Master's degree thesis

LOG950 Logistics

Possibility of applying the rental-service based business model in the medium and high-end fashion industry in Norway
A case study: Moods of Norway

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PREFACE

First and foremost, we would like to thank my parents, Le Van Tang and Ngo Thi My Le, for all their love, support and motivation during my study. My brother, Ngo Anh Cat Le, is an bright example for me during my studying path. He reminds me about patience, passion and freedom to chase the dream of my life. I also would like to thank my sister Nguyen Truc Van for her encouragement and caring to me when I am writing this thesis.

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Third, I would like to express my appreciation to Moods of Norway (MoN) 's management including Retail Director Hans Peter Hubert, Store Manager Line Aarvag and staffs in Moods of Norway concept store in Trondheim for all supports during the time I conducted the survey at the store. They answer my questions and explain them thoroughly, which helps me to gain a holistic view of MoN operation and system.

To sum up, no beautiful words can express my thankfulness to all supports I have obtained from them and thanks again for all they have done.

ABSTRACT

The purpose of the master thesis is to design a rental-service based business model for a fashion producer as the core company. The literature reviews that closing the loop in the two last stages of supply chain (consuming and retailing) is the theoretical underpinning of the rental-service based business model. The end-of-lease products will be back to the loop very soon so they can stay in use for longer and continue their cycles to create continuous sustainable and economic values. The new business model built is sustainable if and only if it is accepted by consumers and profitable for the enterprise. Thus, a customer survey about the rental service and profit estimation were conducted. The main contribution is the study has developed a conceptual rental- based business model to facilitate circular economy objectives through economically sustainable reuse of high-end fashion clothes, which was also tested and modified based on customer responses and profitability estimation.

Key words: rental-service based business model, closed-loop supply chain, circular economy, sustainability, medium and high-end fashion products

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1. INTRODUCTION

The textile industry accounts for a significant environmental impact. However, the consumption of textiles has constantly increased. The Nordic Council of Ministers report "Mapping sustainable textile initiatives" by Klepp et al. (2015) highlights that the textile consumption in Sweden has grown by 40 % between 2000 to 2009, and by 36% between 2003 to 2010 in Denmark. On the national level, the textile consumption in Sweden is 15 kg per capita, 13.5 kg for Finland and remarkably 22 kg for Norway (Palm et al., 2014). On the regional level, the annual textile consumption in the Nordic region is around 13 to 16 kilograms, which far exceeds the required use (Palm et al., 2014). This results not only in the combustible garbage, but also in highly hazardous waste.

Important questions connected to sustainability in the textile industry are related to how to reduce the number of textiles in circulation, and by this, reducing waste to achieve a positive impact on the environment. Based on "Mapping Sustainable Textile Initiative" report, there is little to gain by material recovery for textiles. The environmentally proactive efforts must concentrate on reorganizing business activities to prolong clothing lifespans and reuse. Such actions will decrease the consumption of raw materials, water and energy related to the production of new textiles.

The most obvious example of reusing clothes are second-hand shops. With the development of technology, many platforms for new online marketplaces were created. They have facilitated communication between owners and users, which have made sharing resources at scale cheaper and easier than ever. By this, people have been familiar with renting via clicks. Netflix, Uber or Airbnb are successful testimonials. In fashion, perhaps the best-known one is Rent the Runway, which provides a rental service of high-end dresses to 5,000,000 women in the US (Vasan, 2015). The spread of similar companies could be named, such as Girl Meets Dress in the UK, Chic By Choice in Europe and Glam Corner in Australia, as well as more niche ventures, such as Gwynnie Bee (plus-size fashion rental) and Borrow For Your Bump (maternity wear rental). They are all middleman between producers and end-customers. This means the price offered to end-customers are marked up one more time for services served by the middleman. The supply chain can be streamlined if producers offer rental service directly to end-customers. Also, the demand-forecasting for production will be more accurate and so far reduce textile waste and other waste types. Based on my review, the only textile producer who has fully committed to sustainable production as well as sustainable consumption is

