reasoning behind the tool, offering the reader an extensive overview of the service design intricacies. It is the goal of the DST and this report to lower the threshold of servitisation in the fashion industry through research, design and advice.

¹ Morrison, Petherick & Ley, 2019

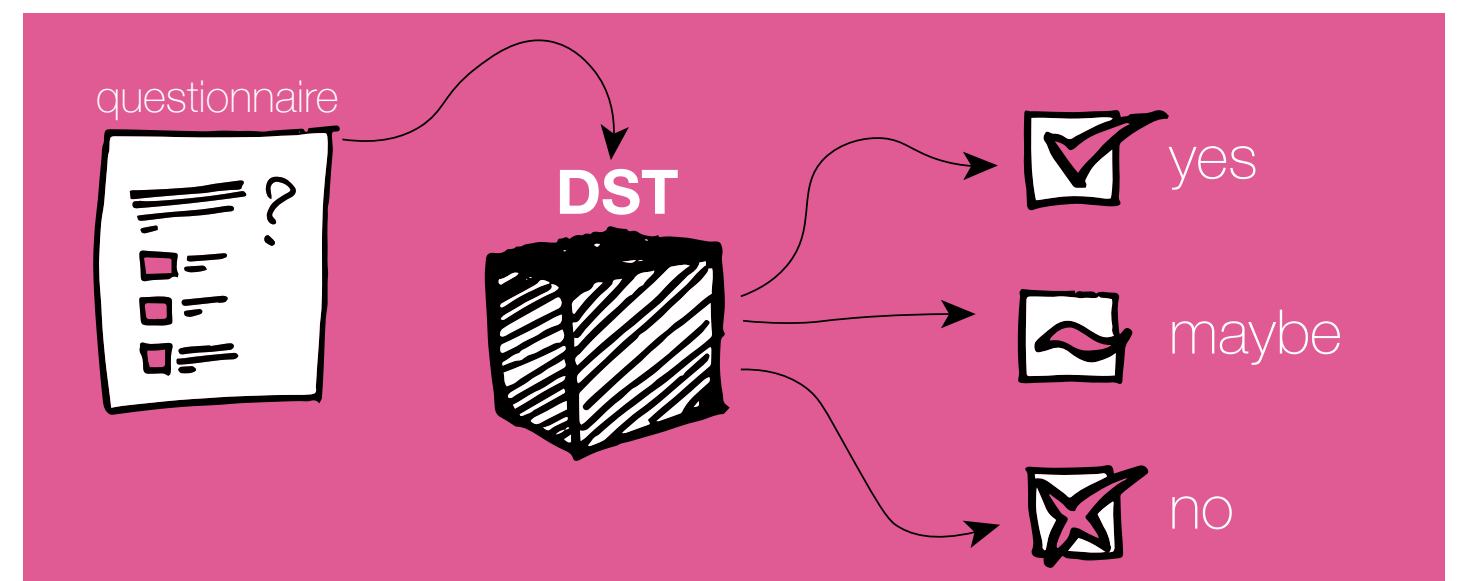


Image 1: the DST as a black box, from a questionnaire to an investment advice

The reader's manual

This report is written with three readers in mind: the Executive, the Professional and the Researcher. These three people have different levels of interest for specific portions of this report. Therefore the report is written according to the Wisdom Knowledge Information Data structure (Image 2), leading with the high level conclusions and going more into detail throughout the chapter. It is important to understand which type you are, so that you do not miss any information, or get bored before the good part starts.

The Executive

The executives read this report because they are interested in the topic of the report – they might consider investing in research into servitisation for their company, or they want to know what to expect from their competitors. Executives' time is very expensive, so **each spread will quickly show its main content through bold highlights and magenta titles¹**.

Throughout the report the key structures and findings are drawn up in diagrams, figures and charts – these are worth scanning through. For convenience each diagram, core conclusion or relevant example is placed in a magenta box. These are quite hard to miss, as demonstrated by Image 2. Reading this report from an Executive perspective will take around 20 minutes.

The Professional

There are Professionals in many different fields. The Professionals read this report with the intention to directly apply its knowledge in their area of expertise. This is often a function within a fashion-related company, but the Professionals could also be entrepreneurs, journalists or consultants – someone who knows the topic of circular economy in the fashion industry. The Professional is mostly interested in the potential of the knowledge offered in this report in application, but less so in the scientific theory.

This report is written with the Professional in mind, focussing on the practical application of the research, so it was written for actionability. It is likely that the Professionals will have different levels of resonance with different parts. The multi-disciplinary approach is taken because the innovation process requires collaboration between different experts.

¹ Elliott, 2019

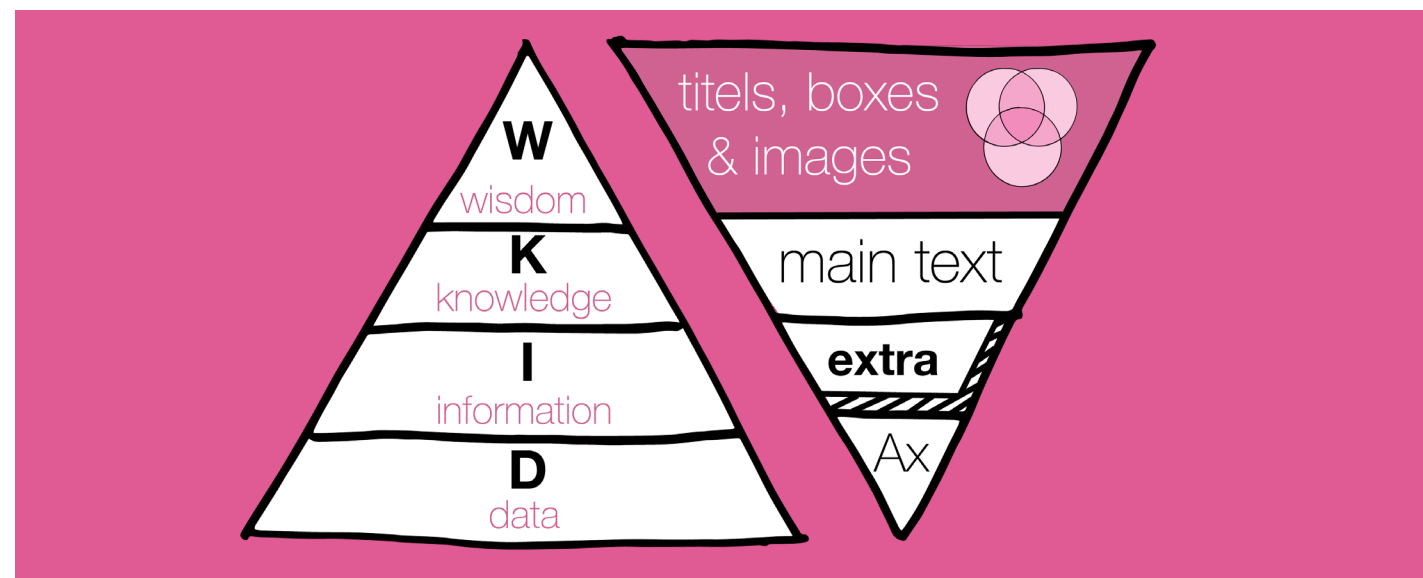


Image 2: structure and visual cues in this report, according to the wisdom - knowledge - data pyramid

The Researcher

The research on which this report was built was commissioned by C&A Foundation and executed in collaboration with Delft University of Technology. The resulting information and tool outlined in this report therefore have a scientific foundation. Almost all research was migrated to the appendices of this report for the sake of brevity and readability. The core conclusions from the research are incorporated, only the raw research data is excluded from the main text.

The appendices are structured independently; they read as a chronological overview of the research that was done. Each appendix has an introduction, which explains the background behind the research and the method(s) used. The appendices are available in a separate document and should be read parallel to this report.

The think boxes

Some innovative research results are however included in the report because they hold scientific value: they either present new insights to the scientific body of research in the service design domain, they describe crossover knowledge between industries or they are essential in the understanding of the discourse of this report. These think boxes are kept to a minimum; the aim of this report is to lower the threshold for circular economy in the fashion industry, and scientific language often scares people off.

In these 'think boxes' you can find more in depth knowledge, a more detailed description of a topic or concept, or an elaboration on the main text. It is possible to read the full report without the information in the think boxes; they are truly secondary. They serve as the cross-over between the Professional and the Researcher.

1: the introduction

C&A Foundation

C&A Foundation's core purpose is to make fashion a force for good – on many different levels¹. The Foundation works towards its goals by creating Fashion for Good, a neutral innovation collaboration platform for fashion brands, fashion start-ups, market disruptors and consumers alike². Fashion for Good has many industry leading partners (see Image 3) for all working towards a more sustainable future.

One of the six key pillars of C&A Foundation is the Circular Fashion Programme. This pillar focuses on the implementation of circular business models in the fashion industry. This report is part of this pillar; it aims to lower the threshold of adopting circular business models through servitisation³. **This report is commissioned by C&A Foundation to accelerate the adoption of circular services amongst existing fashion brands** interested in implementing this disruptive new circular economy model.

C&A Foundation's Circular Fashion Programme aims to support fashion brands in the implementation of circular business models through awareness, sharing of information, with methodologies and with tools. This report and the decision-support tool (DST) are an addition to C&A Foundation's portfolio⁴.

1 C&A Foundation I, 2019
2 Fashion for Good, 2019
3 C&A Foundation II, 2019
4 C&A Foundation, 2018

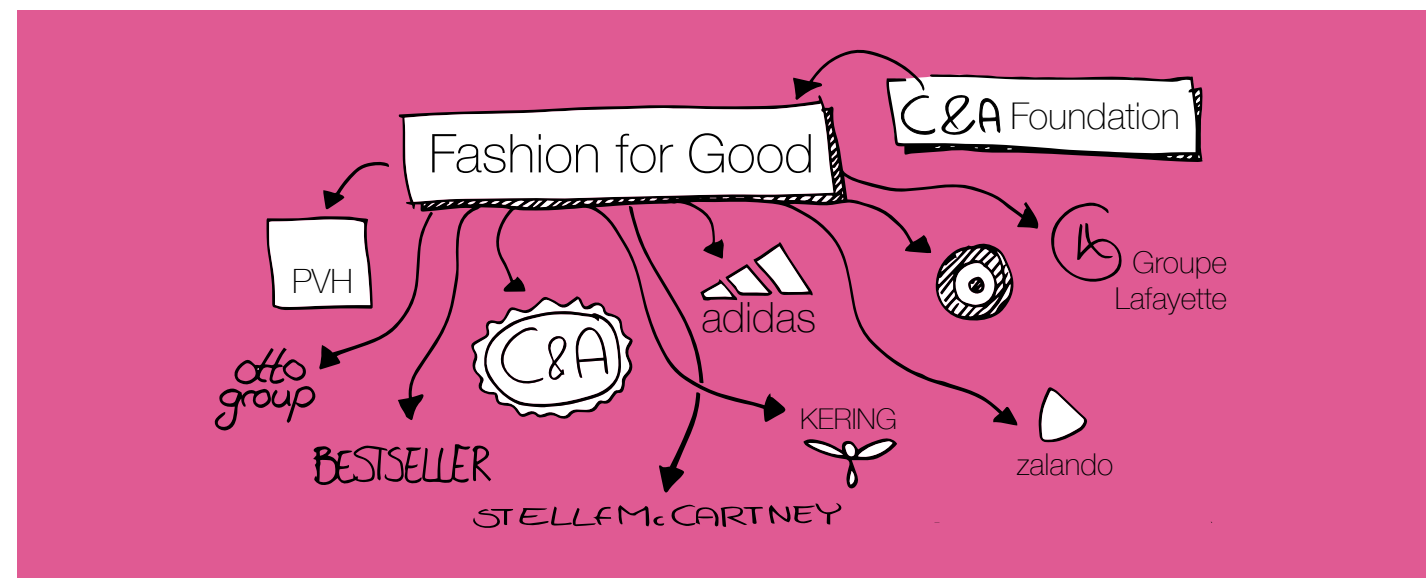


Image 3: structure of the C&A Foundation & Fashion for Good

The fashion rental model

It is clear that the fashion industry needs a sustainability overhaul, and circular economy principles potentially hold the key to true progress. There are many incredible examples of circular economy business models and circular services showing the potential of circularity as an answer to the pressing question of sustainability and overconsumption⁵. These examples stem mostly from fashion start-ups; the conventional fashion industry is far behind when it comes to business model innovation⁶. **The few examples of start-ups in circular fashion services are however disruptive and promising – and in true innovative spirit they are all created by newcomers in the industry⁷.**

Many fashion companies feel the need to expand their portfolio of fashion retail, into fashion-as-a-service (FaaS)⁸. But these fashion brands are stuck in a complex investment decision with yet unsure outcomes⁹. It is the goal of C&A Foundation to lower this threshold for companies to enter into the circular fashion market through servitisation. There are however many different kinds of services. Image 4 shows the lifecycle of a pair of pants in a circular business model, as an example. The pants are used by a client and returned to the company afterwards. The company is responsible for product maintenance, after which the pants are ready to be used by the next client. This performance-based contracting is well described by Töytäri:

“The value-based solution selling is embedded in to a broader, paradigmatic change from product-based exchange to solution-based exchange, where multi-actor constellations of firms, capabilities, and resources strive for improved value creation”¹⁰

This envisioned situation is meant to co-exist with the current product-based sales model¹¹; traditional linear retail (make-sell-use-discard) serves as the foundation for this rental model: the channels, products, assets and brands remain the same. The ownership of the product, a small part of the operations and the relationship between brands and consumers however do change.

5 Tukker, 2015; PwC, 2015; Prendeville & Bocken, 2017; França, Broman, Robèrt, Basile & Trygg, 2017
6 Armstrong & Lang, 2013
7 Yang, Evans, Vladimirova & Rana, 2017; Leighton, 2018
8 Shijia, 2016; Henze, 2018; Hollis, 2018; Zhao, 2018
9 Linder & Williander, 2017
10 Töytäri, 2018, pp. 287
11 Kohtamäki, Partanen, Parida & Wincent, 2013

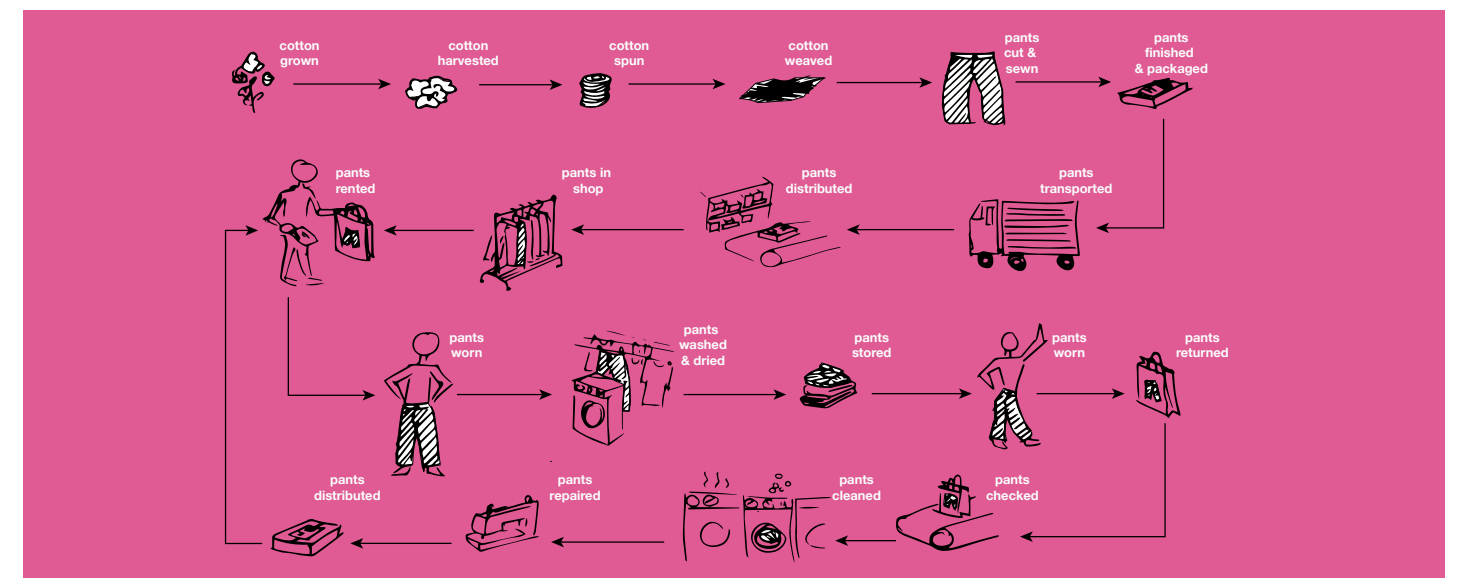


Image 4: the lifecycle of a pair of pants in the envisioned situation of a circular fashion service

The current situation

The essential difference between the current interaction of fashion brands & consumers and the reality of a service interaction is in the dimension of time. In any linear sales model the value capturing interaction is the purchase moment. For decades marketers have focussed on the sale of an item as a critical decision for consumers, which has long been influenced through marketing and advertisement.

For access-based services, the value of an offering is not defined during the moment of sign up, it is defined by the length and depth of the relationship; this is evident through the premium the customer is willing to pay for the services¹². This new measurement requires a completely new approach to corporate benchmarking due to the time-dependent, progressive nature of success in circular services, as opposed to linear sales.

This report explores the potential for existing fashion brands to adopt truly circular rental models where one product is used by multiple users. These rental models follow the value-based¹³ solution selling approach, where the use of the product is part of the solution, but not the solution itself¹⁴.

Shifting from product-based to value-based thinking also means adopting a circular mind-set on product level (Image 5). Fashion items are depreciated so fast that they lose most of their value within weeks, regardless of their functionality¹⁵. This commodity attitude towards product value has become so common in the fashion industry – it's a full-grown field of scientific research and publications¹⁶.

Sometimes returned products from online purchases aren't re-integrated into the product portfolio because taking them back will cost more money than they can still generate¹⁷. The inadequacy of many fashion brands' take-back systems is a symptom of this rapid depreciation and commodifying of fashion items, while a well functioning take-back system is at the core of the circular system: the supply chain needed for the continuous circulation of products in a service¹⁸.

- 12 Maynes & Rawson, 2016
 13 Töytäri, 2018
 14 Tukker, 2004
 15 BBC News, 2018
 16 Terry, 2014; Germs, van Foreest & Kilic, 2016; Gayon, Vercaene & Flapper, 2017
 17 Lynggaard, 2017; Mulpuru, 2017; BBC News 2018
 18 Gelbmann & Hammerl, 2015; Shaharudin, Govindan, Zailani, Tan & Iranmanesh, 2017

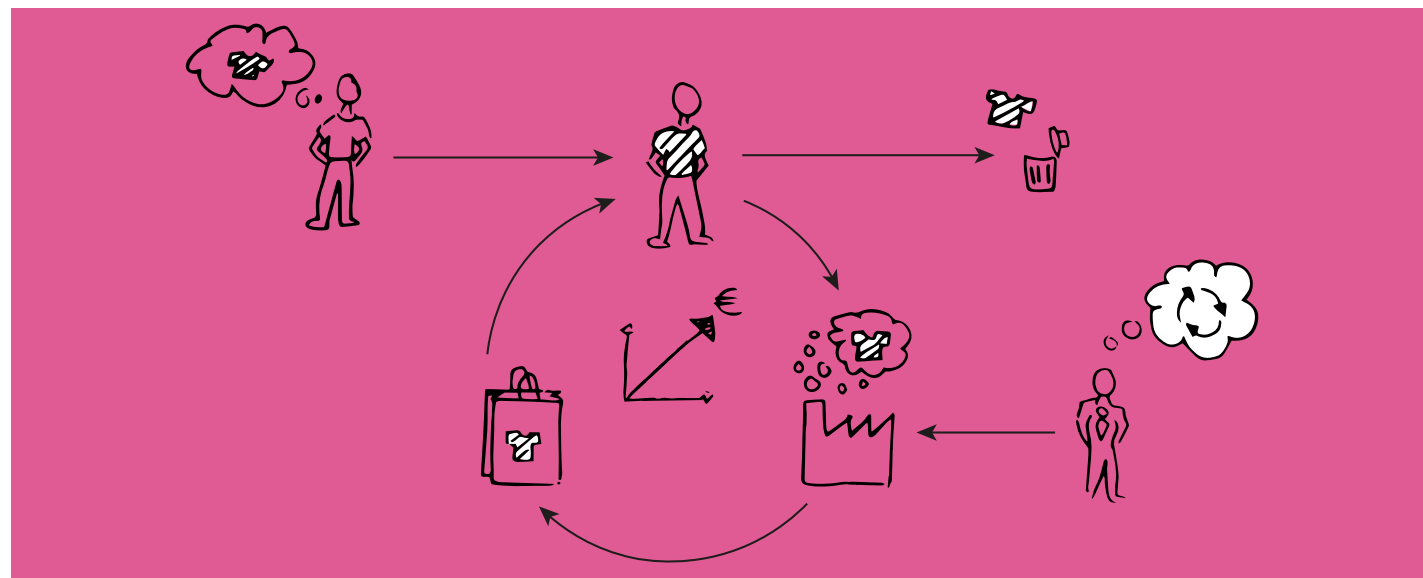


Image 5: the circular mindset (bottom circle) vs. the linear sales model (top horizontal process)

The circular economy & services

The circular economy is built on the principles of re-integration of material streams into the supply chain¹. This can happen on many different levels, but there is a hierarchy to value retention through re-integration of materials. The highest level of value retention can be achieved when products need no alteration and can be looped back immediately². This can be achieved when products remain property of the company that re-integrate them – managing supply to market, product streams and quality.

Companies that remain owner of their products thus don't sell them – they offer services around the use of these products³. These circular business models of offering access over ownership enable a new paradigm in asset management, fitted to a capitalist model of financial growth, without requiring the finite resources to match this growth; this is the core premise of the circular economy⁴.

Offering access to the functionality of products in the context of a service greatly differs from the linear make-sell-use-discard model that society is used to. Due to the relative newness of this rental model, there is no real consensus on the terminology yet. There are many different names for this shift in ownership, the services that stem from it and the business models that enable it.