VIGGA– a Danish children's clothing company established in 2014. The company founder Vigga Svensson shared that after ten-year unceasing efforts to produce the most sustainable kids' clothes in the world, she closed down her former company Katvig founded in 2013 because she recognized that the way, not only she but also the majority had been working with sustainability, was completely misunderstood. Implementing organic and recycled fibers, banning a lot of chemicals ensuring good workers' rights, reducing emissions, etc. still ends up with a giant pile of million pieces of clothes. At the same time, consumers are continuously convinced and buy these clothes. It is like turning down with one hand, while the other one is turning up and in the end, an enormous exploitation of scarce resources and a massive of wastes are still at the same level. After a year of closing down Katvig, Vigga figured out that rather than focusing on products like before, focusing on how the products are used and design a service to back them up is a right track to achieve sustainability (TEDx, 2016). It led to the born of a new firm called VIGGA in 2014 –a producer rents out baby clothes for a small subscription fee. 18 months later, the company has 50.000 pieces of baby clothing in circulation with baby families (Riisberg, Bang and Petersen, 2017). Unlike traditional clothes brands, VIGGA's customers give the clothes back. In the fashion industry where cash flow is often very tight, the subscription service gives VIGGA a steady cash flow. The circular principle also ensures a high profit because you "sell" the same piece of clothes many times. Another interesting aspect of the concept is that the better quality you produce in, the more times it can circulate and the more money you will earn. Sustainability becomes the main driver in the business model. The question of whether the rental model, which is offered directly from fashion producers, can be carried out in Norway- is of particular interest.

The purpose of the master thesis is to design a rental-service based business model for a fashion producer as the core company. A case study at Moods of Norway (MoN), a well-known company for menswear, womenswear and childrenswear, is then performed to explore how the case company can increase their sustainability and profitability by developing a rental model. According to MoN 's top management, the most viable product for renting is their suits. However, this study expands to design rental business model for both menswear and womenswear in order to explore and capture more aspects in the field of the research. The research questions are

1. *How do supply chain capabilities support a rental-service based business model, and how to redesign the existing supply chain to enable a rental-service based business model?*

2. *What is the consumer behaviour towards a new rental-service based business model?*

3. *What is the profitability of a new rental-based business model?*

The thesis is organized as follows: Part 2 presents the theoretical frameworks that underpin a more service-oriented business model. Part 3 describes the research methodology. Part 4 indicates the empirical case description. Part 5 introduces the conceptual rental-service based business model. Part 6 discusses research findings and presents the adapted rental business model based on them. The conclusion is presented in part 7.

2. THEORETICAL FRAMEWORK

This chapter reviews the literature of circular economy on creating sustainability in textile industry. Next, it will present literature of business model concept. Lastly the closed-loop supply chain literature is reviewed to see how do supply chain capabilities support a rental-service based business model and facilitate circular economy.

2.1. Circular Economy

From a perspective of handling waste in textile industry, the report from the Nordic Council of Ministers "Towards a Nordic textile strategy" (Palm et al., 2014) discusses two economy concepts: linear and circular economy. According to them, the current textile industry implies the linear approach in which people are consecutively making clothes, using them and disposing of them. The circular economy, on the other hand, facilitates products, components and materials are made, used and put back in the loop so they can stay in use for longer. In short, a circular economy refers to an alternative to a traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life. The European Commission put forward an initial circular economy package in July 2014. On 2 December 2015, the European Commission presented its new circular economy package containing an action plan for the circular economy as well as four legislative proposals on waste, containing targets for landfill, reuse and recycling, to be met by 2030. Moving towards a more circular economy could deliver opportunities including reduced pressures on the environment; enhanced security of supply of raw materials; increased competitiveness; innovation;

growth and jobs. However, the shift also poses challenges such as financing; key economic enablers; skills; consumer behaviour and business models; and multi-level governance (European Parliament, 2016).