- Performance based contracting
- Closed loop circular system
- Donut economy
- Reverse logistics engineering
- Circular economy
- Collaborative consumption
- Servitisation
- Circular business model
- Product-as-a-service (PaaS)
- Product-service system (PSS)
- Sharing economy
- Circular services
- Rental
- Lease

Throughout this report different terms are used to describe this circularity: circular models (looping resources back into a company), rental models (business models creating access to functionality in stead of sales), servitisation (the process of creating a circular rental service) and FaaS (fashion-as-a-service, the desired outcome of servitisation).

- 1 MacArthur, 2013
 2 Ellen MacArthur Foundation, 2019
 3 Gelbmann & Hammerl, 2015
 4 Jackson, 2009; Boons, Montalvo, Quist & Wagner, 2013; Charles, Schmidheiny & Watts, 2017; Vogtlander, Scheepens, Bocken & Peck, 2017

The gridlock

The investment decision that precedes this servitisation process can be compared to a 'gridlock' situation: a crossroads in which all traffic streams have equal priority, but during a simultaneous arrival, they are all halted due to lack of leadership. The interrelation of the streams in the investment decision for circular fashion are shown in Image 6.

Image 6 also shows that companies can only know if a service is worth it, when they know the investments (€) compared to the revenue, depending on the fit with all stakeholder needs (♥). For most corporate investments a business case is sufficient¹⁹, **but with fashion as a service the customer response is much more volatile: there are hardly any examples of existing fashion brands entering into the service market**²⁰.

Customer acceptance depends on many things, but for a substantial part it changes with the pricing of service²¹. **So not only do companies not know the actual investments & costs of a service, they also don't know if (and if so, how many) customers will accept the service for the required price.** So all elements need to be defined at once, but without leadership and priority, this results in a gridlock.

This type of problem, with multiple different stakeholders, no clear description of the root cause and no direction for a solution is also called a 'wicked problem'²². These wicked problems often show up in social, environmental and radical problems, where the current situation is untenable but no unambiguous solution can be found²³. According to Prendeville et al. business model design is an essential part of successfully and holistically solving a wicked problem.

- 19 Messner, 2013
 20 Abdullah, 2019; Under Armour, 2019
 21 Antikainen & Lammi, 2016
 22 Dorst, 2015
 23 Prendeville, O'Connor, Bocken & Bakker, 2017

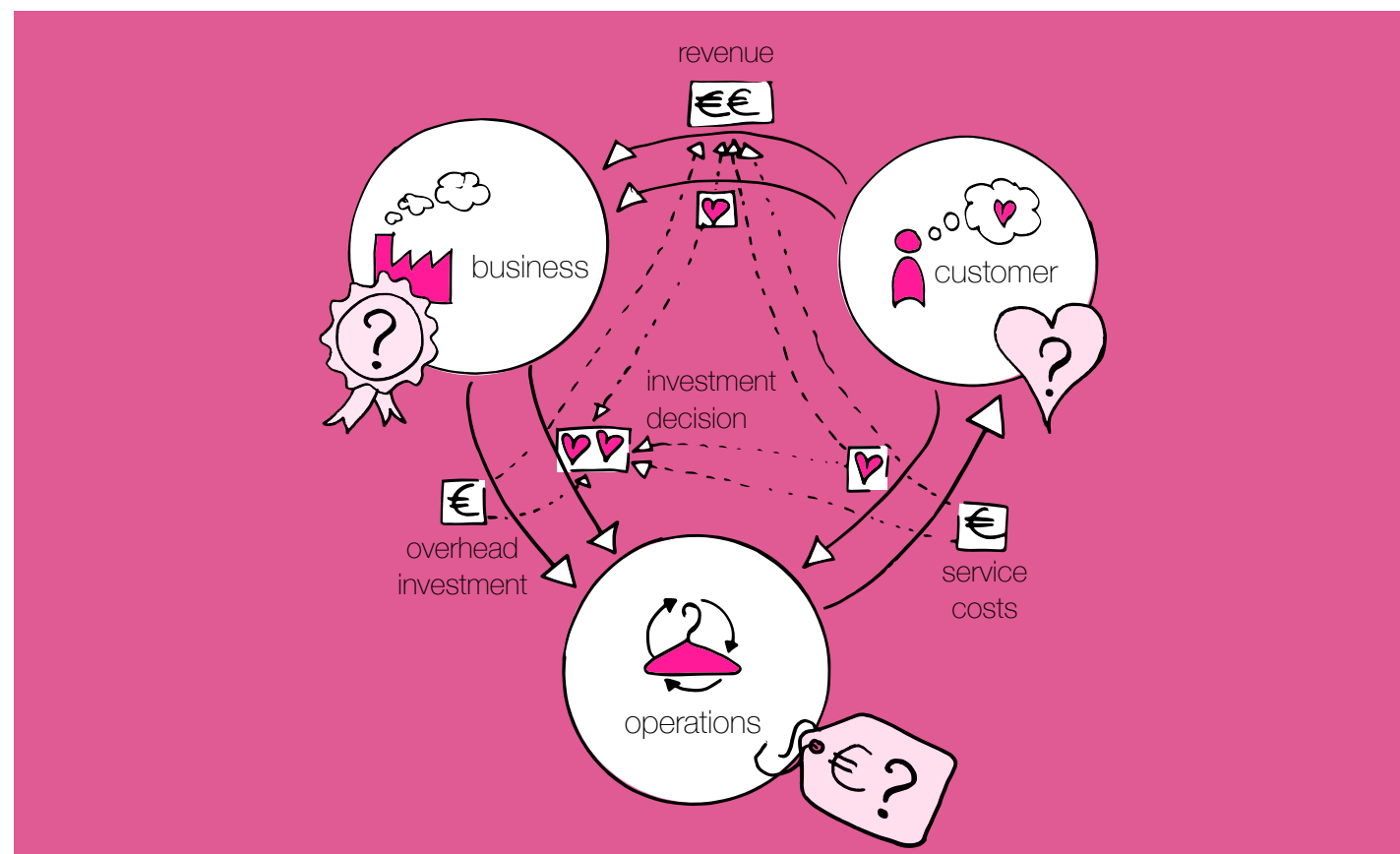


Image 6: the grid lock of the circular service implementation, where implicit needs should be balanced with explicit money

The function of design

There aren't enough examples of existing fashion brands extending their portfolio into services; servitisation in the fashion industry requires the creation of a completely new service to the industry. Strategic service design concerns itself with three abilities, see Image 7:

- Feasibility: Operations
- Desirability: Clients
- Viability: Business

These three abilities are the three components of the investment decision gridlock. With a service design approach however they don't need to be defined all at once like described before: strategic service design makes way for a holistic and incremental approach to balancing the three components of a service²⁴. In the case of developing a circular service, the operations aspect is generally defined, while business and customer are still unclear.

This situation, where two of the three components are unknown, resembles a technology push situation – as opposed to market pull. Technology push situations are quite common for start-ups that have developed an amazing technology with no clue of the fit to the market needs or how to monetise on their invention²⁵. The fashion industry however has not produced a significant technological innovation since Stephanie Kwolek patented Kevlar in 1972 for DuPont²⁶.

- 24 Stickdorn, Schneider, Andrews & Lawrence, 2011; TU Delft, 2019
 25 Lubik, Lim, Platts & Minshall, 2012
 26 Kwolek, 1972

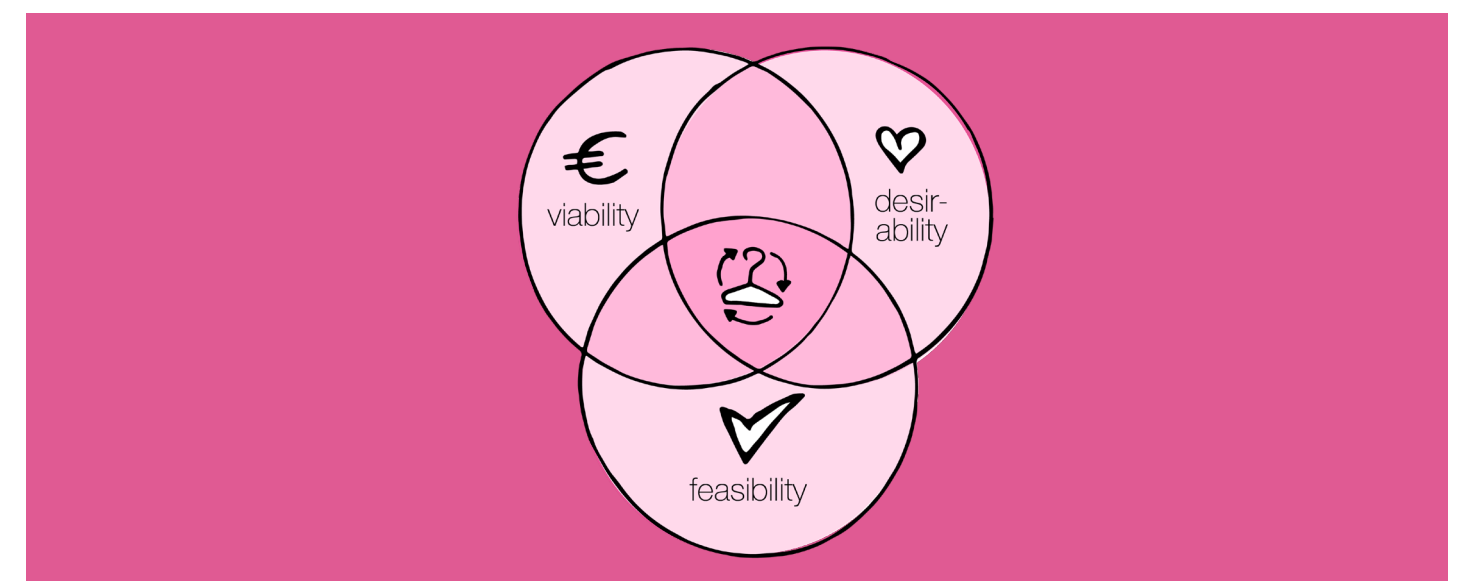


Image 7: the domains of design & their positions

The trouble in the fashion industry

The fashion industry has a reputation for being full of incumbents, not looking for substantial innovation¹. Advancements in garment production and supply chain management have enabled a culture of fast fashion, which has fuelled the extreme, cutthroat competition between fashion brands for the attention and loyalty of over-triggered consumers². This growing pressure on brands to produce faster, take more fashion risks and simultaneously adapt to the demands of the market has taken its toll on every party in the supply chain³.

The second threat is the external pressure of disruptors in the industry: the maturation of the vintage market scene, the unstoppable rise of consumer initiatives bypassing fashion brands and last but not least the exponential growth of start-ups taking over the unshakable fashion market ruled by incumbents⁴. Traditional fashion brands are lagging further behind each day, while they are still recovering from the impact of ecommerce on their retail model⁵.

If these two threats weren't enough, the third threat to fashion's status quo is the environment: the environmental impact of fashion⁶. So far fashion's impact on the environment has been the leading perspective on the interplay between the two, but it's just a matter of time before the fashion industry will be the one suffering its consequences. Depleted resources, governmental restrictions or consumer demand; these are all legitimate forces able to turn the tables on fashion's pollution⁷.

Transmuting threats into opportunities paints an interesting picture. Fashion companies are looking for a number of opportunities:

- A stable and predictable revenue stream⁸
- High customer loyalty to their brand⁹
- A way to capitalise on their experience and legacy¹⁰
- Their competitive edge over new entrants¹¹
- Growing revenue from their retail real estate¹²
- Lowered resource dependency¹³
- A fit to the current needs of consumers¹⁴
- A lowered environmental impact¹⁵

The fashion industry therefore has much more to gain from servitisation than initially thought. Circular services not only have the capacity to structurally save the environment¹⁶; services offer a solution that matches all opportunities described above¹⁷. This report will not go into much more detail on the potential benefits of circular rental models; it does however focus on the service design strategies needed to achieve them.

1 Amed, Balchandani, Beltrami, Berg, Hedrich, Rölkens, 2019

2 Bhardwaj & Fairhurst, 2010

3 Henninger, Alevizou, Goworek & Ryding, 2017

4 Stokes, Clarence, Anderson & Rinne, 2014; Benson-Armer, Noble & Thiel, 2015

5 Rosen & Howard, 2000

6 Sweeny, 2015; Drew & Yehounme, 2017

7 Choi, 2013; Vaughan, 2014; Harvey & Pearson, 2018

8 Eyal, 2014; ING Economics Department, 2015

9 Warrillow, 2015; Baxter, 2015

10 Lüdeken-Freund, Gold & Bocken, 2018

11 Lüdeken-Freund et al., 2018

12 Hu, Li, Chen & Wang, 2014

13 Tukker, 2015

14 Todeschini, Cortimiglia, Callegaro-de-Menezes & Ghezzi, 2017

15 Corvellec & Stål, 2017

16 Corvellec & Stål, 2017; Prendeville & Bocken, 2017

17 Jackson, 2009; Maynes & Rawson, 2016; Perlaçia, Duml & Saebi, 2017; França et al., 2017; Yang et al., 2017

The research question

In the previous chapter it becomes sufficiently clear that this gridlock of the investment decision is a wicked problem¹. In any wicked problem, the ill-defined problem evolves together with the solutions. Dorst describes the method designers are famous for as “design abduction”²: **working with multiple unknowns, that influence and shape each other. By designing both the “what” and the “how”, designers can test in conjunction the validity of their solution and the depth of the problem it is solving**, and inherently adopt an iterative innovation process. The scientific foundation of this report lies in strategic design³; combining service design theory, design research and business strategy⁴.

This design abduction takes place in the early stages of designing a new-to-the-world concept, the fuzzy front end⁵. This phase is both essential for success and completely elusive to academics and businesses alike. Luckily the design profession prides itself in being able to lead any iterative process of new product development through its own fuzzy front end⁶. This leads to the research question:

How can service design create structure in the fuzzy front-end of the design process of a circular fashion rental service and how can it lower the threshold for fashion industry leaders to enter into this new circular economy paradigm?

This iterative process is an example of Research through Design (RtD), a slightly controversial yet widely accepted practical approach to design research⁷. The controversy of this method lies in its objectivity through reproducibility: design is rooted in creativity so any new researcher following the same approach will generate different insights⁸. Design centred research, or RtD, however is one of the few methods able to balance Dorst's⁹ co-evolution of problem and solution¹⁰.

This report however isn't written to build a new scientific theorem concerning service design; the goal is to lower the threshold for companies to start the service design process¹¹. This complex process of interdependent parameters and endless variation in design decisions asks for a practical approach, making RtD the ideal innovation method¹². Therefore the research question assumes a service design-based approach to the fuzzy front end¹³ of the circular service.

1 Buchanan, 1992
 2 Dorst, 2015
 3 Calabretta, 2016
 4 Stickdorn et al., 2011; Polaine, Lovlie, Reason, 2013; Baldassarre, Calabretta, Bocken & Jaskiewicz, 2017
 5 Reid & De Brentani, 2004
 6 Wormald, 2011; Calabretta, Gemser & Karpen, 2016
 7 Stappers, Sleeswijk Visser & Keller, 2014
 8 Koskinen, Zimmerman, Binder, Redstrom & Wensveen, 2011
 9 Dorst, 2015
 10 Koskinen, 2011
 11 Bocken & Antikainen, 2018
 12 Zimmerman et al., 2010
 13 Wormald, 2011

The research approach

It is commonly known in the design sector that no design process is truly linear: each step is actually a cycle, an exploration eventually filtered down to just the necessary conclusions¹⁴. This description is also true for the research process behind this report. Image 8 shows in the down left corner the actual scope of this project: an actionable tool tailored to fashion companies and created for the very early stages of the service design process. The X-axis of the chart follows the structure of the service design process and also the Y-axis differentiates between business and customer focus.

For each of the 7 research projects the position on the service design process timeline is shown, and for which of the three main design domains the research was applied. Some research was used in multiple categories:

- Festival interviews: 1 festival, around 40 interviewees, low-structure tally system (Appendix C)
- Wardrobe studies: 4 interviewees, structured research method¹⁵ (Appendix D)
- Fur rental model: 2 occasions, semi-structured interview & validation through boundary objects¹⁶ (Appendix E)
- Questionnaire: 131 respondents, structured quantitative data analysis (Appendix F & G)
- Competitor analysis: 9 companies, structured public data gathering method¹⁷ (Appendix H & L)
- Advertisement tests: 6 ads, two test campaigns, structured duplo test methodology¹⁸ (Appendix I)
- Business case design, 6 models of 4 pricing strategies, semi-structured business case modelling (Appendix J)

14 Brown, 2008
 15 Klepp & Bjerck, 2014
 16 Carlile, 2002
 17 Morrison et al., 2019
 18 Facebook business, 2019

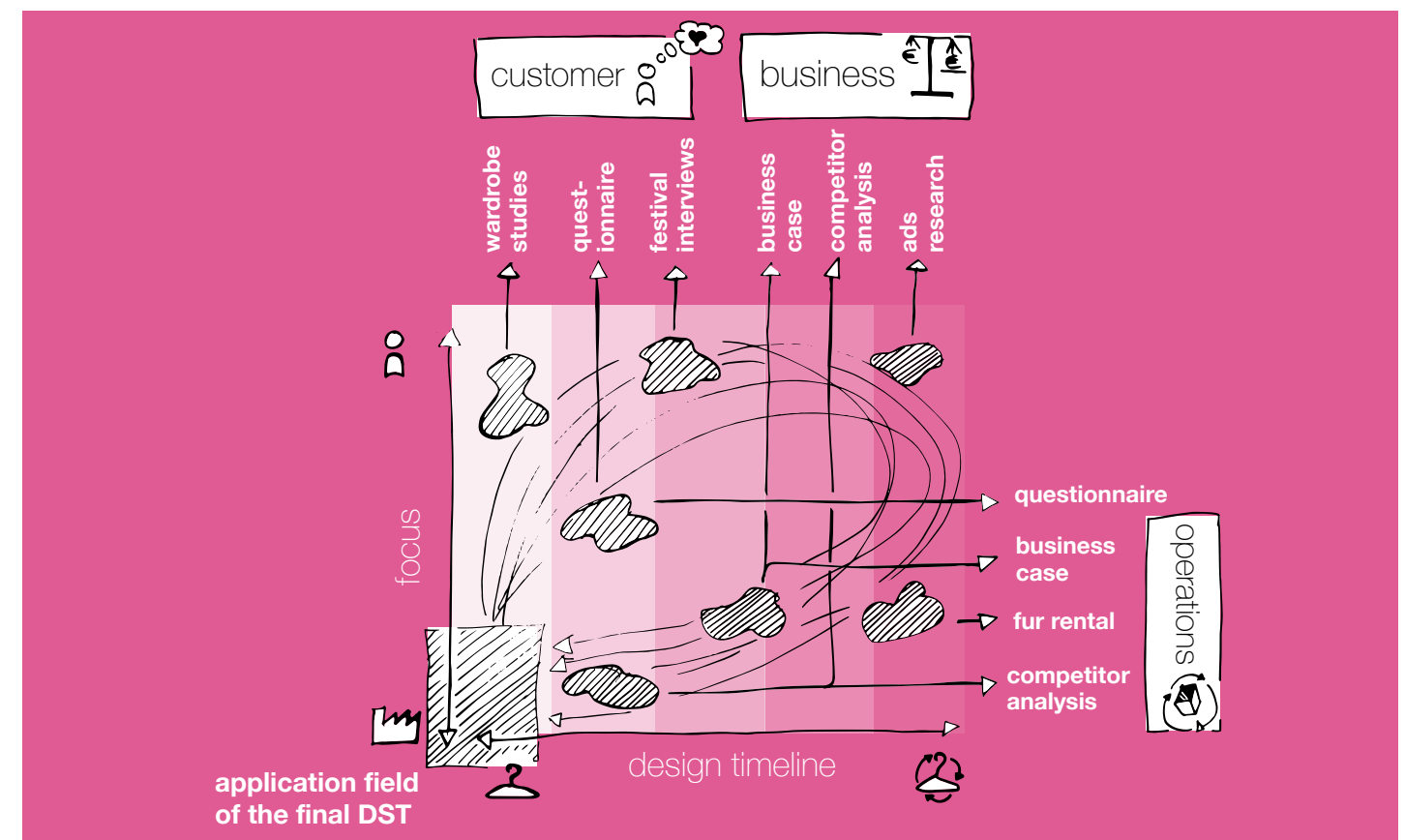


Image 8: the 7 research projects, their relation to the process & their contribution to the design domains

The research structure

The technology push nature of the circular service design process is clearly reflected in the research and how it evolved over time. Image 9 shows the repeating cycles of inventory, research, design and validation. This complex interplay between the different research projects and the evolution of the final design are not easily written out, but the Venn diagrams capturing this process paint a clear picture. In this paragraph the co-evolution of problem and solution are described chronologically. Further in this report the research will only be referred to when relevant.

The inventory phase

The general outlines of the intended operations were the starting point of the research, the inventory. The initial research areas focus on the overlap between operations and client and between operations and business:

- Operations & Customer: Which consumers are most likely to be the early adopters of a fashion rental service?
- Operations & Business: Which companies with which operation tactics have shown business potential in different client segments?

With the conclusions from these two research questions in mind, the first model of the rental service was designed, based on the best practices of both research areas: the first customer journey and service blueprint were drawn up based on the examples from the industry (Appendix H) and the festival interviews (Appendix C) as initial research & inventory inspiration. This model was then validated with the first fur rental experiment (Appendix E).

The research phase

From here the insights from the validation experiment and the service design were indexed and translated into the first generation of the business case (Appendix J) and the first theory building of brand – personality type congruency

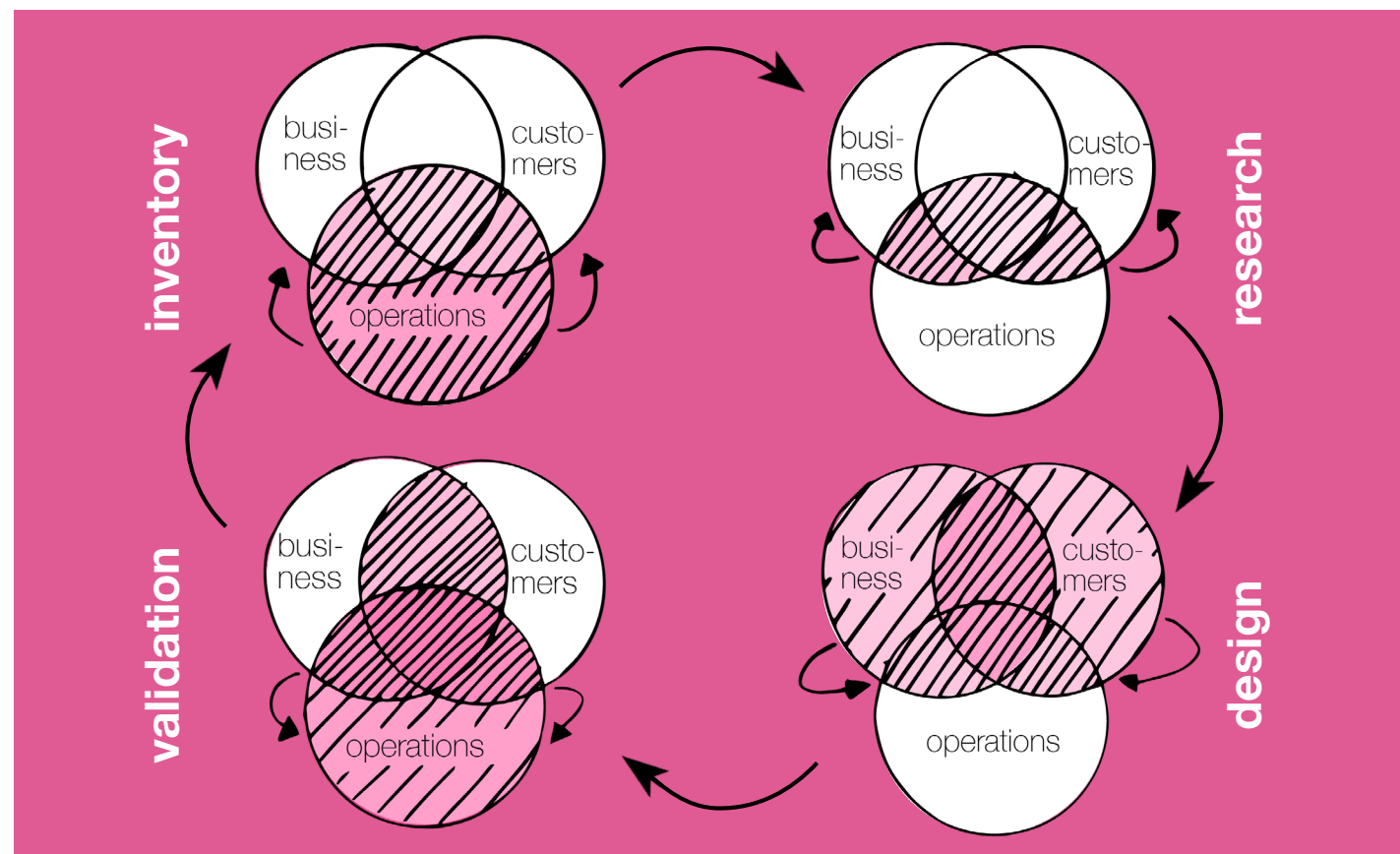


Image 9: the Venn diagram of the inventory, research, design and validation phases

(Appendix A and chapter “The Customer”). The second cycle focussed on the integration of these insights into the operations model, with the following focus points:

- Operations & Customer: How does time-dependent user behaviour affect the service? And how can brands know if their users will exhibit that behaviour?
- Operations & Business: How does the pricing of a rental service look? What are important profitability factors?

The Business side was assessed through company analyses and pricing structure design, building on the first business case (Appendix J). This business case for pricing was created with the help of an expert in circular pricing, the implications for operations were researched through the sensitivity analysis that identified the most important parameters for profitability¹⁹. The customer-side question was investigated through the wardrobe studies (Appendix D).

The results of the studies were enriched with an extensive literature study (see chapter 4 “The customer” and Appendix A); by mapping out the interviewees’ behaviours and their underlying motivators from the wardrobe studies, compared to theory. These findings were then implemented in the service design through the service blueprint, which needed to be adapted for many different personality types and their preferences, behaviour and their willingness to pay a premium.

Both conclusions were then tested in the second fur rental experiment (Appendix E), where pricing became a much larger aspect. The experiment however could not test for the different personality types and their hypothesised behaviours (Appendix A) – a new approach was needed.

The design phase

There were too many parameters to keep the service blueprint, customer journey and business case clear and structured, especially for the non-service designers it was intended for. This is where the parametric model came into play. The business case was adapted to an almost purely parametric model (Appendix J) and the new design tool was built: the Circular Service Model Canvas (CSMC, see chapter 3 and Appendix B) that could hold space for relations between service design decisions; creating a time-dependent business model canvas²⁰. **Lastly the theory of brand-personality congruency was built, creating a parametric, time-dependent consumer behaviour prediction model.**

The validation phase

This new parametric version of the service gravitated much more to the centre of each of the three circles in Image 9 because its content was so heavily interrelated that none of the three circles could be defined without information from the other two: the co-evolution of problem and solution²¹. This inventory of relations between parameters generated a new set of questions (Appendix L), now more focused on the assumptions on which the model was built:

- Do differences in behaviour and preference correlate with personality type (Appendix F)?
- Can consumer behaviour be predicted through brand personality (Appendix F)?
- Are there minimal requirements to brands for servitisation (Appendix L)?
- Are people willing to pay for fashion rental services (Appendix I)?
- Which rental model is most popular (Appendix H)?

All but one of these questions are not yes / no based, which signifies the shift into research that is more focused on quantitative results and validation of the new theories that were compiled in the qualitative phase. The results of this final phase together built the decision support tool (DST), which will be discussed in chapter “The DST”.

¹⁹ Morrison et al., 2019.

²⁰ Osterwalder & Pigneur, 2010

²¹ Dorst, 2015

The Dead Animal Shelter

The assumptions about the touch points and service design were validated in research through a low-budget, low scale fashion rental model. This was done to gauge the customer response using the rental service as a boundary object¹, a discussion starter, for undercover interviews and observations. Appendix E describes in more detail the process of this research.

There is however some background to the rental model that was used for validation. This is a more personal note, so I will switch to first-person for this think box. I have never really been a fashion person, although I enjoy vintage boutiques and markets for their inspiration and the occasional treasure. There is however one item I always end up buying: fur. For the last 15 years I have collected neglected fur coats and nurtured them back to glory; I am quite good at sewing and repairs, so this wasn't hard for me. What was however hard was seeing these coats abandoned, knowing that animals had to die for them.

This adoption behaviour has rendered me a collection of 11 fur coats, 1 sheepskin jacket, 1 wool coat, 3 suede jackets and 2 leather jackets. I share them with my friends, sometimes lend them to acquaintances and they are often borrowed for photo shoots, performances, special occasions and fancy dress parties.

At the other side of this story it became clear to me early on in this research project that I would be field-testing the service with actual products and people. The items in rental were quite hard to select due to the many criteria. The items had to be:

- Timeless
- Consistent in pricing
- Durable
- Genderless
- Brandless
- Not newly bought just for this experiment

It only made sense to include the fur coats, because they check all the boxes, and as a bonus they attract plenty of attention, so it would be easy to start a conversation or to observe people while they are observing the coats. The last question in the matter was how people would respond to real fur; it has always been a controversial material. This was a risk worth taking, provided that the message around the service was right.

I always jokingly refer to my absurd fur collection as the "Dead Animal Shelter", a name surprisingly never used as a grunge or metal album title. My friends however quickly talked me out of that name for the rental service – they all agreed that dark humour was not the antidote to the controversial nature of the coats. In all honesty I was quite disappointed, but for the sake of approachability and cuddliness, the final name of the rental service was "Frent". Frent is a combination of "Fur" and "rent", but it's extra cute because it sounds like "Friend".

Whenever anyone would question the ethics of the coats, the response would always be similar to this: "These coats are precious yet fragile, some are at least 70 years old. I have adopted these coats in order to restore them, but I want to share the joy of their comfort and quality with more people. Due to my expertise and good care you can wear them, without the hassle of maintenance." This story never failed to turn people's opinions around; it generated a wave of enthusiasm and positivity. Even the most controversial products can be used in a rental model, if branded and positioned accordingly.

1 Carlile, 2002

The positioning

The advertisement and positioning of fashion-as-a-service is not part of the scope of this research, but it is still an essential part of service design. Bögel & Upham²² argue **the importance of the role of psychology in sociotechnical transitions, like shifting to a circular economy**. So how should these services be positioned?

So far, circular services have been advertised and researched under the sustainability label²³ which is an easy umbrella positioning that can be used across the different target groups of different brands. However, Santamaria²⁴ propose to target a much broader audience than just the sustainability-minded, because this segment is very small and not showing much signs of growing; this idea has been slowly gaining ground²⁵. Appendix A provides more insight into the psychology behind sustainable marketing and long-term investment decisions.

This report and the DST will not take the easy route of creating a generic circular service under the sustainability label. Working with a generic service models means that every brand will receive the same advice, which would both skew the direction of circular service innovation and it would create unnecessary competition. This non-human approach is also a mortal sin in design thinking²⁶.

The charming yet unexpected benefit of servitisation in the fashion industry is being able to return to the core of the brand, which can not be achieved when all services are designed and marketed in the same way. **Any brand that uses the decision-making tool should therefore receive specifically tailored advice from the tool for their target group, resulting in a heterogeneous pool of circular services, all tapping in to the brand's core strengths and their customers' unique (and often hidden) needs.**

The design brief

The final decision support tool should not take away any responsibility for the potential fashion services within companies²⁷: the design should create a sense of ownership within the company²⁸ and help develop an empathic and customer-centred mindset. This human-focussed attitude is needed to capture the full potential of the service: users are willing to pay much more for a service that really meets their needs²⁹.

The business advantage of customer-centred design & research is captured in the insights into the pricing of a service. **Customers whose needs are met perfectly are willing to pay a much bigger premium for a service**; this brings us back to the gridlock of the investment dilemma. Investing in user research can be expensive, but there is no immediate proof of the return on this investment (ROI)³⁰. However when there is no investment made in user research, the viability of launching a service is per definition unsure³¹. This is the core of the design brief:

Design a parametric tool for existing fashion brands that lowers the uncertainty of ROI at the start of the service design process for a circular fashion rental service.

- 22 Bögel & Upham, 2018
- 23 Camacho-Otero et al., 2018
- 24 Santamaria et al., 2016
- 25 Baldassarre et al., 2017
- 26 Brown, 2008
- 27 Parida, Sjödin, Wincent & Kohtamäki, 2014
- 28 Gebauer & Fleisch, 2007; Kurucz, Colbert, Luedeke-Freund, Upward & Willard, 2017
- 29 West, Kujawski & Rapaccini, 2017
- 30 Linder & Williander, 2017
- 31 Kohtamäki et al., 2018, ch. 8

The success indicators

Assessing the success of the final design can only be done with the right measuring scale. Throughout this report, many definitions of success for circular fashion services, decision-making support and design interventions were mentioned; these are listed below. The tool should...

- ... give accurate advice, based on scientific research
- ... be able to give advice to many different companies
- ... give actionable advice, relevant for the context of use
- ... accelerate the investment decision making process
- ... de-fuzzy the front end of innovation
- ... be easy to use, made for non-designers
- ... give its user insights in the reasoning behind the tool
- ... boost a customer-centric approach to service design

As mentioned in chapter 1, there are many promising prospects to rental models that convince companies to enter into fashion servitisation. These prospects however are not inherent to the concept of a rental model – they need to be designed for. The design guidelines below are based on the inherent potential of a fashion rental service.

- **A stable and predictable revenue stream:** design for lock-in into service. Creating a service that fulfils a need that is hard to replace without large investments¹.
- **High customer loyalty to the brand:** choose long-term customer satisfaction over short-term profitability: adopting a new mind-set of long-term relation building².
- **Capitalising on brand legacy and experience:** create a service under the existing brand name to build on the trustworthiness of history. This means that the service will attract the same customers as the current linear brand³.
- **Competitive edge over new entrants:** design a service that uses the existing supply chain as a foundation. The service should require as little new investments as possible, to lower the time-to-market and use the brand's existing expertise⁴.
- **Growing revenue from retail real estate:** repurpose the brand's stores as storage hubs and service points. Offline retail has been losing customers, but closing shops down is often bad for brand image. By inviting customers back into the shop it regains value and saves the company on shipping costs⁵.
- **Lowered resource dependency:** design for a closed loop circular service, where existing products are reintegrated into the supply chain. Focus on quality control, cleaning and repair, the items in the service can be used much longer⁶.
- **A fit to the current needs of consumers:** analyse fast growing circular start-ups as competitors, not existing fashion brands. Base the service the consumer response to on other industries that went circular. The most successful business models, value propositions and pricing strategies fit consumer needs best⁷.
- **A lowered environmental impact:** design the service for both minimal transport and minimal use of virgin materials for new products. Circular services are theoretically better for the environment, but much is defined in the service details. A reverse logistics engineering approach enables the company to minimise their footprint⁸.

1 Eyal, 2014; ING Economics Department, 2015
 2 Lüdeken-Freund et al., 2018
 3 Lüdeken-Freund et al., 2018
 4 Lüdeken-Freund et al., 2018
 5 Hu et al., 2014
 6 Tukker, 2015
 7 Todeschini et al., 2017
 8 Corvellec & Stål, 2017

The introduction

This chapter translates the current situation of existing fashion companies wanting to leverage their current assets and logistics for servitisation. The previous chapter described the differences between the current linear sales model and the envisioned circular rental service. This chapter focuses on the operational side of the envisioned scenario, leading the reader into the process of service design for the envisioned situation. This chapter finishes up with a service design canvas made specifically for fashion brands looking to expand their existing portfolio by offering services.

The service design process

After the previous chapter discussed the starting point, envisioned end result, obstacles and solutions for the coveted fashion service, this chapter puts it all in the context of the service design process. **The goal of creating this context is to explain the use of the decision-support tool (DST) and to make service design and the resulting knowledge less elusive or overwhelming to non-designers.**

This specific service design process is created through a combination of literature research and expert advice in the shape of an interview with Robert van Boeschoten, founder of Subspot, an as-a-service advice bureau¹. An iterative process of design and validation polished the final outcome of the service. In Image 10 the overall structure of the service design process is shown, as advised for this report's readers.

The literary foundation was offered by the live|work book², describing direct tools and a timeline for the servitisation process. Kohtamäki & partners³ have also collected the cutting edge of servitisation knowledge in a book, written for existing production companies looking for a way in to the service market. These two books both build on Stickdorn's⁴ bible for service design, and its most well-known tools.

The three books and their tools contain valuable insights into the service design process for companies engaging with servitisation. However as mentioned before this engagement is not (yet) the case, due to the gridlock of the investment decision for this process. In the timeline of service design, from zero to the first launch, there are two big go / no-go moments that define this grid lock.

The first go / no-go moment is the choice to invest in initial research and, at the beginning just before step 1. The second is the investment of putting this research into practice, starting phase IV after step 8. **These two go / no-go decisions are the biggest hurdles for companies, since their outcomes are very uncertain making the investments might seem risky. The DST was created to lower the first threshold, by predicting the outcome of the 8th step.**

1 Subspot, 2019
 2 Polaine, Løvlie & Reason, 2013
 3 Kohtamäki, Baines, Rabetino & Bigdeli, 2018
 4 Stickdorn et al., 2011

The service design steps

The process described in Appendix B is a step-by-step explanation of the service design process pictured in Image 10, adding to each step the didactic value for the people involved. This process of learning is designed for the managers leading the multidisciplinary service design team⁵, following the service design process on a higher level. **The design process is also adapted to cultivate ownership, independence and agency for the brands that follow it because this is essential to the long-term success of the service⁶.**

This adaptation results in a linear twelve-step process where the steps build upon each other. Appendix B also describes the steps, their theme, the format that fits the activities and an estimation for the required time. The Appendix further provides templates needed for steps 6, 7 and 9. The template needed in step 8 is the parametric business case, which can be found in Appendix J.

The map of current touch points described in step 2 is used as a foundation to build the service touch points. The back-end supporting these touch points and the consumers interacting at these touch points are indexed in step 1. Fashion brands already have many of the building blocks needed to create a service, so the process is tailored to leveraging existing assets, supply chain expertise, personnel and brand identity to build a service. This inventory from step 1 collects the all data needed to use the DST; the questionnaire for this step can be found in Appendix K.

5 Kohtamäki, Partanen, Parida & Wincent, 2013
 6 Hart, 1997; Gebauer & Fleisch, 2007

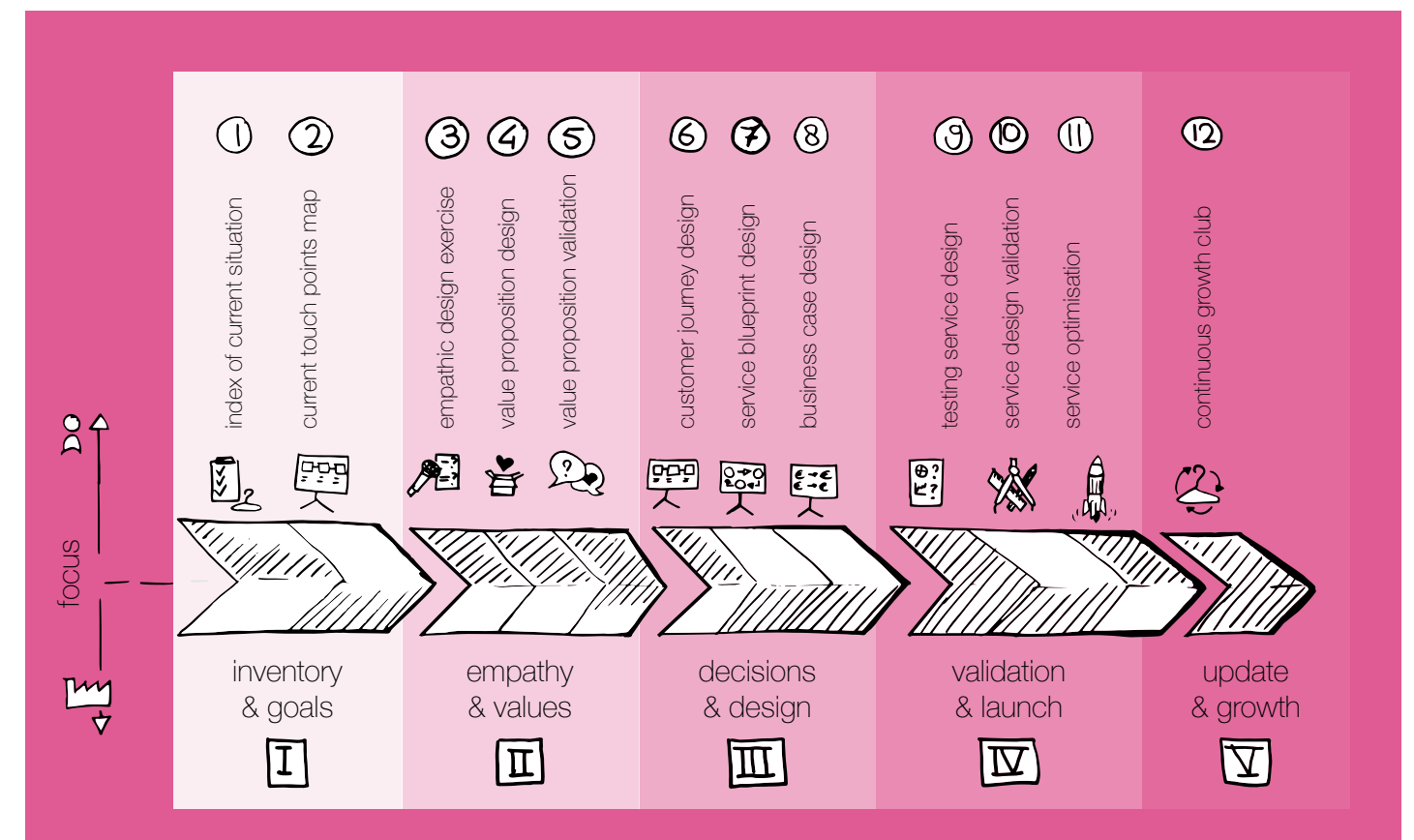


Image 10: the overall service design process tailored to the case of a circular fashion service

The touch points

The diagram in Image 11 shows a flow chart of touch points detailing the customer's first encounter with the rental service. This touch point overview was created partly based on the research (Appendices D, E, H and L) and it was partly created to show how little changes needed to be made to offer a rental service within an existing fashion company. The touch points are an addition to the touch points mapped in service design process step 2 and they are used for both the customer journey in step 6 and the service blueprint in step 7.

These touch points also illustrate the ease of a launch strategy. When customers are first confronted with the option of rental, they will see that renting an item will require them to spend less money in that moment. **This either means that customers can go home with more items for the same monthly budget, or they can save on the specific item they intended to buy, by renting it.**

This consumer behaviour scenario of course varies between people, but the above described discount rate rhetoric has proven to be an effective launch partner for any fashion service⁷. See Appendix A for more detail about the investment decision and instant gratification logic.