Vaagen (2016) stated that the movement away from a linear economy where raw materials are used up, to a circular system, where the raw materials reused, is an absolute necessity in a world with limited resources and implies the sustainable pathway for the textile industry in the future. The author proposed a framework including five sustainable initiatives to achieve the circular economy in the textile industry:

1. **Develop authorities' regulations**: regulations on chemicals, take-back schemes, recycling technologies, waste management, etc.
2. **Improve material technology:** R&D on fibres with low environmental impact, on hazardous waste, etc.
3. **Improve product design:** design for recycling (e.g. modularization/ ease to disassembly, single fibres); design for reuse and longer lifecycle (higher quality), etc.
4. **Sustainable business models and decision supports:** replace fast fashion strategies with lower volume - higher quality; understand the market uncertainty and consumer behaviour in order to build the business models; remanufacturing/ closed-loop supply chains; develop risk controlled decision support from early design to production decisions, with focus on reducing overproduction
5. **Consumer behaviour**: smart marketing tools for consumer education, consumer behaviour studies, data analytics, etc.

These initiatives need to be develop and implement together to create a sustainable textile industry. The work of this master thesis is to design and contribute a business model in order to facilitate circular economy, through the form of rental service.
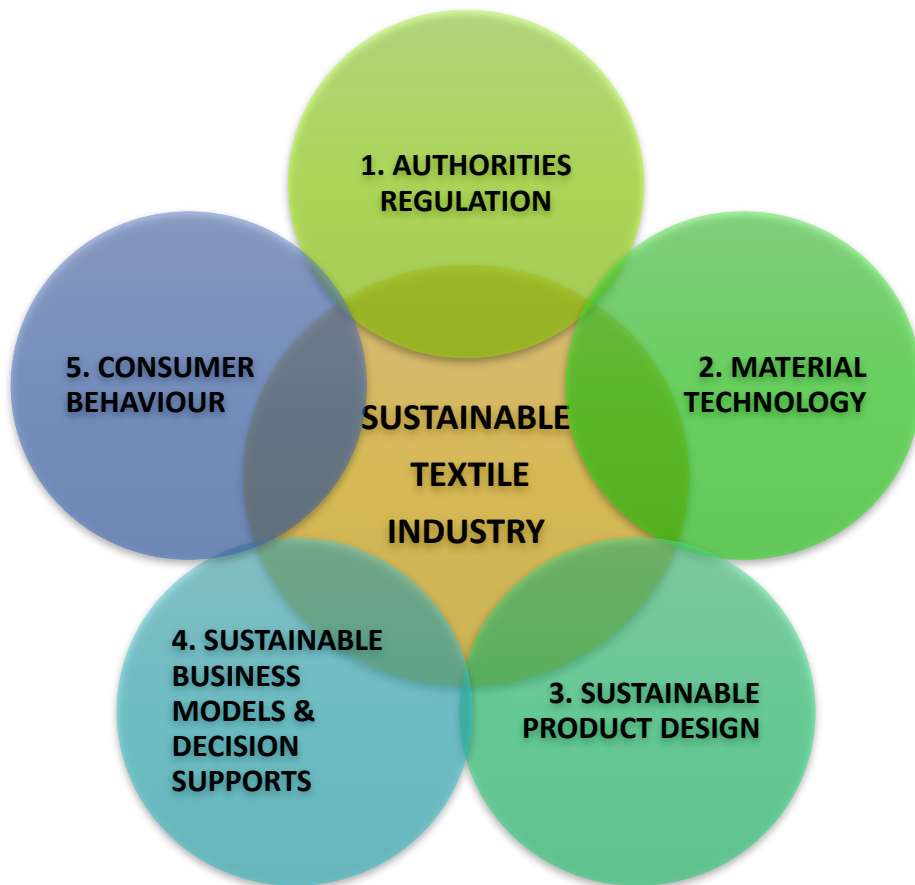
Figure 1- Five initiatives to achieve sustainability and circular economy in textile industry (Vaagen, 2016)

After analyzing 120 companies from four industries (high-tech, textile, automotive and consumer goods), Lacy and Rutqvist (2015) reckoned there are **five common circular economy business models** as below. They could be used individually or together to achieve the circular economy.

1. **Renewable inputs**: Shift to use secondary materials as the inputs for products. Thread is a start- up company which have been transformed plastic bottles from the streets and canals of Haiti and Honduras into "responsible fabric" used in consumer products. The company partnered with Timberland to provide upcycled materials for use in the apparel brand's footwear (Hower, 2016).

2. **Recover value at the end of life**: Apply effective recycling and composting. Timberland and tire manufacturer Omni United cooperated to design a system to take-back end-of-life Timberland Tires from customers and then recycled them into sheet rubber. The sheet rubber is then mixed with a compound of outsoles to produce Timberland boots and shoes (Hower, 2016).