⁷ Frederick, Loewenstein, & O'Donoghue, 2002

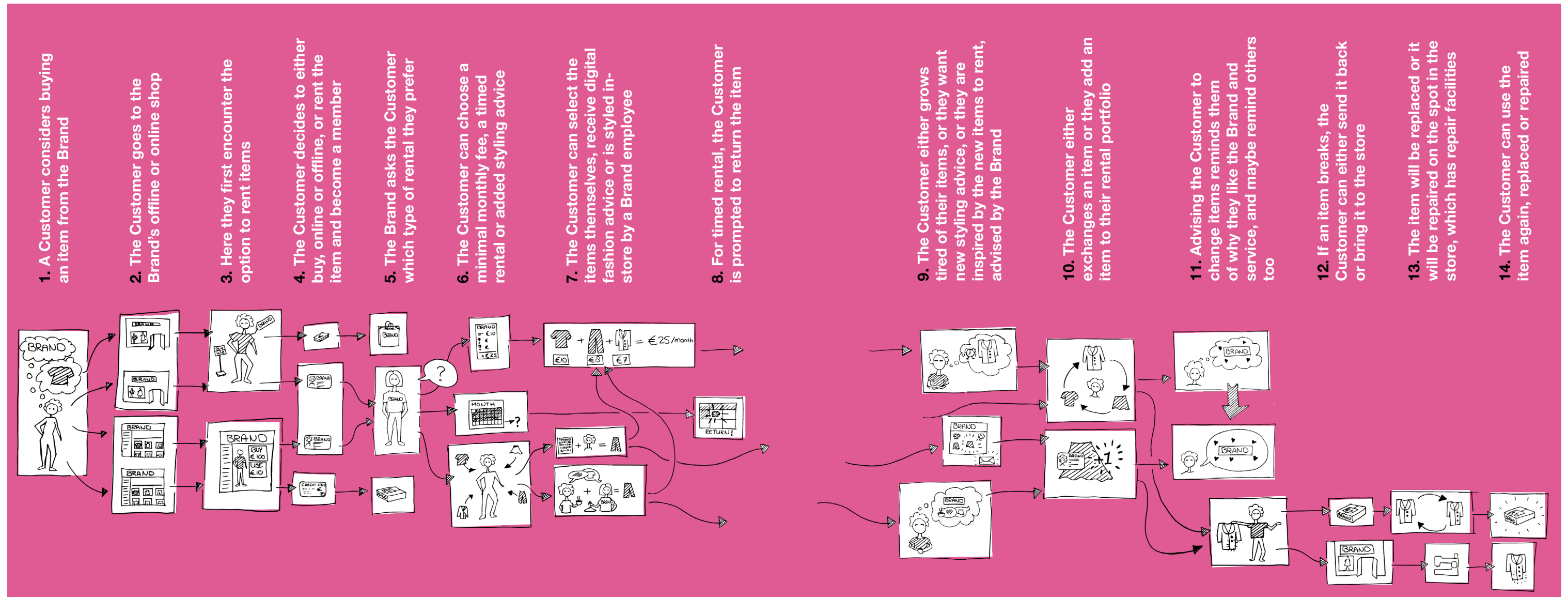


Image 11: The touch points for the basic fashion rental service.

The service blueprint

The service blueprint on the next spread in Image 12 visualises how the existing resources are repurposed and applied in a fashion rental service. This blueprint is based on the touch points in Image 11 and it served as the foundation for the DST and it was designed in harmony with the customer journey: balancing operational feasibility with user desirability. Later in its evolution the blueprint was adapted for viability, so for example most outsourceable processes were left to partners and third parties. This also makes the advice from the DST scalable because it is independent of the in-house facilities of a fashion company.

Touch Points							
Activities	online webshop & app	the option to either buy or rent	explanation of the rental model	explanation of the rental pricing	an easy sign-up page	digital access to user profile	track & trace of parcels
	webshop & app maintenance	parallel customer journeys		pricing adapted to location	cross-platform user database	GDPR conform data storage	shipping & location tracking
		buy / rental balance calculations	training of store employees	continuous pricing research	customer analysis & research	transparent & ethical use of data	
Assets		rental item distribution to stores			device for signing up in stores	member card printer in stores	RFID tags in all rental items
Partners		transport of items to the stores	printing of information & labels		data & computing servers	producer info & transparency	transport of items to members

already in place in the company	extra operational activities	product level activity & changes	this should already be happening	user experience additions
---------------------------------	------------------------------	----------------------------------	----------------------------------	---------------------------

an overview of rented items	reminder of exchange deadlines	overview of rentable items	synced return & receive	item specs, wear & care advice	payment options & access	always accessible FAQs
rented out items in database	automatic deadline messages	filter for overview of rental items	take-back inventory system	item SW&C in database and app	different payment options	online chat customer support
use style & quality control tracking	optimal contact calculations	item rental eligibility research	optimising take-back & QC system	optimal item W&C & use research	continuous payment monitoring	support channel optimisation
			exchange points in stores	readable RFID tags with SW&C		
QC, repair & cleaning outsourced		producer & care feedback	rental & take-back transport		external payment provider	

Image 12: the service blueprint for the basic fashion rental model, based on the touch point timeline from image 11

The design tool overlap

In Image 13 the familiar Venn diagram of viability, desirability and feasibility is shown again, but now with the new knowledge of the matching service design steps and the appropriate design tools needed. The diagrams show that there is an interesting overlap between the three tools described on the bottom:

- The business case (BC) and customer journey (CJ) together predict revenue: pricing of service & willingness to pay
- The CJ and service blueprint (SB) together use the service touch points
- The SB and BC together describe investments necessary

The design tool in the middle, the business model canvas (BMC) combines a little bit of all three tools, but it remains very high-level. The think box on the next page goes into detail on this topic. The design tool diagram on the next spread shows how **these conclusions were translated into a service design template that fulfills the needs of the specific challenges of circular servitisation in a notoriously linear industry.** The final tool is shown in Appendix B, designed to be printed as an A1 poster, fitted perfectly for sticky notes.

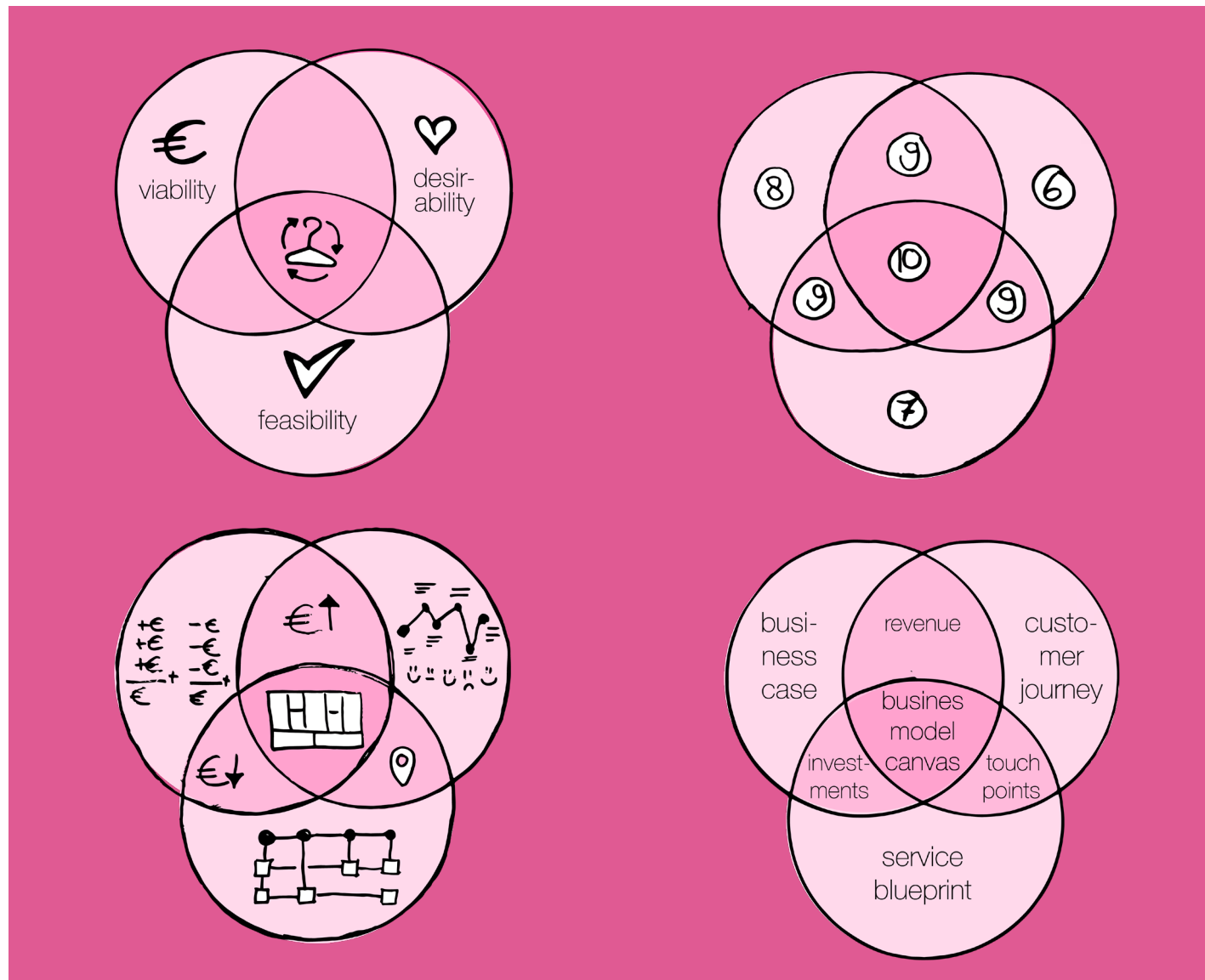


Image 13: the overlap between the service tools & relevant steps

The CSMC vs. BMC

The service design process as taught by universities and writers¹ was in many cases too complex to teach to an industry with hardly any experience in this design area. Identifying the 12 steps and their corresponding exercises and tools was the first round of simplifying the process, but it wasn't enough to create a plan that fits the needs of a manager looking to develop and test a radically new concept.

In the chapter "the research" the method of Research through Design (RtD) was explained². It was also used to create these twelve steps, by documenting the tools and exercises used in every iteration cycle. After the third cycle it was clear that the tools were too inert for the purpose of quick iterative cycles, partly due to their overlap and thus the double work that was needed.

This overlap, as shown in Image 13 on the previous page, was the starting point of a new design tool: the Circular Service Model Canvas (CSMC), an adaptation of Osterwalder & Pigneur's³ Business Model Canvas (BMC). The Canvas is a widely accepted tool used to create & validate business models, but it lacks in time sensitivity because of its focus on a static value proposition.

Both the Customer Journey and the Service Blueprint⁴ do have this time sensitivity because they are both led by chronological touch points. Designing from a touch point perspective instead of a value proposition (static promise) perspective immensely boosts the realistic approach of the design and the awareness of the grounded value delivering. The empathic perspective of the Customer Journey shows the designer what the impact is on their decisions, while the operational possibility of these decisions is immediately checked through the Service Blueprint.

So why is the CSMC then based on the BMC? The BMC very cleverly groups the nine essential aspects of a business model into three categories, with a shared position for the value proposition:

- Operations
 - o Partners
 - o Resources
 - o Activities
 - o Value proposition
- Customers
 - o Value proposition
 - o Channels
 - o Relations
 - o Segments
- Business
 - o Costs
 - o Revenue

The Operations part of the BMC covers all the ingredients needed to build the Service Blueprint, while the Customers part has everything mapped out for the Customer Journey. So both tools were rotated 90 degrees (see the images on the next spread), Resources & Activities and Channels & Relations were separated into parallel columns and the Value Proposition was renamed into Touch Points, because they cumulatively describe the proposed value of a service relationship over time.

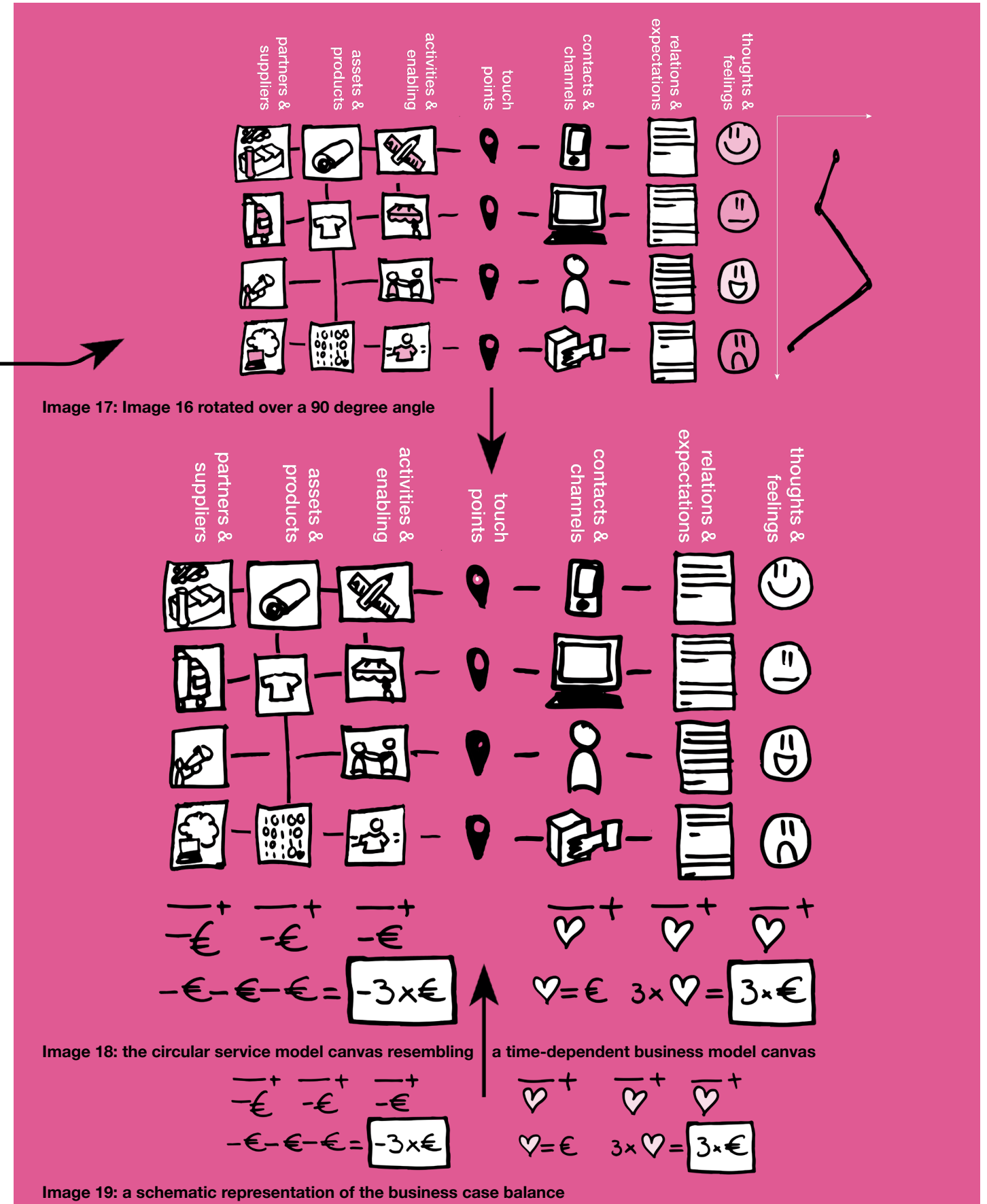
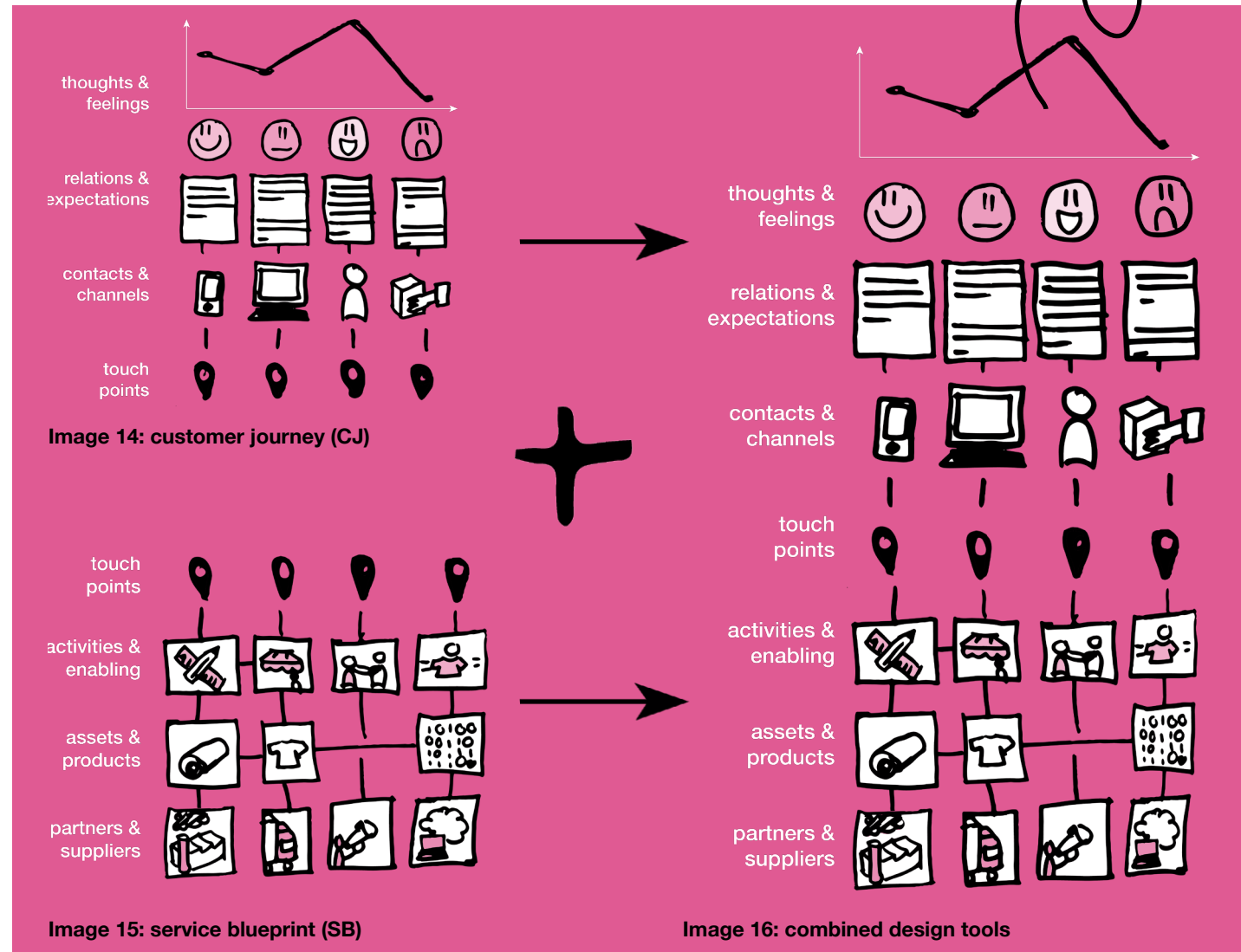
The last step was incorporating the Business Case, which was even more self-evident than before: every column from both Operations and Customers could be seen as a 'shopping list', with Operations segment summarising the costs of offering the service, while Customers segment showed the perceived added value per category, translating into a willingness to pay a premium in the Revenue segment. And that is how the CSMC was born, see image 15 on the next spread.

- 1 TU Delft, 2019; Stickdorn et al., 2011
- 2 Zimmerman et al., 2010; Stickdorn et al., 2011
- 3 Osterwalder & Pigneur, 2010
- 4 Stickdorn et al., 2011

On this spread the evolution of the CSMC is shown schematically. Image 14 and Image 15 both describe the touch points of the service: for every touch point there is a customer who thinks something about it (CJ) and a back-end that enables the touch point (SB). Combining Image 14 and Image 15 creates Image 16; which is rotated 90 degrees in Image 17. Now the familiar structure of the business model canvas is surfacing, but without the typical stacked columns, and with the dimension of time.

The touch points now chronologically run down Image 17, so the first touch point is at the top of the middle column and the final touch point (before starting the process again) is at the bottom of the middle column in. Image 18 is the final CSMC: it combines the two rotated design tools in Image 17 with the simplified business case in Image 19.

This final step creates an adapted version of the business model canvas because it visually shows the origin of the financial data in the bottom row: for each column a summation is made, which yields either the total cost (SB) or the final customer appreciation (CJ). This appreciation is then translated into the willingness to pay: with this knowledge the final balance of the business case can be made. **The CSMC creates a holistic yet concise overview of the service design process, including the factor of time.**



The service design complexity

Designing a service is a complex process that entails much more than simply filling in a design tool or a canvas. The canvasses however serve as a clear communication tool between disciplines; communicating and aligning within an interdisciplinary team is an essential part of the service design process (see Image 20). This paragraph will show why.

The design of the touch points is often caught in a tug-of-war scenario between the design team stakeholders. A clear example of this: the UX designers on the consumer side of the sign-up touch point want to create a seamless and smooth registration experience for new service members, with as little questions to the customer as possible to maximise the sign-up conversion rate. In a later touch point however the operations side needs a lot of customer data on fashion style and product preferences to feed into their algorithm. This algorithm suggests new rental items to the customer in this touch point; a better fit to the customer's preferences means a higher customer satisfaction - something the customer side of the team is again concerned with. Translating this to the business perspective means finding the balance between high conversion rates (low costs of acquisition) and low churn rates (high customer satisfaction). Finding this balance means understanding the value of a design choice over time.

The DST application

This complexity is pushed to the surface with the CSMC, which balances all stakeholder needs in every touch point. By visually showing this tug-of-war the design team is nudged to consider all three sides of the touch point: what is desired by customers (right side of the CSMC, Image 14), what is feasible in operations (left side of the CSMC, Image 15) and what is viable for the company (bottom section of the CSMC, Image 19). With the CSMC this report aims to put the advice of the DST into a context, emphasising that service design is not a linear process of checking boxes. This nuance regarding service design should always be kept in mind when following the DST's advice.

When changing one service aspect, many others will be influenced. Some of these scenarios have been included in the DST; this is why the model is dynamic and parametric. However only the scenarios related to the relevant parameters are included, since including all would make the model redundantly complex. The DST is based on an outsourcing strategy (see Image 12), which greatly simplifies the overhead investments. The main reasons for this were scalability due to a uniform cost of service, and to reduce the above mentioned complexity.



Image 20: the tug-of-war of service design

4: the customers

The introduction

In the previous chapter the operational side of FaaS is detailed, as well as the tools to design these operations. The circular service model canvas (CSMC) of the previous chapter nudges its user to include the customer perspective by considering their expectations, feelings and opinions about every touch point. This is an important first step in human centred design, but it only validates a touch point after it was created, it does not offer predictive insights for touch point design. This chapter will add a layer to the predictive value of the DST by modelling consumer behaviour over time and predicting consumer preferences.

The consumerist culture

One thing all potential service users have in common, regardless of the brand or the lifestyle they prefer, is the culture they live in. The Western paradigm of materialism (Image 21) is dominant in every culture accessible to existing fashion brands¹. According to Jackson² **consumerism and materialism are large hurdles for circular business models, which require giving up ownership of the product.**

Americans spent more money on watches, jewellery and shoes than on higher education in 2004³. In a twenty year period, shopping malls grew from being outnumbered by high schools, to counting more than double the number of high schools in the U.S in 2005⁴. Appendix D investigates through wardrobe studies this extreme attachment to clothes and material possessions, which might seem to be a large hurdle for the adoption of fashion as a service.

Materialism and attachment to products grows when the product's link to the owner's identity increases⁵; which means that the fashion industry is top-of-mind of materialistic industries. 'Oniomania'⁶ is the official name of shopping addiction – most often found in apparel shopping⁷. For more in-depth information on the psychology of shopping addiction, read appendices A & D. Personality is however also the key to solving the problem of high consumerism in fashion.

- 1 Barber, 2008
- 2 Jackson, 2009
- 3 U.S. Census Bureau, 2004
- 4 De Graaf, Wann & Naylor, 2005
- 5 Catulli, Cook & Potter, 2017
- 6 Bleuler, 1924
- 7 Benson, 2000

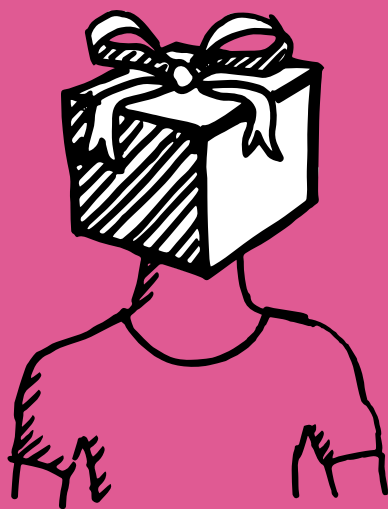


Image 21: consumerist culture

The consumers

The high levels of consumerism in the fashion industry predict a strong correlation between the perceived character of the brand and the character of the customer that prefers the brand⁸. **These high levels of consumerism in fashion mean that the fashion industry has a strong advantage when predicting consumer needs, acceptance and behaviour – key components for service design.**

The real brand equity isn't just found in brand recognition⁹, it is nested in the personality associations customers have with it¹⁰. Using the parallel of brand personality and customer personality makes market segmentation into an elegant endeavour¹¹. **This parallel of brand and customer personality isn't new, but its application to circular service design is, where predicting consumer behaviour over time is essential. The customer - brand relationship also is at the core of a successful circular service¹².**

There are many ways to measure correlations between personality traits and brand identities, but so far the Big 5 personality indicator¹³ has proven to be most scientifically accurate¹⁴, despite the some critical evaluations of it¹⁵. The Big 5 works with five axes of opposites; each personality is scored on the five axis, together creating a holistic image of the personality type (see Image 22). The Big 5 personality type is often expressed as five percentages, with a higher referring to the personality trait listed on the right of this list:

- Closed vs. open to experiences
- Directionless vs. conscientiousness
- Introverted vs. extroverted
- Antagonistic vs. agreeable
- Neurotic vs. stable

In Western society people prefer the right side traits to the left side, which means that this personality type indicator is inherently judgemental. This is the biggest flaw of the personality test: due to this valuing of character the self-reporting scores are often a little higher than in reality. However due to this uniform skew the results are valid.

In appendix A the personality traits of people that are prone to high shopping addiction were described as subfactors of these Big 5 axes. These traits are very relevant because they indicate heightened chances of behaviour that undermines the profitability of a service model, like a high materialism, fast changes of products and high churn levels. **The profiling based on personality types can generate invaluable insights that predict the future success of a service, by predicting the future users' preferences and behaviour.** This is the profile of the fashion addicts:

- Stability:
 - o Low: Very impulsive
 - o Low: Low self-esteem
 - o Low: Unstable sense of identity
 - o Low: Sensitive to social recognition
- Openness:
 - o High: Strong imagination
 - o High: Novelty / sensation seeking

- 8 Mathews, 2015; MacInnis & Folkes, 2017
- 9 Keller, 1993
- 10 Tungate, 2008; Mulyanegara, Tsarenko & Anderson, 2009
- 11 Aaker, 1997
- 12 MacInnis & Folkes, 2017; Catulli, Cook & Potter, 2017
- 13 John & Srivastava, 1999
- 14 Karampela, 2015
- 15 Geuens, Weijters & De Wulf, 2009

- Agreeable:
 - o Low: Non-generous
 - o Low: Envious
 - o High: Sensitive to social recognition

Sensitivity to social recognition is both part of high agreeableness and low stability, so it is grouped under both Big 5 factors. **An example conclusion from the addictive personality type is that low stability generally implies high dependency on external factors, most notably ownership of products, for self-esteem.** Incidentally low stability is cross-culturally seen as a negative personality trait¹⁶, so brands will not be likely to actively advertise this trait and thus attract the unstable type. In Appendix F this theory is tested with five well known brands.

16 Miller, 2009

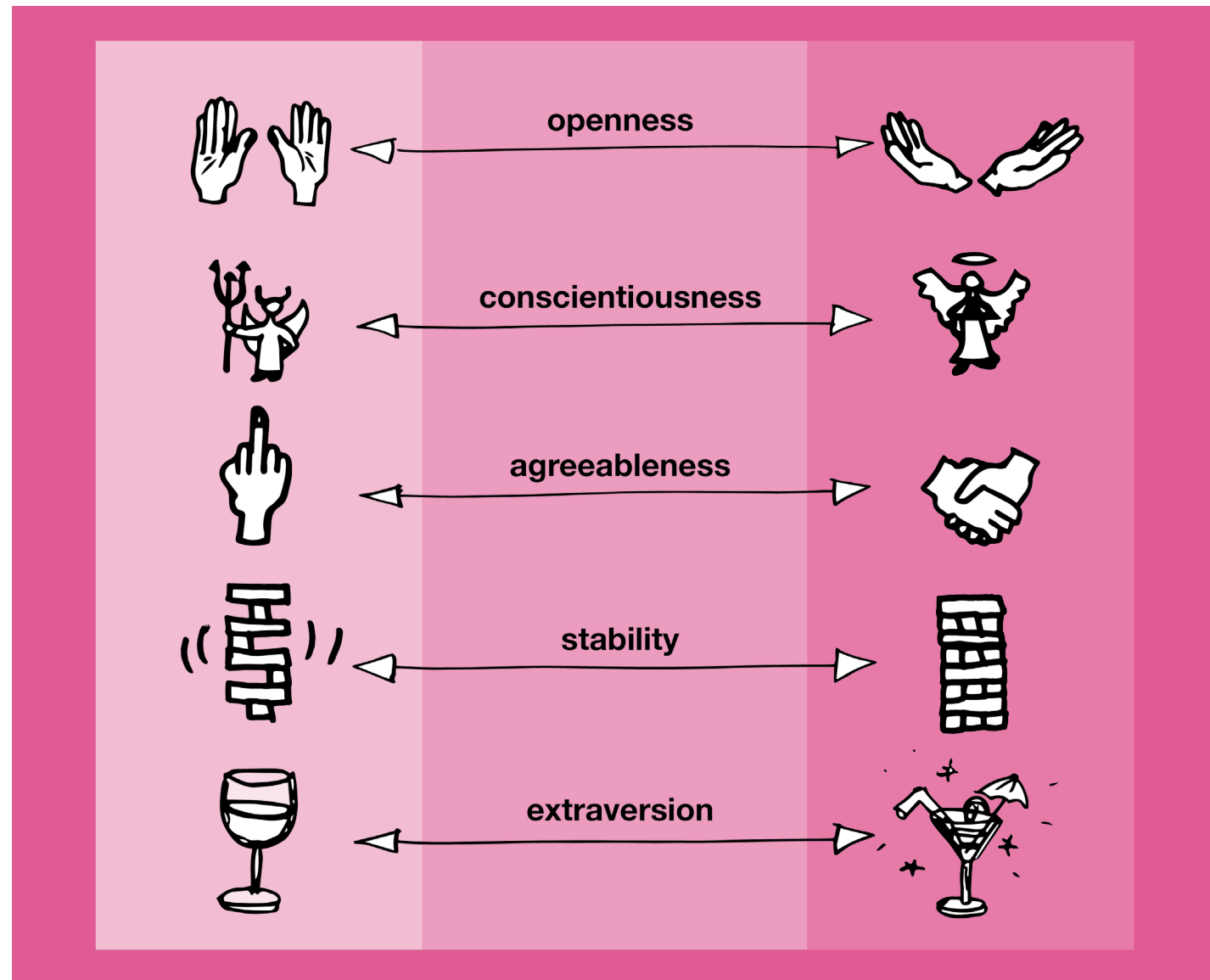


Image 22: the five axes of the Big 5 personality indicator

The bright side of consumerism

There are two main reasons to purchase a specific brand¹: intrinsic and extrinsic motivation, the key difference being the level of independence. Intrinsically motivated purchase fuel emotional and functional benefits², less influenced by outside triggers and more by utilitarian value of the product. Socially motivated purchases however require the response of others (positively or negatively) to create the intended effect³.

Consumers who follow an extrinsic motivator for purchases follow the brand's expressive power as a metric for the value they derive from a conspicuous purchase⁴: this shifts the persuasive power from the product to the brand itself and it's image. When expressive purchases are made, consumers are thus guided by the image of the brand – not for their own appreciation of the image, but for the appreciation they think others will have for the image⁵. This is at the core of conspicuous consumption: leveraging products for their effect on others.

These conspicuous purchases can signal three things. Social identity⁶: identifying oneself with a social group, known to purchase the same brand. Here the brand serves as a 'logo' for a specific sub-culture. Status⁷: communicates to which group the owner does not belong: distancing oneself from a social group. Status only exists in contrast to others, so from Veblen's perspective people use the price points of well-known brands as a way to distance themselves from other socio-economic groups.

And lastly brands can accurately signal personality traits⁸: wearers can showcase their personality type through the choice of brand, leaning on the identity of the brand itself. According to Miller brands fulfil the unique purpose of a multidimensional peacock feather: its social signalling power shows the wearer's different personality trait through association with the identity and legacy of the brand itself.

Examples of this can be found in Appendix F and Image 23 where different brands were rated for their personality traits in a questionnaire. Respondents who didn't know the brand were still able to rate it according to four (faceless) pictures of full brand outfits. Consumers intuitively know the type of people that are attracted to a brand, through the look and feel of the brand's products – especially if the brand image that was created is congruent with its product style.

The cross-pollination of evolutionary psychology with consumer behaviour studies⁹ shows there is a direct correlation between consumer personality traits, perceived brand personality traits and preference for the brand and preference for the wearer of the brand¹⁰. This new paradigm in marketing means one thing: brand identity is key.

- 1 Truong & McColl, 2011
- 2 Hudders, 2012
- 3 Kasser, 2003
- 4 Hudders, 2012
- 5 Holt, 1995
- 6 Brewer, 1991
- 7 Veblen, 1899
- 8 Miller, 2009
- 9 Miller, 2009
- 10 Miller, 2009; Willems, Janssens, Swinnen, Brengman, Streukens & Vancauteran, 2012; Mathews, 2015

The service design relevance

So how can this personality type profiling be applied to this project? **If a brand is perceived as having a high-openness personality (as one of the Big 5 trait factors), it implies that its most enthusiastic customers will be very likely to show behavioural patterns of novelty seeking, inconsistency in preferences and disloyalty.** If these unpredictable customers however are loyal to the brand, they are most likely to enter into a service relationship with the brand. This customer's willingness to engage would mean that the brand itself also shows inconsistency in style (creating or following trends), thus having a short longevity product portfolio. A product portfolio that is consistent in style however generates more profit, due to the long depreciation time.

This is where the dilemma arises: customers who are very open to new experiences according to the Big 5 are most likely to adopt a new modality of product access, a fashion rental service¹⁷. The highly open customers however also are most likely to propagate their involvement with these fashion rental services, since it publicly showcases their open personality type¹⁸. They are the lead users that turn into brand ambassadors, accelerating the adoption of circular services. So brands that are innovative, are perceived as open to new experiences, have to deal with a double edged sword: they are very likely to have a larger launching customer base than most other brands, but they will simultaneously have a harder time holding the attention of their customers.

More dilemma's like these are mapped out in Appendix L. One way to predict the volatility of the customers of high-openness brands is to assess the perceived stability of the brand, to check for an addictive personality type. Brands with high openness + high stability will have customers that are unyielding in their self-esteem, but enjoy exploring new concepts from an intrinsic motivation. Customers of brands with perceived low stability + high openness however will use their adoption of novelties as an external personality-defining factor¹⁹. Intrinsic motivation is product quality-oriented and extrinsic motivation is product-status oriented; the first depends on the company's manufacturing efforts and the second on the company's marketing efforts²⁰.

17 Lang & Armstrong, 2018
 18 Miller, 2009
 19 Truong & McColl, 2011
 20 Truong & McColl, 2011

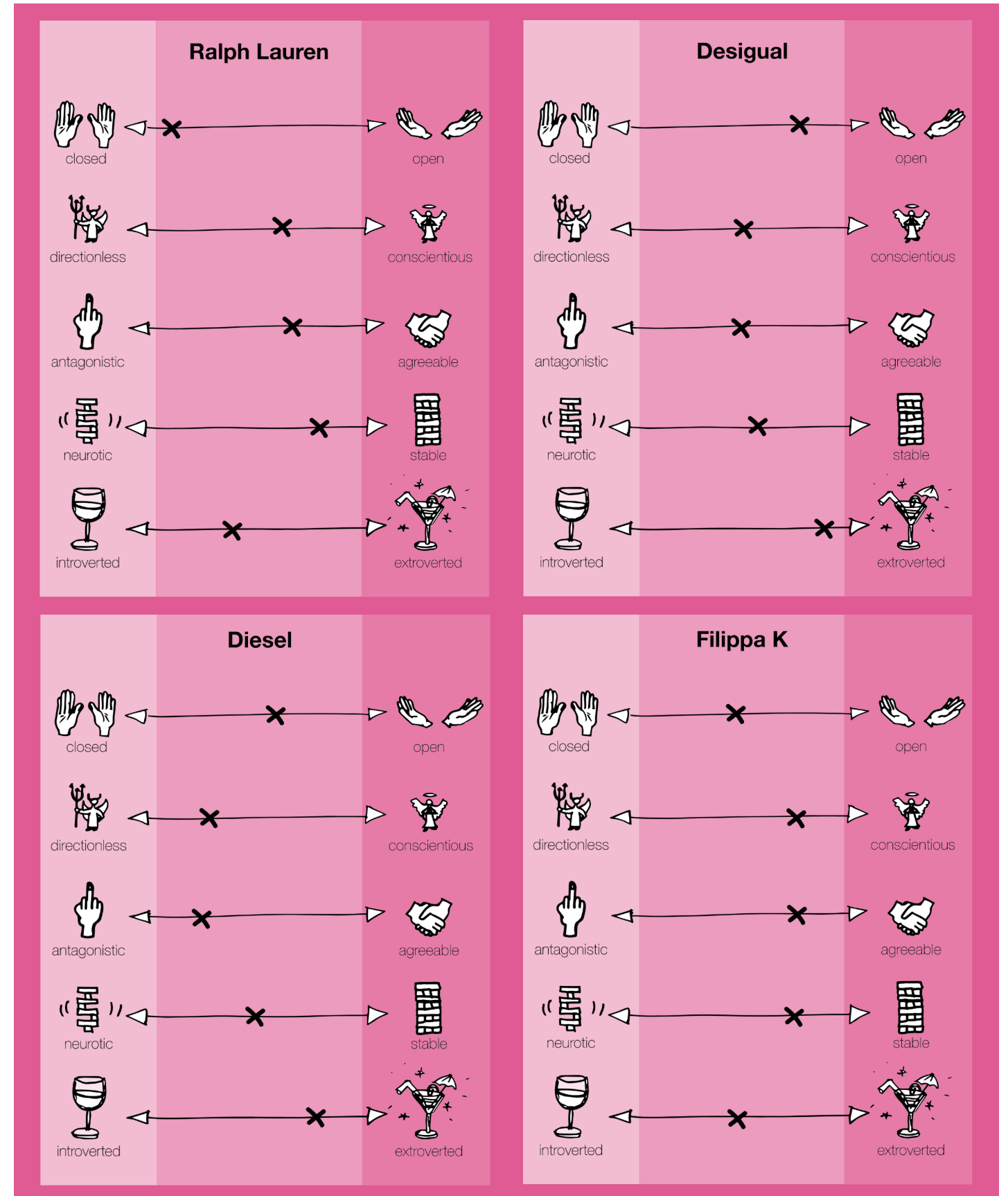


Image 23: the Big 5 personality types for Filippa K, Desigual, Diesel and Ralph Lauren

The theory applied

The brand - customer personality congruency theory (in short: brand personality theory) described in this chapter was further investigated through a questionnaire in Appendix F, which was based on the qualitative consumer research of Appendices C and D, which both investigated product relationships. The questionnaire generated significant results, proving the theory of personality type as a predictor of behaviour and preferences to be true for the Big 5 personality types. Fifteen markers for service preference and long-term behaviour were tested for reciprocal correlation and the markers were regression tested for Big 5 personality predictors. All results are in Appendix F.

An interesting example of a conclusion from this research is about people who are highly brand loyal (people unlikely to churn from a service relationship). They can be easily recognised by their low score on openness (not open to new service models), combined with an equally low score on agreeableness, otherwise described as not people who don't focus on being liked by following the group's opinion (consistent style, long term renters). These people also correlate with high materialism (unlikely to give up product ownership) and high feelings of responsibility for people & products (taking good care of rental products) – in short: people who are hard to convince of a fashion rental service, but once engaged they are the ideal customer.

The brand identity

The respondents were also asked to rate five well-known fashion brands, to verify the brand - personality congruency²¹. The results are shown in Image 23. In the questionnaire respondents were asked to rate the five brands in Image 24, based on four outfits each from their latest collection. Appendix F shows all the collages used. The results in Image 23 indicate a personality type for each brand, which confirmed almost all of the hypotheses:

- **Openness:** highest for Desigual, lowest for Ralph Lauren
- **Conscientiousness:** highest for Filippa K, lowest for Diesel
- **Agreeableness:** highest for Filippa K, lowest for Diesel
- **Stability:** highest for Filippa K (results: Ralph Lauren), lowest for Diesel
- **Extraversion:** highest for Desigual, lowest for Ralph Lauren

21 Mulyanagar, Tsarenko & Anderson, 2009; Mathews, 2015; MacInnis & Folkes, 2017; Zabkar, Arslanagic-Kalajdzic, Diamantopoulos & Florack, 2017



Image 24: the recap collage with one outfit from all brands that were rated in the questionnaire. Pictures: brand webshops

These five brands were selected because of their strong brand identity: a recognisable, consistent and predicible image. These hypotheses were based on the brand's latest clothing designs, its advertisements and the stereotypes for the people associated with the brand. Brands with a less recognisable own style weren't included in this research because it is harder to reach a consensus on their identity in a short questionnaire, which turned out to be the case for Adidas. The brand personality theory still applies to any other brand, though abstracting an unambiguous identity might be a bit more work.

An example of the application of this theory is in Tommy Hilfiger (Image 25). In 2016 the brand started a collaboration with Gigi Hadid, well known supermodel²², who's reputation rebranded Tommy Now to an urban, young street style brand. She has been replaced by Zendaya, a former Disney Channel singer and activist, in 2019. Both co-created collections were launched under the prêt-à-porter brand, but they have influenced the Tommy Hilfiger brand identity tremendously, since the public images of both influencers have had a large impact on the perceived brand identity²³. Comparing the two collections, in grayscale, shows the difference brand image, since only the leitmotiv of the recognisable Tommy Hilfiger red, white and blue remained.

The DST application

From the example of Tommy Hilfiger it becomes clear that the brand image changed a lot with the Zendaya takeover. This change means that the customers drawn to Tommy Now (and partly to Tommy Hilfiger) have very different Big 5 personality types. Knowing your customers means knowing where to invest: Gigi fans will mirror the model's fast lifestyle and rough street image (careless with items and unpredictable in rental behaviour), while Zendaya fans will care about her activism and empowering retro campaign (careful with the products and idealistically loyal to the brand). These two types will behave completely different when renting products and their service preferences vary broadly, which is something a brand should be aware of when designing a service.

22 Newbold, 2018
23 McKenzie, 2019



Image 25: two Tommy Now collections next to each other. Pictures: Getty Images & Shutterstock

The rental market

Throughout this report it is mentioned that there are hardly any examples of existing rental services in the fashion industry, which is true when looking at the existing, traditionally linear fashion brands. The pioneering newcomers have blazed a trail however, and their successes are analysed in Appendix H. The analysis was done following Chow¹, who compared an analysis of Rent the Runway (RtR) and Meilizu, a Chinese fashion rental service. The authors used only publicly available data for their research; they have a strong focus on supply chain decisions, which was very valuable later in the business case study (Appendix J).

Nine companies were selected for the analysis, all of them fashion rental companies, in different phases of the start-up scale up process. Appendix H shows the full table of data for each company. Image 26 shows their annual revenue on the Y-axis against their rental price per item per day, for the average of their portfolio. The companies are:

- RtR: **Rent the Runway**. First fashion rental unicorn start-up² founded in 2009. USA, B2C.
- Y23: **Ycloset**. Successful start-up backed by Alibaba, founded in 2015. Chinese, B2C.
- LeT: **Le Tote**. Fashion rental style box pioneer, founded in 2012. USA, B2C.
- GMD: **Girl Meets Dress**. Europe's largest dress rental start-up, founded in 2009. UK, B2C.
- **Vigga**. Children and maternal rental with their own product line, founded in 2014. DK, B2C.
- **LENA**. Fashion library collaborating with sustainable brands, founded in 2014. NL, B2C.
- Tn: **Tumnus**. Collective fashion library and rental enabler, founded in 2015. AU, C2C.
- SL: **Style Lend**. Online fashion rental platform for high-end closets, founded in 2013. USA, C2C.
- MLZ: **Meilizu**. Mixed model, pioneering collaboration rental, founded in 2015. Chinese, B2C / C2C.

The prices on the X-axis are based on four different rental business models successfully in use by these companies. For comparison the prices for the customers were normalised as cost of rental per day of rental per average item. These four models were used in the business case research as different pricing business case studies:

- **Short-term rental**: users rent one item for a few days, pricing per item
- **Monthly rental**: users rent one item rented for at least one month, pricing per item
- **Monthly subscription**: users have access to a no. of items for a month, for a fixed monthly price
- **Rotating subscription**: user have access to a no. of items on a continuous rotation basis, for a fixed monthly price

1 Chow, Chiu, Yip & Tang, 2018 (Chapter 10)
2 Leighton, 2018

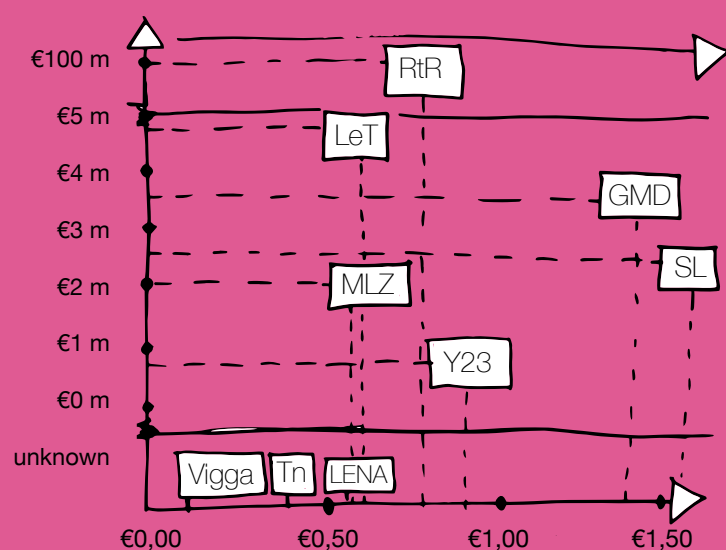


Image 26: the case study companies' yearly revenue (y-axis) mapped out against their rental price per item per day (x-axis)

The price of renting

The questionnaire (Appendix F) also brought forward the unexpected insight that people across the socio-economic spectrum agreed on a rental percentage per rented item. Their monthly budgets for fashion items ranged from below €50 to €175+³, yet they would all spend around:

- €10 for an €80 item **per weekend: 12,5%** of the retail price
- €20 for an €80 item **per month: 25%** of the retail price

These percentages were validated with an advertisement test, in which three ad types were compared: the sale of the item, the monthly rental and the 3-day (weekend) rental. The pictures in Image 27⁴, show the different side bars that were placed on the picture (see appendix I for the colour ads and full results), with on the top row the single item model and on the bottom row the subscription model with the three rental types. A coat served as the advertisement test case study, based on the 'fur rental studies' (Appendix E) and on the preferred brand from the questionnaire (Appendix F). The ads were tested for advertisement costs per click on the link⁵ (CPC), which is a good indicator of the customer's willingness to pay; the results were unexpected, with sales clearly being less popular than any of the rental models:

- €0,17 per click: **Monthly rental**, single item
- €0,24 per click: **Rotating subscription**: outfit model, short-term rental
- €0,25 per click: **Monthly subscription**: outfit model, monthly rental
- €0,26 per click: **Short-term rental**, single item
- €0,27 per click: Sales of the single item
- €0,40 per click: Sales of the outfit

3 Covering the Value, Mid-Market & Premium segments defined by Morrison, Petherick & Ley, 2019 (page 44)
4 Mars, 2019
5 The author's company was used; 28YB, 2019



Image 27: the six advertisements, left column is the outfit test, right column test 2 with a single item

The business case design

The business case design is the culmination of all the separate research projects; it integrates all the knowledge and transmutes it into an understandable, quantitative outcome: money.

The goal of the research however was to identify, investigate and design for dynamic relations between parameters, not for absolute values. Guided by an expert interview with Erick Bouwer, CEO of Vigga⁶ and advisor for LENA⁷, the business case took a pricing turn, expressing the unavoidable investments as overhead, but otherwise taking an outsourcing approach to any major investment, thus making these costs part of the service unit. **A service unit is the full cycle of each time a customer rents one piece of clothing, uses it and returns it, including product depreciation, after care and a percentage for overhead costs.** This outsourcing approach has many advantages, especially in the early stages of launching a service and during service testing, according to Tsan-Ming Choi⁸ (see chapter “The operations”).

Building a dynamic, parametric business case in Microsoft Excel is difficult because Excel only works with values. Any other mathematical programme however did not offer the freedom and descriptive power that Excel can. Every parameter is expressed as a function of the product price, since the output of the model is the net profit over the item lifespan, both in €. This led to the identification of the fixed costs per service unit, not dependent on the product price:

- **Quality control & Cleaning:** every items needs to be checked and cleaned before it can return to a customer
- **RFID / NFC tags:** every item needs to be tagged in order to be traceable
- **Shipping:** every item needs to be shipped to its destination and back – this price can however vary if multiple items are packed together

The profit-driven service design

Identifying these unavoidable fixed parameters did lead to a pricing and design strategy that minimises the impact of the costs per service unit; meaning that the service lay-out and details were shaped by their effect on profitability. This profit-driven service design method can be applied through roughly four different strategies:

- By adding the option of excluding shipping costs, which are relatively high for the lower and middle segment products
- By including minimal monthly fees, so that the shipping costs are spread out over multiple items rented at once
- By matching the rental percentage to profitability, creating relatively higher rental fees for cheaper items
- By designing for specific user behaviour

It is uncommon to use profitability as a service design driver because it is not possible to know the profitability of a service during the design phase. It is however possible to predict the factors that impact profitability most: the key parameters. A design team can identify these parameters by building the business parallel to the service. For example: the insight that item rental duration is a large factor for profit can lead to a potential series of subtle yet effective design choices that nudge the user to rent the product longer:

- the user pays for shipping
- the rental price decreases per rented month
- the product is part of a collection of multiple items, for which longer rental is logical
- the product is marketed as a seasonal item
- etc.

6 Vigga, 2018
7 Lena, 2019
8 Choi (Ed.), 2016

The sensitivity analysis

Profit-driven design requires the identification of the essential parameters for profitability, through a sensitivity analysis. The parallel research projects generated insight into value ranges that were acceptable to the service users for almost all parameters identified in the business case. Image 29 gives an overview of these parameters, their sources and the baseline values. The ranges used for these parameters are based on a triangulation of sources of research:

- Ranges defined as ‘reasonable’ in questionnaires or interviews by potential users (see appendix D, E and F)
- Ranges found between the case studies of existing rental services (see appendix H)
- Ranges derived from literature, validated in expert interviews with Erick Bouwer and Robert van Boeschoten. (See Sources for recommended reading)

Each parameter was set at the average value, while one of the parameters was varied over its defined range, varying all parameters one by one and plotting their relative impact on profitability. The impacts of the six most influential factors are plotted together in Image 28 over 12 steps. The step sizes and units on the X-axis differ per factor; they have been normalised over 12 steps for visual coherence in the graph. On the Y-axis the impact of each step for each parameter is plotted, expressed as the profitability. The earlier mentioned report by Fashion for Good and Accenture⁹ explains the sensitivity analysis process in detail, with insights and conclusions matching those in this report, detailed in Appendix J.

This does not mean that for every parameter the highest option should be chosen, since all of them in turn also affect the number of potential customers, thus affecting the overall profitability of the service for the company, and not just for the service unit. The overhead costs are included in the costs of delivering the service, which would significantly grow per product rented when only a few people would use the rental system, for example. A delicate balance between the six factors therefore is key.

These factors are defined both by service design decisions and by consumer behaviour. This sensitivity analysis showed how ‘average number of months rented’ is an important factor in profitability. However this parameter is not subject to the design decision of a manager, only to the user’s behaviour. The item life span is a consequence of both the product quality and the carefulness of its user. All influenceable parameters are subject to customer approval.

9 Morrison, Petherick & Ley, 2019

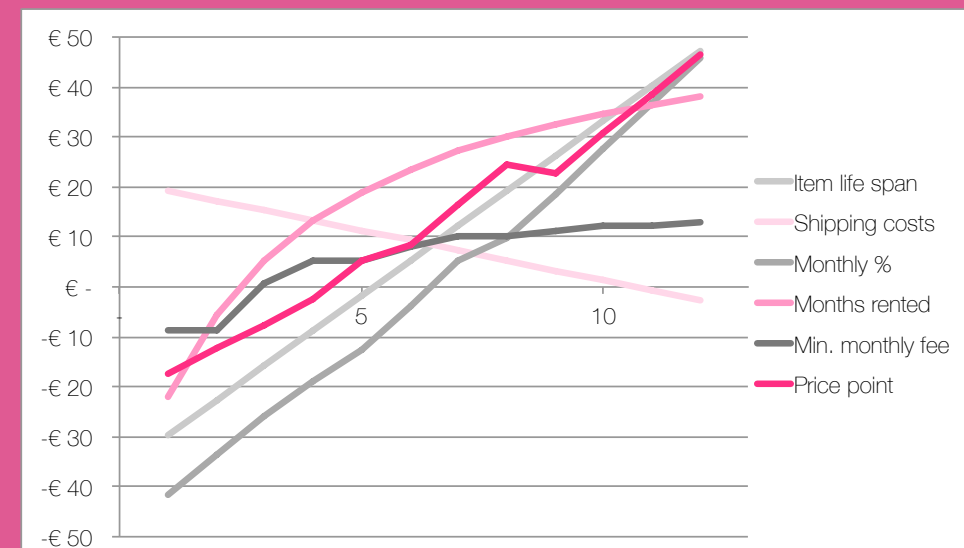
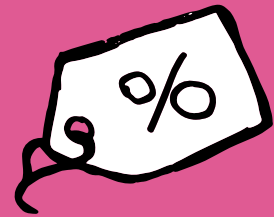


Image 28: the six most important parameters, their baseline value, lower limit, upper limit and the sources

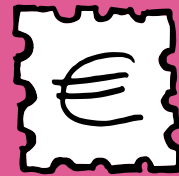
six key parameters



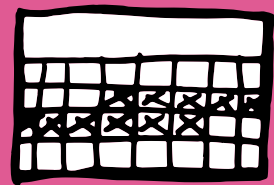
monthly percentage



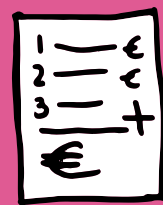
life span



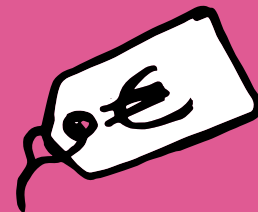
shipping costs



months rented



minimal monthly fee



price point

Parameters	Description	Baseline value	Lower value	Upper value
Monthly price percentage	The monthly amount users pay to rent an item, respective to the retail price of the item	25% Average monthly rental %	10% Lowest % of competitors	37,50% Highest % of competitors
Average rental duration	The average number of months one user rents one item in a row	1,5 months Low-end estimate	1 month Minimal 1 month rental	3,75 months Maximum time for a season
Item life span	The expected number of months an item can be worn before it is amortised.	12 months average life span of a €30 item	2 months An extremely delicate item	24 months A durable item
Minimal monthly fee	The minimal amount of money spent per month on rental items	€24 80% of the avg. price point	€0 No minimal fee	€65 The competitor's price point
Shipping	Transport of the item from the company to the user and back	€7 Average shipping costs in NL	€0 Customer pays full shipping	€11 Highest price in the NL market
Average price point	The average retail value of the product portfolio.	€30 Critical minimal price point	€10 Absolute lowest price point	€65 Minimal price point of competitors

Image 29: the sensitivity analysis results for the 6 key parameters

The rental models

Earlier the minimal monthly fee was introduced to lower the impact of shipping on profitability. The sensitivity analysis shows how this fee's impact is significant (see Image 28). It is however a complex model that is not common in the current service offering that is available (see Appendix H). Therefore the business case was split up into four different cases, for four different rental models, with three subscription sub-models (see Image 30):

- **Short-term rental:** customers rent one item for a few days, pricing per item
- **Long-term rental:** customers rent one item for at least one month, pricing per item
- **Minimal monthly fee:** customers can rent as many items as they want per month, but with a minimal monthly fee
- **Subscription:** customers have access to 3 items on a continuous rotation basis, for a fixed monthly fee
 - **1 monthly round:** customers have a subscription to one set of 3 rental items each month
 - **Send > order:** customers send 3 old items back, then order 3 new items after the company receives the old items
 - **Order > send:** customers order 3 new items, then send 3 old items back after receiving the new items

For each of these models the business case includes two extra versions: one where the customer pays the shipping costs and one where the company pays. This results in a total of twelve different models, for which the total profit over the item's life span is calculated, corrected for the cannibalisation of linear sales profit. This total profit is then converted to an indication of the profit margin for each rental model. Each business case and its matching service model was optimised for profitability, iterating between the basic operations model described in chapter "The operations" and the business case. Not every one of the twelve models is extensively described because the details of payment system are only a small part of the whole service design process, and it is a relatively self-evident aspect of the service.

It is important to note that the twelve service models in the business case, are abstract and parametric representations of the dynamic interrelations between service design decisions and their combined effect on potential profitability. The absolute results for a specific case are not exact, scientific or validated; the numbers are predictive indicators from a design-based model, and should be read as such.

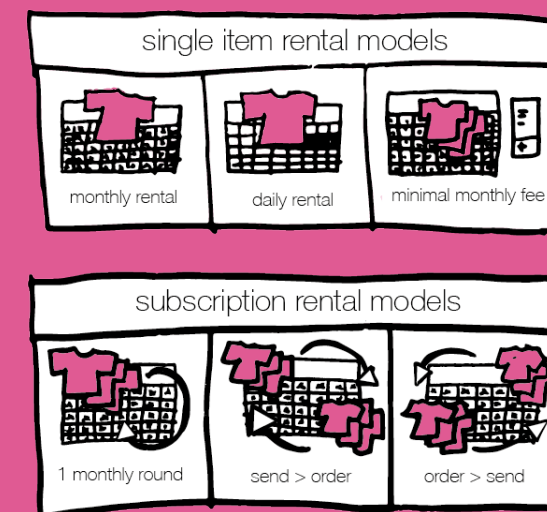


Image 30: the six different rental models defined in the business case

The dynamic model

The business case's strength lies in the dynamics behind the numbers and the relations that are captured in the mathematical modelling. A static report is not the right medium to communicate the model, so different short movies were made to explain the dynamics behind the numbers and the overall lay-out of the business case. Appendix J shows the static model for more detail.

The QR code below in Image 31 leads to a Dropbox file with short clips explaining the lay-out of the business case. In these videos the author will explain the functionalities of the business case while using it. If you are reading this report in Acrobat reader, you can also click on the image of the QR code to follow the link. The clips are numbered, it is advised to watch them in the right order.

The DST application

An Excel sheet is also included in the Dropbox folder behind the QR code; this sheet uses the mathematical formulas derived from the business case (see Appendix J for the full code). **This Excel sheet enables the viewer to vary the six parameters and immediately see the effect on the profit margins for each of the 12 scenario models. This Excel sheet is the foundation of the DST; it summarises the mathematics behind the DST advice.**

The business case is transformed from a static overview to a dynamic model with six unknowns: the key parameters. The advice therefore is useless when these six parameters are not defined correctly. It is however interesting to use the dynamic model to get a feeling for the impact of the different parameters before investigating those of your company with the actual DST.

6: the decision support tool

The introduction

The previous chapter described the business case, and concluded with the remark that the advice is useless when the parameters aren't defined correctly. This is the core function of the DST: to simplify the maths and research behind this report and make it down to earth and approachable. The DST consists of three parts, which are shown in Appendix K:

- The **mathematical model** that was introduced in the previous chapter
- The **questionnaire** to identify the essential data about the brand and the company behind it
- The **value table** to translate the questionnaire data to the six key parameters

This chapter will describe how the DST operates and how the questions about the company and brand are translated into the six key parameters that can predict the company's potential profit margin for twelve different circular fashion service models.

The business case as a tool

The idea of using the business case as a design tool stems from Charles and colleagues¹ who use their executive expertise to pitch sustainability as a profitable corporate strategy. This attitude is clearly reflected in this project, where **the sustainability aspect of the circular economy is only evaluated for its financial profit potential**. This attitude of design as a driver for profit is not often taught at universities, but very often practiced in reality.

Coreynen & partners² elegantly created a tool perfect to answer this question, but it stays safe in the abstract realms, while Morrison & partners³ did the financial research but kept their data in a static model, unfit to adapt to a specific company. That is why the maths behind the business case was chosen to balance the scientific yet radical design theory and the realistic yet incremental business practice: to express the advantages of a design approach in the language known to business leaders.

Cambridge university⁴ has built a toolkit with which anyone can build the business case for inclusive design. The university does so with a Microsoft Excel sheet, designed to guide its users through certain thought processes, ending up at a fully functioning business case. This bulky concept is very effective because it shows the reasoning behind the numbers, but it is neither user friendly nor elegant, as you have seen in the videos about the business case.

The university's format of the Excel sheet builds heavily on the case study data provided in the same sheet. **When working with known numbers and abundantly available case study material it might be advisable to work with exact numbers; for the case for a thus far non-existent circular fashion service, not so much.** The university also states a very clear no liability claim⁵.

On top of that, by showing the actual numbers it is easy for users of the tool to lose sight of the bigger picture through all the details. The first fully operational business case was shown to 20 different people with an affinity to the topic, and they were asked what they thought about the idea of using it for design guidelines. 17 of these 20 immediately went into detail asking about a specific cell, which number it represented and why. One of the three remaining people had very little time and the other two were genuinely considering the function of decision support. This shows that the format of an Excel sheet is not suited for the stage of innovation that the circular fashion service is in anno 2019.

- 1 Charles et al., 2017
- 2 Coreynen, Matthysse & Gebauer, 2018
- 3 Morrison, Petherick, Ley, 2019
- 4 University of Cambridge, 2011
- 5 University of Cambridge, 2011

The DST in general

The DST is an interactive PDF document that gives fashion companies investment advice for circular fashion services. It does so through a series of simple questions about the company, its brand and its customers. For each question a value is assigned, which eventually translates to a data set. After all questions are answered the interactive pdf collects the values and the results are calculated automatically of each of the 12 rental models. The respondent is directed to this report for more background information on their company's fit with the market of fashion rental.

The questions are simple but they do require a broad overview of the company, which makes the DST perfect for strategy level managers within the fashion company. The DST is available online, making it accessible, scalable and anonymous. The answers to the questions might be seen as slightly sensitive, so they are not saved anywhere because the manager can download the PDF and use it offline.

In the minimum viable version of the DST the answers are manually entered into the business case after receiving the questionnaire results. This means that the responses are saved, which is incongruent with the privacy statement (See Appendix G). The results therefore will be handled only by the author of this report, an external party to the C&A Foundation, and the advice is only shared with the respondent. The anonymous conclusions from the MVP tests however are used for optimisation of the content of the tool and its related design.

The relationships & parameters

The six most important parameters together define potential profitability, so the questionnaire is designed to find the approximate values for these parameters for each fashion company. The DST is built on the six key factors as shown in chapter "The business" – the 32 answers to the 15 main questions together define the six parameters (see Image 32).

The general profitability was added as a seventh category. For each question there is an explanation, which is based on the cumulative research described in this report. Appendix L is a brief summary of the conclusions, written out succinctly in cause and effect statements. Image 32 only shows which questions build the parameter, but not how and why. This chapter will go through all questions and briefly explain why they were included.

	1. Number of collections	2. Average retail price	3. Basic T-shirt price	4. Life span	5. Operational area	6. Shipping partner	7. Return policy	8. Shipping costs	9. Profit margin	10. Brand style	11. Product portfolio	12. Brand personality	13. Customer personality	14. Customer loyalty	15. Average spending
Monthly percentage									X		X				
Months rented	X									X	X	X	X	X	
Life span	X			X			X			X		X	X	X	
Monthly fee			X					X							X
Price point		X	X												X
Shipping						X		X							
General profitability					X		X	X	X	X				X	

Image 32: the DST questions versus key parameters

The DST questions

This paragraph goes through each question and shows how the results impact the relevant parameter. The parameters are joined by an indication of general profitability, as mentioned before. The 15 questions are briefly mentioned in Image 32. The questionnaire can be found when following the link in the QR code below. Image 33 is again clickable.

Later in the report the values from the questions are combined for each parameter - this paragraph is concerned with discussing each DST question and the reasoning behind the assigning of values. The theory, sources and research behind the reasoning has either been discussed throughout this report or it is mentioned in appendix L. **The baseline values for the key parameters (see Image 28 on page 47) and their accompanying scenarios were the foundation for the assigned parameter values for each answer to a question. Answer values were calculated backwards based on their deviation from the baseline value scenarios.**

The Venn diagram in Image 34 shows the relevant chapters for the reasoning behind each of the six key parameters. One of the goals of this report is to cultivate a service design mindset for its readers, as described in Appendix B. This chapter therefore does not regurgitate the same research again, but more so counts on the reader's accumulated understanding of how a designers thinks.

1. Number of collections

How many new collections do you have per year?

	Months rented	Life span
a. Less than 6	a. 2,3	a. 20
b. 6 to 8 per year	b. 1,8	b. 16
c. More than 8 per year	c. 1,2	c. 10

Brands with many collections attract customers that expect the newest product every few weeks, they will not be long-term renters. This means that they will expect the same short-term use of the rental products - or even be drawn to the rental model because it offers them an even higher rotation speed than linear purchase. The number of yearly collections also indicates how quick the old items become obsolete. Quick rotation indicates quick depreciation: design of obsolescence.

Image 33: the QR code leading to the questionnaire

2. Average retail price

What is approximately the average retail price of all products in your brand's portfolio? If the portfolio is very broad, please estimate the price point only for the part of the portfolio that you think is suitable for a rental model.

	Price point:
a. €40 or lower	a. €30
b. €40 - €70	b. €50
c. €70 - €100	c. €80
d. €100 - €150	d. €120
e. €150 or more	e. €150

The average retail price is leading for the portfolio price point, but often hard to estimate. Ideally this is a weighted price point for all items eligible for the fashion rental model (excluding socks & underwear for example, see Appendix L).

3. Basic T-shirt price

What is the price of a basic T-shirt, if applicable?

	Monthly fee	Price point
a. €20 or lower	a. €20	a. €30
b. €20 - €40	b. €30	b. €50
c. €40 - €60	c. €40	c. €70
d. €60 or more	d. €60	d. €90
e. Not applicable	e. X	e. X

The minimal monthly fee should be close to the price of a basic T-shirt, because the comparison is effective in advertisement and communications. The basic T-shirt price is also a secondary indicator of the average portfolio price point, albeit less exact than the average portfolio price point question before.

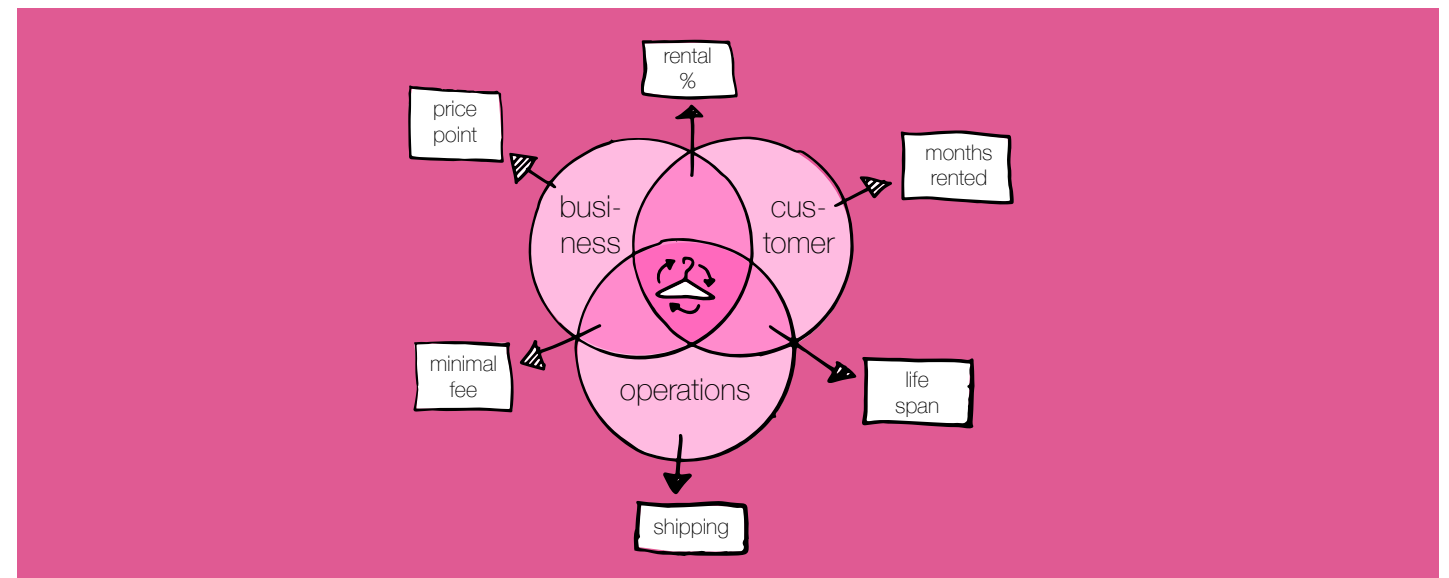


Image 34: the relevant chapters for the reasoning behind each of the six parameters

4. Life span

What is the average life span of your products? When making an estimation, expect the products to be worn as intended, and estimate the number of months they could be worn until the product would show wear & tear. If the portfolio is too broad, make the estimation for the product segment you would consider suitable for rental.

	Life span
a. 6 months or less	a. 6
b. 6 to 12 months	b. 9
c. 12 to 18 months	c. 15
d. 18 to 24 months	d. 21
e. 24 months or more	e. 29
f. The products are designed to be worn just once	f. X

The life span question obviously is part of predicting the item's life span. The average values were chosen. The last option was added in case a company selling disposables was interested in circular services. The DST model however does not accommodate to disposables, so anyone selecting answer f is immediately redirected to the end of the questionnaire.

5. Operational area

Where do you operate with your brand?

	General profitability
a. National	a. +-
b. International	b. ++
c. Intercontinental	c. +

The operational area shows the overall company size and the relative costs of investing in a test service. Small area means relatively large investments, but they also imply a better connection to customers. The DST however is designed for companies with an international to intercontinental operational area, because these companies have a relatively larger revenue so they will have more budget to test a rental service, and to lower overhead.

6. Shipping partner

How is B2C product shipping organised for your brand?

	Shipping
a. Product shipping is done through the in-house logistics department	a. €3
b. Logistics are organised together with a partner in close collaboration	b. €5
c. Products are shipped by a logistics partner under a favourable contract	c. €7
d. Product shipping is completely outsourced	d. €11
e. Products are only sold in-store, never shipped	e. €0

If a company has a close relationship with a partner, or handles logistics themselves, the costs of shipping is significantly lower. In general fashion companies collaborate with their shipping partners, but a closer collaboration is preferred.

7. Return policy

What happens to the brand's products that are returned after an online purchase?

	Life span	General profitability
a. Products under €40 are immediately discarded upon return	a. 8	a. ++
b. Products under €20 are immediately discarded upon return	b. 10	b. +
c. Only specific products are immediately discarded upon return	c. 14	c. +
d. No products are discarded upon return	d. 18	d. +-

The choice to discard items before they have lost their functional value indicates that their value is based on something else: their fashionability. The longevity of the product is partially defined by the product's fit to current fashion trends. Also the return policy is built on a functioning take-back system. If many products are discarded because taking them back is too expensive, it means that the company can increase its profits also for linear sales when a circular fashion service is implemented.

8. Shipping costs

Do your customers pay for domestic product shipping?

	Shipping	Minimal fee
a. Yes, always	a. €0	a. €100
b. Yes, if their order is below €100	b. €2	b. €80
c. Yes, if their order is below €50	c. €4	c. €50
d. Yes, if their order is below €25	d. €6	d. €30
e. Shipping is always free	e. €11	e. €20
f. Products are never shipped	f. X	f. X

If customers are used to paying shipping costs, it is much easier to not ship products for free in a service context. Also if the shipping costs depend on a minimal fee, then users are accustomed to conditions, which makes the possible minimal fee easier accepted by many.

9. Profit margin

What is the average profit margin in our product portfolio, in % of the retail price? If the margins vary a lot per product, please make a more conservative guess.

	Monthly %	General profitability
a. Less than 5%	a. 15%	a. ++
b. 5% - 10%	b. 20%	b. +
c. 10% - 15%	c. 25%	c. +-
d. 15% - 20%	d. 30%	d. -
e. 20% or more	e. 35%	e. --

The profit margin shows the willingness of customers to pay a premium for the brand, which implies high branding and advertisement investments, but generally it says less positive things about the actual product quality. Also profitability is expressed as the excess profit minus the original expected profit from linear sales. A high sales margin means lower service profit.

10. Brand style

How would you describe [brand]'s style and its position in the fashion market? Feel free to discuss this with co-workers or people outside of your company.

	Months rented	Life span
a. Extrinsic style: an extraverted yet consistent product portfolio that hardly changes over time. Very eccentric style.	a. 2,5	a. 29
b. Intrinsic style: a modest yet recognisable style that differs very little between collections. Timeless quality products.	b. 2,2	b. 19
c. Trend leader: innovative, ground-breaking collections. Unpredictable new collections, but still a recognisable style. Zeitgeist defining.	c. 2,5	c. 15
d. Trend follower: Very broad customer base, products that appeal to the masses. Adaptable product portfolio, quick production of new collections.	d. 1	d. 10

Brand style indicates the weight of fashionability for the assessment of product longevity. Style items retain their value much longer than trend items. The brand personality also is an indicator of the products' timelessness. If the brand is susceptible to fashion trends then its products will be outdated quickly and customers will look for something new to wear. The think box "The value of style" on the next page dives deeper into these dynamics in a circular service context.

11. Product portfolio

Which types of products does [brand] sell? Multiple answers are possible.

	Monthly %	Months rented	General profitability
- Occasional wear: tuxedo's, gowns, costumes	a. 35%	a. 1	a. Short term
- Seasonal wear: snow boots, bathing suits	b. 30%	b. 1,9	b. Long term
- Custom wear: bespoke suits, tailored items	c. 35%	c. 2,8	c. Long term
- Sports wear: gym clothes, running shoes	d. 25%	d. 2	d. Subscription
- Business: corporate suits, uniforms	e. 30%	e. 2,2	e. Subscription
- Essentials: basic but indispensable items	f. 20%	f. 1,8	f. Minimal Fee
- Casual wear: day-to-day items	g. 25%	g. 1,5	g. Minimal Fee
- Intimates: socks, pyjama's, underwear	h. 15%	h. X	h. X

The value of style

The increasing rate of changes in trends is a result of the interplay between style leaders and trend followers¹. The past three decades have seen a staggering increase in the speed of production, from design to store. A result of this change is that fashion leaders see knock-offs and copies of their new designs in fast fashion stores just weeks after their debut on the runway². These leaders then respond with a new collection, to show their fashion leadership and to undermine the profit the followers make by copying their original designs³.

But these swift successions of collections could not have happened if consumers didn't buy the products. This is happening because these products have become incredibly cheap compared to similar products 100 years ago⁴. Surprisingly people still spend a similar portion of their income on clothing, but now own between 9 and 30 times more clothes than they did 100 years ago (this depends on the source, the variation is high between countries and studies).

This planned obsolescence has drastically lowered the need for quality, since products are not expected to last only until the launch of the next collection of products fulfilling the same function⁵. This high pace of change in product offering has created a shift in product valuing: the biggest factor defining the value of a product is its fit with the current fashion trends. This means that a product can skyrocket in value in a matter of seconds when a style influencer decides it is time for army pants and flip flops⁶, but the product loses its value in a matter of seconds when someone buys it⁷.

Products in a circular service are valued in the polar opposite way: they return to being assets instead of consumables. They are slowly depreciated in a circular system; the product's life span based on its physical properties is leading in depreciation. The extent to which a product's physical properties can fulfil the functionalities it was designed for are the key indicator for its value⁸.

This thus also means that the next collection of products designed for a circular service should be created with longevity in mind, since this generates much more profit. This longevity does not only mean durability – it also means that its design is rooted in style, not in trends⁹. The essential difference between style and trend is the intrinsic value: trends are fleeting but style is consistent.

- 1 Miller, 2009
- 2 Bhardwaj & Fairhurst, 2010
- 3 Barber, 2009
- 4 Chao & Utgoff, 2006
- 5 Jung & Jin, 2016
- 6 Drummond, 2004
- 7 Miller, 2009
- 8 Bakker, den Hollander, van Hinte & Zijlstra, 2014
- 9 Henninger, Alevizou, Goworek & Ryding, 2017

The types of products indicate a fit with short-term rental, long-term rental or bundled rental. For short term the percentage is higher, because this will be divided again into a daily rental. Less personal connection to the item type indicates a higher monthly fee.

The type of product also is a clear indicator of the type of rental behaviour associated with it, based on the use it was designed for. For example custom wear often is rented much longer because of the literal fit, while casual wear can be changed quite often. 1 month is chosen for products suited for short term rental. Lastly the product portfolio is a good indicator of the type of rental model suited for the company, which has been indicated under general profitability.

12. Brand personality

Your brand identity is an important factor in predicting the behaviour of your customers. Try to imagine what the true personality of your brand is, and what they would act like if they were a person. Please state how much you agree to each statement.

Your brand has a character that is...

- a. ... extraverted
- b. ... antagonistic
- c. ... conscientious
- d. ... emotionally stable
- e. ... open to new things
- f. ... introverted
- g. ... agreeable
- h. ... lacking direction
- i. ... neurotic
- j. ... closed to new experiences

- 1 = disagree strongly
- 2 = disagree somewhat
- 3 = neutral
- 4 = agree somewhat
- 5 = agree strongly

All statements are rated on a 5-point Likert scale, as shown above. For both brand personality and customer personality (the next question) there is an extra key to translating these results⁶, where the answers are rated as follows:

- [-e] + [j] = Openness**
- [-c] + [h] = Conscientiousness**
- [-a] + [f] = Extraversion**
- [-g] + [b] = Agreeableness**
- [-d] + [i] = Stability**

For example: if a brand scores 4 for [a] and 2 for [f], then the score calculation is $-2+4 = 2$, indicating a moderately high score for Extraversion. Personality scores between -1 and 1 are excluded; the baseline values are used for these personality traits. Scores between -4 and -2 are defined as Low and scores between 2 and 4 are considered High.

13. Customer personality

Your customer's personality is equally as important. Think of the archetypical person that wears your brand. Who are they? What do they do and think? What do other people think about them? Please state how much you agree to each statement.

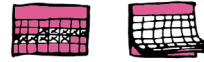
Your customers have a character that is...

- a. ... extraverted
- b. ... antagonistic
- c. ... conscientious
- d. ... emotionally stable
- e. ... open to new things
- f. ... introverted
- g. ... agreeable
- h. ... lacking direction
- i. ... neurotic
- j. ... closed to new experiences

Again these statements are rated on a 5 point Likert scale; the same as for question 12. Customer personality is often an slightly less extreme version of brand personality: people tend to exaggerate their scores, leaving their self-reported Big 5 types slightly higher than realistic. People also tend to use brands as a communication tool to show which of their personality traits they think are important. Therefore the balance of the brand personality and the customer personality is chosen. The customer personality is calculated exactly like the brand personality in question 12 on the previous page. Customer personality is also an indicator of how they treat the items they rent, and how long these items will last.

	Customer type		Brand type	
	Months rented	Life Span	Months rented	Life Span
High Openness:	1,3	18	1,2	12
Low Openness:	2,1	12	2,3	19
High Conscientious:	1,8	22	1,9	20
Low Conscientious:	1,6	8	1,4	10
High Extraversion:	1,3	11	1,2	10
Low Extraversion:	2,1	17	2,3	18
High Agreeableness:	1,5	19	1,6	14
Low Agreeableness:	1,9	12	1,9	18
High Stability:	2,0	19	2,2	21
Low Stability:	1,8	9	1,2	10

14. Customer loyalty



Are your customers generally brand loyal?	Months rented	Life Span	General profitability
a. Yes, we have an enormous loyal fan base	a. 2,5	a. 20	a. ++
b. Yes, a part of our customers is quite loyal	b. 2,1	b.19	b. +
c. Some, but we try to actively engage more	c. 1,9	c. 17	c. +
d. Some, but we focus more on the others	d.1,6	d. 15	d. + -
e. Hardly, our customers also wear competitors	e. 1,4	e. 12	e. -
f. No, they have no attachment to our brand	f. 1,2	f. 10	f. - -

Customer loyalty says a lot about the commitment to the brand's products. People who are loyal will be less likely to quickly swap their items. Customer loyalty indicates the care customers have for a brand and how much they identify with it, thus how well they treat its products. Customer indicates the percentage of people eager to engage in a service relationship with the company.

15. Average spending



How much do customers averagely spend when visiting your store?	Minimal fee	Price point
a. Less than €50	a. €25	a. €20
b. €50 - €100	b. €40	b. €50
c. €100 - €150	c. €70	c. €80
d. More than €150	d. €90	d. €110

The average spending per customer is a tertiary source for price point, but it depends also on the type of brand and the shop locations. The minimal monthly fee should be below the average spending, to emphasise the financial favourability of renting over buying.

The parameters & questions

The table in Image 35 is the value table, with which the value of each key parameter can be calculated. The value table functions as a 'key' of sorts, since it enables the translation of the questionnaire data into a value for each of the six parameters, including a general indication of profitability as an extra outcome of the questions. This table is included in the working prototype version of the DST, but in the final version each key parameter will be automatically calculated according to the value table. And with all these values, the six key parameters are calculated, which in turn calculate the profitability for each of the 12 models.

	Key	Relevant answers	a	b	c	d	e	f	g	h	i	j	Total	
	Monthly %	9 Profit margin	15%	20%	25%	30%	35%						...	
		11 Portfolio	35%	30%	35%	25%	30%	20%	25%	15%			...	+
	Key	Relevant answers	a	b	c	d	e	f	g	h	i	j		
	Average number of months rented	1 Number of collections	2,3	1,8	1,2									...
		10 Brand style	2,5	2,2	1,5	1								...
		11 Product portfolio	1	1,9	2,8	2	2,2	1,8	1,5	X				...
		12 Brand personality*	1,2	2,3	1,9	1,4	1,2	2,3	1,6	1,9	2,2	1,2		...
		13 Customer personality*	1,3	2,1	1,8	1,6	1,3	2,1	1,5	1,9	2	1,8		...
	14 Customer loyalty	2,5	2,1	1,9	1,6	1,4	1,2						...	+
	Key	Relevant answers	a	b	c	d	e	f	g	h	i	j		
		* Big 5 scores	OP+	OP-	CO+	CO-	EX+	EX-	AG+	AG-	ST+	ST-		
	item life span	1 Number of collections	20	16	10								...	
		4 Life span	6	9	15	21	29	X					...	
		7 Return policy	8	10	14	18							...	
		10 Brand style	24	19	15	10							...	
		12 Customer personality*	18	12	22	8	11	17	19	12	19	9		...
13 Brand personality*	12	19	20	10	10	18	14	18	21	10		...		
	14 Customer loyalty	20	19	17	15	12	10					...	+	
	Key	Relevant answers	a	b	c	d	e	f	g	h	i	j		
	Minimal monthly fee	3 Basic T-shirt price	€20	€30	€40	€60	X						...	
		8 Shipping costs	€100	€80	€50	€30	€20	X					...	
		15 Average spending	€25	€40	€70	€90							...	+
	Key	Relevant answers	a	b	c	d	e	f	g	h	i	j		
	Shipping	6 Shipping partner	€3	€5	€7	€11	€0						...	
		8 Shipping costs	€0	€2	€4	€6	€11	X					...	+
	Key	Relevant answers	a	b	c	d	e	f	g	h	i	j		
	Price Point	2 Average retail price	€30	€50	€80	€120	€150						...	
		3 Basic T-shirt price	€20	€50	€70	€90	-						...	
		15 Average spending	€20	€50	€80	€110							...	+
	Key	Relevant answers	a	b	c	d	e	f	g	h	i	j		
	General profitability	5 Operational area	+ -	++	+								...	
		7 Return policy	++	+	+	+ -							...	
		9 Profit margin	++	+	+ -	-	- -						...	
		11 Product portfolio	ST	LT	LT	SS	SS	MF	MF	X			...	
		14 Customer loyalty	++	+	+	+ -	-	- -					...	+

Image 35: the value table with the key parameters, the relevant questions and the translation keys

The safety margins

The business case transmutes the relatively large investments needed for overhead, to avoid subjectivity through depreciation differences and investment fluctuations. The DST can create scalable advice, for different operational sizes by assuming an outsourcing strategy for all activities that aren't already part of the linear sales portfolio⁷. This choice was made to cater to as many fashion brands as possible, while still generating a realistic indication of profitability through a costs-per-rental unit approach. The service blueprint in image 12 on page 28 shows which aspects of the service are new to the activities, assets and partners.

The tool is built on a conservative model of profitability; the baseline values for the business case in chapter 4 highlight these conservative assumption. The large fluctuation due to a small variety means that for some factors the wrong decision can be detrimental to profit (see the business case sensitivity analysis in chapter "The business"). The goal of this the research and the DST is to lower uncertainty, not to eradicate it. The advice generated by the DST offers only an indication of potential profitability, not an exact number. Safety margins are put into place, based on the profit excess per rented item over linear sales, defined over the item life span. The result is defined as the profit margin, as defined in Image 36 and later referred to in Image 37.

Under no circumstances should the tool be a liability to the C&A Foundation, the author of the research, the TU Delft or any other affiliated party. The DST therefore includes a small clause, stating the following:

"Agreeing to the terms & conditions also indicates acceptance of the following: the DST advice is not for resale. The service provider shall not be liable for any indirect or consequential damage, injury (whether loss of profit, loss of business, depletion of goodwill or otherwise), costs, expenses or other claims for consequential compensation whatsoever (howsoever caused) which arise out of or in connection with the use of the DST advice."

This clause was based on the clause accompanying the Cambridge⁸ business case. Any other mitigation of liability is done following the terms & conditions defined by C&A Foundation for their publicly available research and publications.

7 Chow et al., 2018
8 University of Cambridge, 2011

The advice

- Any profit margin below 0% is a negative advice
- A profit margin between 0% and 30% is a predominantly negative advice, unless a change in product life span could turn it profitable. Then the tool will emphasise the value of creating durable, timeless products.
- A profit margin between 30% and 60% is a marginal advice, with a strong invitation to collaborate with a consultant or circular service design expert
- Any profit margin over 60% will generate a positive advice

Profit per item	Example
Total profit under 0%	-10%
Total profit 0% to 30%	10%
Total profit 30% to 60%	30%
Total profit over 60%	60%

Image 36: the rules for the DST advice

Parameter	Value
Portfolio price point	€ 50,00
Monthly percentage % of retail	20,00%
Average rental duration	1,50
Average item life span	18
Shipping costs roundtrip	€ 7,00
Minimal monthly fee % of retail	70,00%

Adjusted for the:
- monthly percentage
- life span
- minimal monthly fee

Parameter	Value
Portfolio price point	€ 30,00
Monthly percentage % of retail	30,00%
Average rental duration	1,50
Average item life span	12
Shipping costs roundtrip	€ 7,00
Minimal monthly fee % of retail	100,00%

Adjusted for the:
- price point
- monthly percentage
- minimal monthly fee

Parameter	Value
Portfolio price point	€ 100,00
Monthly percentage % of retail	25,00%
Average rental duration	2,00
Average item life span	12
Shipping costs roundtrip	€ 7,00
Minimal monthly fee % of retail	100,00%

Adjusted for the:
- price point
- rental duration
- minimal monthly fee

Parameter	Value
Portfolio price point	€ 50,00
Monthly percentage % of retail	25,00%
Average rental duration	1,00
Average item life span	12
Shipping costs roundtrip	€ 7,00
Minimal monthly fee % of retail	70,00%

Adjusted for the:
- rental duration
- minimal monthly fee

Item based models					
Single item monthly rental		Single item daily rental		Minimal monthly fee	
Customer shipping	Company shipping	Customer shipping	Company shipping	Customer shipping	Company shipping
45,78%	-122,22%	72,67%	-935,33%	81,78%	39,78%

Subscription models					
1 monthly round		Send > order		Order > send	
Customer shipping	Company shipping	Customer shipping	Company shipping	Customer shipping	Company shipping
112,67%	28,67%	62,26%	-130,94%	12,60%	-298,20%

Item based models					
Single item monthly rental		Single item daily rental		Minimal monthly fee	
Customer shipping	Company shipping	Customer shipping	Company shipping	Customer shipping	Company shipping
72,44%	-114,22%	202,67%	-917,33%	119,78%	49,78%

Subscription models					
1 monthly round		Send > order		Order > send	
Customer shipping	Company shipping	Customer shipping	Company shipping	Customer shipping	Company shipping
94,67%	1,33%	36,43%	-178,24%	-21,90%	-367,23%

Item based models					
Single item monthly rental		Single item daily rental		Minimal monthly fee	
Customer shipping	Company shipping	Customer shipping	Company shipping	Customer shipping	Company shipping
108,33%	66,33%	156,67%	-179,33%	136,83%	115,83%

Subscription models					
1 monthly round		Send > order		Order > send	
Customer shipping	Company shipping	Customer shipping	Company shipping	Customer shipping	Company shipping
192,67%	164,67%	261,83%	197,43%	340,70%	237,10%

Item based models					
Single item monthly rental		Single item daily rental		Minimal monthly fee	
Customer shipping	Company shipping	Customer shipping	Company shipping	Customer shipping	Company shipping
-25,33%	-193,33%	114,67%	-557,33%	-17,33%	-45,33%

Subscription models					
1 monthly round		Send > order		Order > send	
Customer shipping	Company shipping	Customer shipping	Company shipping	Customer shipping	Company shipping
30,67%	-25,33%	-17,38%	-146,18%	-66,05%	-273,25%

Image 37: four examples of different parameter sets and the resulting margins for each of the 12 models

The DST in action

In conclusion the DST can predict the potential future profit margins, but the quality of the advice the DST gives directly correlates with the quality of the data it is fed. The modularity and scalability of the service model behind the DST enables the adaptation to any type of fashion company because it was built on existing assets & fashion supply chain and outsourcing any new additions to this for the sake of the service. The customer centredness stems from the extensive brand - personality congruency theory, which adapts the service to preferences and predicts human behaviour.

The QR code (or clicking Image 38) leads to the same Dropbox folder including all documents for this report. Here you can find the latest version of the DST, including the interactive Excel model shown in Image 37. The interactive Excel model is based on the formulas derived from the business case, removing the need for the actual business case for calculations. The same mathematical models are built in the DST in PDF form, using JavaScript.

The four examples on the previous page in Image 37 show the impact of different parameter variations. A crystal clear conclusion is that the portfolio price point does not have to be leading for profitability, contrary to the claims made by Morrison & partners⁹. This team used their four price segments as the leading indicators of profitability, which leads to a static view on the servitisation process. **The second scenario shows that a price point of €30 can still generate positive profit margins, when the rental percentage and minimal fee are adjusted accordingly.**

Making service design choices in harmony with profitability is how to really deal with the uncertainty of the fuzzy front end of servitisation. There are amazing opportunities in circular fashion services and the DST is here to help any company eager to explore them. **A striking example is the first scenario on the previous page, where both the monthly percentage and minimal fee were lowered to a critical value. The item life span on the other hand was extended with 6 months, which resulted in positive profit margins for each rental model.**

If you are reading this report digitally it is advised to open it in Adobe Acrobat, because the interactive elements on the next page function optimally in this programme. The key parameters can be changed manually, which automatically influences the profit margins. Play around with the options and maybe copy the four examples in Image 37 or adapt to your company's situation, using the questions in this chapter and the value table in Image 35.

⁹ Morrison et al., 2019

Portfolio price point	Subscription based models					
Monthly % of retail	1 monthly round		Send > order		Order > send	
Average rental duration	Customer shipping	Company shipping	Customer shipping	Company shipping	Customer shipping	Company shipping
Average item life span	Single item models					
Shipping costs	Monthly rental		Daily rental		Minimal fee	
Minimal monthly fee	Customer shipping	Company shipping	Customer shipping	Company shipping	Customer shipping	Company shipping

7: the DST's implications

The business & research implications

For C&A Foundation the DST is an important knowledge base to be used in their 'Bridging the Gap' initiative: Bridging the Gap between the 'talking and the walking' of implementation of circular economy in the fashion domain. Based on this Call for Proposals¹ C&A Foundation started 4 projects worldwide. Mainly aimed at creating 'service design' as a methodology for exploration and implementation of circular business models in the Fashion industry.

The research, theory building, the service design tool and the parametric business case behind the DST is all new to both the service design research field and the fashion industry, because it is original to this project. It is very important to note that none of the work in this report is remotely close to being scientifically published; the ideas behind it and its direct applicability is what makes the work in this report valuable.

The research

The research adds to the body of knowledge for the fashion industry because it aims to validate new assumptions creating a new case study to a trending area of interest. The research method also enriches to the field of service design because it followed a design research structure suitable for many technology push problems, see "The research structure" on page 18.

The theory

The brand personality theory building adds to the fashion industry because it offers a scalable and parametric approach to predicting consumer behaviour over time, a skill that will be progressively more important while circular services gain more traction. The theory also adds to the domain of strategic design due to its wide applicability for highly consumerist product categories.

The design tool

The CSMC tool adapted from the business model canvas offers the fashion industry a simplified model to map out any service design ideas and immediately ask the relevant questions. The tool adds to the service design domain because it has added the factor of time to the original business model canvas, therefore creating a simple yet effective design canvas for services. The integration of the service blueprint and customer journey, adding the business case balance as the bottom line is a simple yet elegant solution to the limited supply of design tools that account for the factor of time in the design.

The parametric business case

The fashion industry gains the most from the business case through the advice of the DST, because the actual numbers aren't accurate enough to be useful. The business does have a surprising value for the area of strategic design because it is proof that profit-driven design can be achieved through the co-evolution of the strategic solution and the business case for it. It also proves that qualitative consumer preferences can be quantified through their financial expression.

But most importantly the idea of a parametric business case is of interest to the consultancy industry: it enables extremely fast and actionable conclusions, while keeping the value of the research behind it in tact. The business case however would not function if the input data was of low quality. The business case combined with the parametric brand - personality theory enabled the smooth operation of the DST.

The assessment of the DST

How can service design create structure in the fuzzy front-end of the design process of a circular fashion rental service and how can it lower the threshold for fashion industry leaders to enter into this new circular economy paradigm?

The DST is an answer to the design brief, but the design brief was already an answer to the research question above. The DST has the potential to lower the threshold for industry leaders, if the advice the tool gives is valued and applied correctly. The simple structure of the questionnaire and the potential profit margins as advice both contribute to a lower threshold, together with this report, which aims to de-fuzzy the front end. The unfuzzifying of the front end is done through design canvasses, scalable models, examples, 12-step programmes and through structured research.

Design brief: Design a parametric tool for existing fashion brands that lowers the uncertainty of the return on investments at the start of the service design process for a circular fashion rental service.

The DST in its working prototype phase does exactly what the design brief states: it lowers uncertainty by offering fashion brands an indication of the potential ROI, before even beginning the work of designing a fashion rental service. The working prototype version of the DST is operationable, but not smooth or streamlined in the user experience. The final PDF version should be improved for usability.

The advice of the DST should be assessed separately to its usability, since it is even more important to the goal of lowering uncertainty. For now it has inspirational value, but after thorough validation it could have actual value. Expert validation is advised, which is difficult due to the lack of experts on this topic. The proposed steps for validation:

- **The values attributed to each of the answers to the DST questions should be checked with company data, which is often more sensitive and not publicly available**
- **The business case should be thoroughly checked by professionals in the circular rental model industry**
- **The research behind the brand - personality theory needs to be extended to a scientific research scale**
- **The willingness to pay needs to be researched with a broader audience and with more budget. Market size is still unclear, but its relevance has been avoided through the outsourcing strategy**
- **Most importantly: the advice needs real-life validation by applying it in an actual model**

The DST is assessed for its fit with the promises made in the literature on circular service models. Eight points were taken into account in the parametric service design on which the business case was built, the table shows how this was done. The think box "the trouble in the fashion industry" on page 14 has more information on these service assessment criteria. The results are scored on a scale from 1 to 10, with 10 being the best possible result. In chapter "The research", page 22 in the think box "the success indicators" the assessment scale of success for the tool was defined; this paragraph will measure and score the DST per point, on the same scale from 1 - 10. The table in Appendix M extensively assesses the DST's fit with the goals from the design brief and the potential circular service.

8: the recommendations

DST recommendations

The DST is the first of its kind, which means that the tool should be used conservatively. It has not been tested for accuracy with existing services, because there are no real-life examples yet; ironically this is both the *raison-d'être* and the Achilles heel of the tool. The main recommendation for this tool is to verify the business cases behind each model, not by modelling any further, but by actually rolling out a circular fashion service as designed in the chapter "The operations".

The DST is still in its testing phase, which is also reflected in the design of the tool. The PDF format should not be changed, due to the sensitivity of the information needed to operate the tool. However so, an interactive PDF also has its limitations, forcing users to perform a little manual labour and calculate their own key parameter values with the value table. It is recommended to automate all calculations in the DST, to prevent carelessness and therefore invalid results.

The DST is of course an approach to predicting the future, and with any divination project there are some 'buts' and 'ifs' that need to be addressed. With this project the sensitivity analysis shows that a little variation can mean the difference between market domination and bankruptcy, which issues the need for caution. It still is a graduation project, not a large-scale peer reviewed theory.

The use of the DST in a private setting means that anyone can interpret the results to their own views. This report, detailing the intricacies of the circular fashion rental model, is 70 pages long, which means that the conclusions the DST gives are only a small part of the whole story (see Image 39). Basing any investment decision solely on the profit margins indicated by the tool is not advised; a more suitable approach would be to use the DST only at the very early stages of the servitisation process, as described in the chapter "The operations", on page 24. The DST is in fact designed to support the decision of entering into the fuzzy front end, not to generate financial advice.

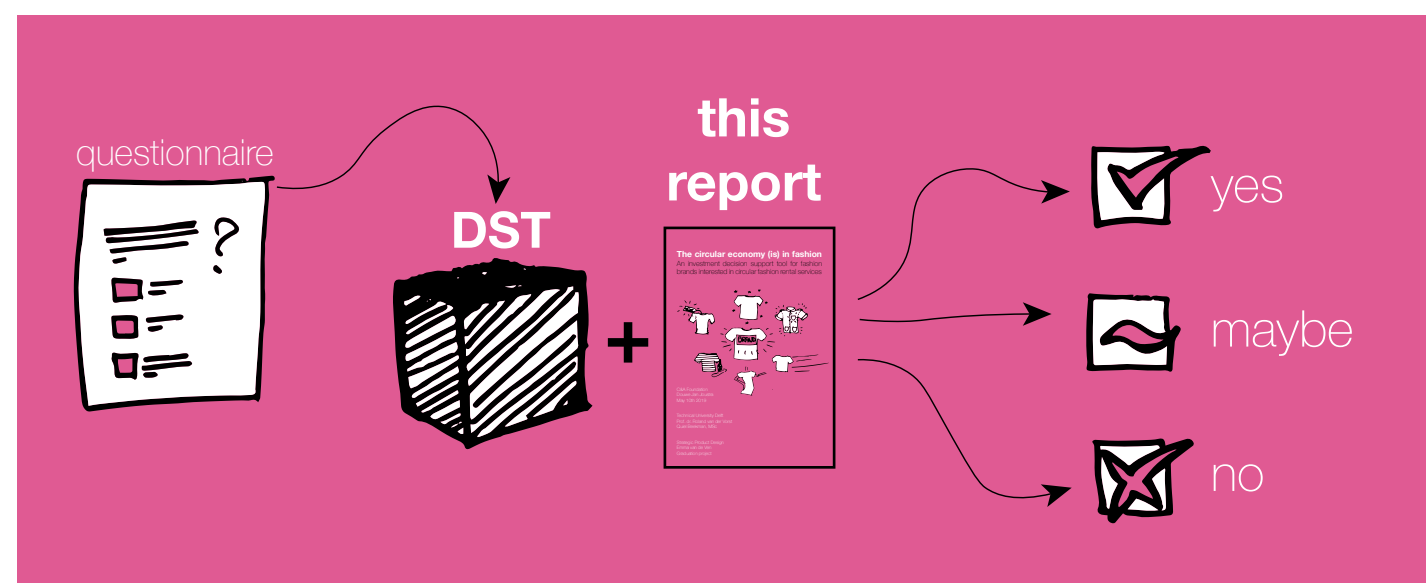


Image 39: the DST's 'black box' combines with the report

Personal conclusions

The acknowledgements

Before I draw any conclusions I want to thank my coaching team for their support and enthusiasm about this project. I am very grateful for the involvement of my team and their patience with my passionate rants and 'crazy professor' style meetings, specially the phase when I thought it was a good idea to draw out all the relations between design decision and their consequences, and their consequences and the consequences of those consequences. I look back on that phase in my sketch roll as the dark ages of this project. Thank Roland & Quiel you for understanding my ramblings and for keeping up with every new and impulsive design direction, but most of all for guiding me and keeping me sane.

I also want to thank my friends and family for supporting me unconditionally, for blindly trusting that my work was of the highest quality without ever really understanding what I was doing. A special shout out goes to Stijn and Maaïke, the two exceptions to this rule: thank you for keeping me and my project sharp and on point.

A special thanks goes out to COFRA, the legal entity behind C&A Foundation, for reminding me of my rebellious side. Without COFRA I would have never started my own company and named after the license plate of my car. But more importantly I want to thank C&A Foundation for hiring me for this project, despite all the legal nit-picking I put them through. Of course this was all due to Douwe Jan's surprising yet unshakeable faith in me, which is deeply appreciated.

The graduation lessons

It is commonly known that one encounters the worst parts of oneself while graduating. That graduation is a time of introspection and suffering. That you will beg for the end of it just after beginning. That graduation will confront you with your biggest imperfections and shortcomings. I am here to tell you that this is all true, and more.

Graduation has been one of the harshest yet most accurate mirrors life has shown me, and I'm well accustomed to find mirrors in anything. As you might have guessed from the references chapter, just around the corner from this one, I am an avid learner and I don't shy away from the more uncomfortable lessons (a recommendation in this category is the work of Choi¹, and his Elsevier bundles on the mathematical modelling of fashion supply chain systems, or the work of Montague & partners² on the functioning of dopamine in the brain's response to addictive triggers). Even with this attitude to life, graduation has surprised me with its intense lessons.

¹ Choi, 2011, 2014, 2016, 2018. Just look up Tsan-Ming Choi, he is a trailblazing professor and a kick-ass editor
² Montague, Hyman & Cohen, 2004



Image 40: the cover image, showing many different fashion brands and their character

The first lesson

Let's start with a slightly lighter lesson: you can not change the world in a graduation project. I repeat: you can not change the world in a graduation project. This might come as a surprise to you (like it did to me), but it's true. If you try to do so anyway, you will be disappointed. I tried to singlehandedly change the fashion industry, but in all honesty I think I have not reached this goal. This project has been one big attempt to secretly feed the industry its medicine by hiding it in profit margins and incremental innovation. I can type this here because the reflection will obviously be removed from the report that C&A Foundation will publish, but this whole endeavour has been just that: my Grand Attempt to make the circular economy happen.

The second lesson

In my quest for circular economy domination I identified consumerism (and in a supporting role: materialism) as the biggest hurdle for the circular economy. This led me down the rabbit hole of the fashion industry, where I still do not feel comfortable: people are so French and polished and vegan and I'm wearing last year's glitter pants. Anyway, the fashion industry served as a case study for consumerism as a hurdle to the circular economy. I have disproven myself with the brand – personality congruency theory, which really needs a catchier name to be honest. This theory states that the more people are attached to their products, the easier it becomes to predict their personality type and therefore their (latent) needs, designing services to exactly match their customers.

Another conclusion from this ill-named theory was that it is possible (in high consumerist markets) to predict human behaviour, which is an essential part of predicting profitability for any potential service. So I was wrong on both accounts: high consumerism is actually preferred for any industry that wants to switch to services where ownership is traded in for access to a product's functionalities.

The third lesson

Knowing contract law is an essential part of being a grown-up. Although C&A foundation is mentioned often in this report and their name is on the front page, this is not a graduation assignment for them. This is a graduation project done for the company 28YB, which was hired by C&A Foundation as an external consultant. I am the owner of 28YB and therefore officially the owner of the intellectual property behind this report, according to the consultancy contract. I actually have a contract with myself, stating that 28YB is the company and I am the graduate student, if ownership of this project would ever be an issue.

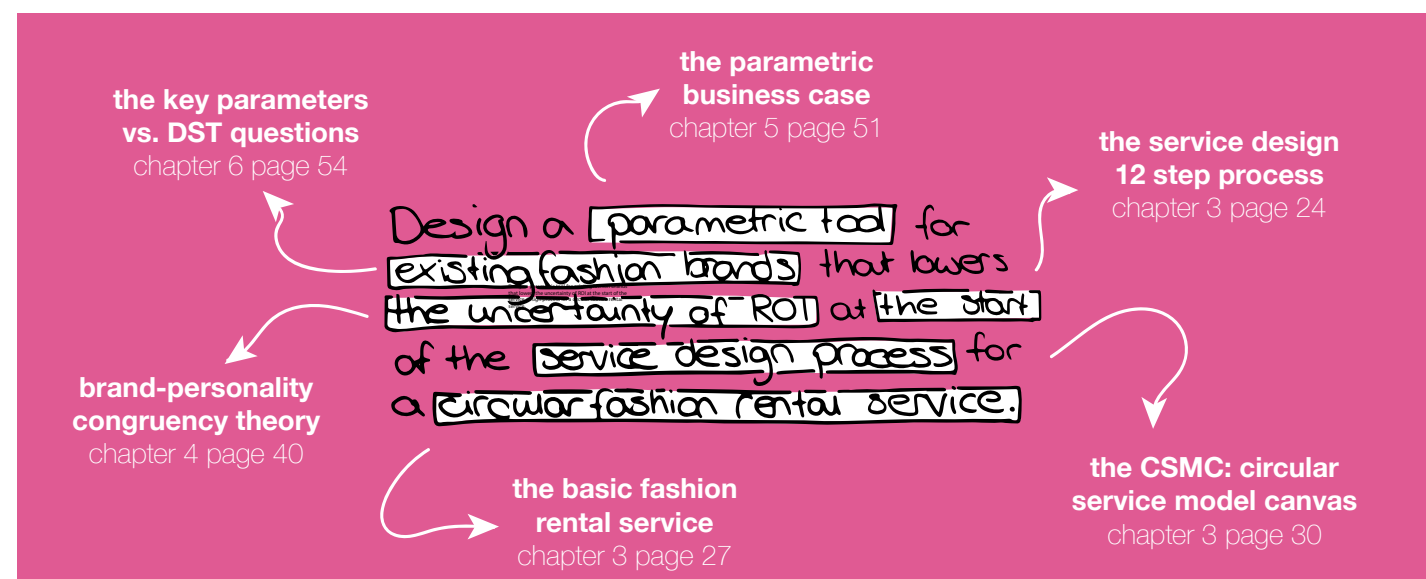


Image 41: the design brief and the relevant parts of the DST, with chapter and page references per aspect

This might sound like a lot of trouble for something small, but for some reason it was worth it to me to do corporate taxes four times a year for this construction. The extra challenge I set for myself was to make all my research scalable (Image 40), from a consultancy perspective. I have some personal problems with the way large consultancy firms extrapolate data from the past and use those conclusions as advice concerning truly innovative (circular) new concepts. I wanted to use a different approach but answer the same questions as they were asked. This I definitely managed, as I actually sat at the table where the Accenture³ report was agreed upon. It is up to the reader to decide which approach to predicting the success of the circular economy in the fashion industry is better.

The fourth lesson

Your worth as a person does not depend on the success of your graduation project. In fact, they are two completely separate concepts. It took me three months of meditation, yoga and green smoothies to discover this, and still I could not keep the two separate during my green light meeting. I am starting to think that I overreacted a bit to the demands for a graduation project (see Image 41); I might have done more than anyone would expect of me – except for me. Perfectionism is not the problem; it's the coping mechanism. The problem is an externalised definition of self-worth, depending others to validate your right to existence. Yes, I just went down that path of existentialism. It's my generation's curse, so if only one millennial reads this and learns something from it, it was worth it.

All of this is relevant because I knocked myself out with a burn-out, demanding more than humanly possible from myself. This wasn't the smartest thing to do in the context of the new graduation rules, because there seemed to be very little room for delays, unexpected events or human nature. Luckily I was supported (literally) by the best team I could imagine, and it turned out that nobody knew who had to enforce those new graduation rules, so I was free to crash and burn to my heart's content. This brings me to my fifth lesson, the hardest and most intense lesson that graduation taught me: the only one who can stop me, is me.

This chapter contains the references of this report and those of the appendices, ordered alphabetically. The word count for this report is 16.749 for the main body text and 3.228 for the think boxes, resulting at a total word count of 19.977. 23 extra words were added here, just to reach the goal of 20.000. It is a true achievement to reach this number exactly. The three most quoted sources are:

- **Stickdorn, M., Schneider, J., Andrews, K., & Lawrence, A.** (2011). *This is service design thinking; Basics, tools, cases* (Vol. 1). Hoboken, NJ; Wiley
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Honorable mentions go to:

- **Dorst, K.** (2015). *Frame innovation; Create new thinking by design*. MIT Press.
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