3. **Prolong product life**: Focus on maintenance, designing for durability, re-use and remanufacture of products and components. The Swedish denim company Nudie Jeans offers free denim repair at twenty of their shops. Instead of discarding their old worn-out denim, customers bring them in to be renewed. The company even provides mail-order repair kits and online videos, so that customers can learn how to fix a pair of jeans at home (Esposito, Tse and Soufani, 2016).

4. **Sharing economy**: Share assets (for example cars, rooms, appliances) via sharing platforms.

5. **Products as services**: Sell access to products while retaining ownership of assets or dematerialization. This model is attractive for companies that have high operational costs and ability to manage maintenance of that service and recapture residual value at the end of life. A fashion company in the UK called Rentez-Vous has developed a peer-to-peer and designer-to-customer rental marketplace for high-end fashion, providing fashionistas with access to the latest garments at lower overall resource use (London Waste and Recycling Board, 2015).

As can be seen, the circular system has stimulated innovation in business models. The rental business model discussed in this thesis is a testimonial of products as services business model in order to capture sustainable and economic values of circular economy. Therefore, it can be said that the circular economy is the umbrella concept cover the whole thesis.

2.2.   Business Model (BM) concept

The research by Ghaziani and Ventresca (2005) reckoned that the term business model was mentioned in 3292 management articles from 1729 to 2000. The explosion of Internet afterward has also increased the attention of business model concepts. Recent business model studies have been published showing a strong link with e-business. None of the definitions of business model are generally accepted and this is due to so many different points of view of authors. Zott, Amit and Massa (2011) has conducted an investigation in the use of the term business model in academic studies. They attempted to categorize these definitions into three groups, in which the term business model is used to explain different concepts and can either be used independently or in relation to each other. The groups are business model as revenue/cost architecture, business model as an activity system and e-business model. The table below indicates some definitions of business model of researchers in the field.

Table 1- Overview of business model definition

Authors	Definitions
Timmers (1998)	*"an architecture for the product, service and information flows, including the various business actors and a description of the sources of revenues"*
Mahadevan (2000)	*"a unique blend of three streams that are critical to the business. These include:* 1. *The value stream for the business partners and the buyers* 2. *The revenue stream* 3. *The logistical stream"*
Zott and Amit (2001)	*"the content, structure and governance of transactions designed so as to create value through the exploitation of business opportunities."*
Magretta (2002)	*"Business models answers the questions such as who is the customer, what does the customer value, how do we make money in this business, what is the underlying economic logic that explains how we can deliver value to customers at an appropriate cost"* *" a story that explains how a firm works"*
Osterwlader, Pigneur and Tucci (2005)	*"a conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm. It is a description of the value a company offers to one or several segments of customers and of the architecture of the firm and its network of partners for creating, marketing and sustainable revenue streams"*
Shafer, Smith and Linder (2005)	*"a representation of a firm's underlying core logic and strategic choices for creating and capturing value within a value network"*
Chesbrough and Schwartz (2007)	*"The business model performs two important functions: value creation and value capture. First, it defines a series of activities, from procuring raw materials to satisfying the final consumer, which will yield a new product or service in a such a way that there is net value created throughout the various activities. Second, a business model captures value from a portion of those activities from the form developing and operating it"*
Johnson, Christensen and Kagermann (2008)	*" A business model consists of four interlocking elements (customer value proposition, profit formula, key resources, key processes) that taken together create and deliver value"*
Santos, Spector and Van Der Heyden (2009)	*" a configuration of activities and of the organizational units that perform those activities both within and outside the firm designed to create value in the production and delivery of a specific product or market set"*
Smith, Binns and Tushman (2010)	*" a design by which an organization converts a given set of strategic choices – about markets, customers, value propositions – into value, and uses a particular organizational architecture- of people, competencies, processes, culture and measurement systems – in order to create and capture this value"*

Although there are many definitions of business model among researchers, Shafer, Smith and Linder 's work in 2005 generalized that there are four main components of business models in definitions: strategic choices, value network, creating value and capturing value (Figure 1). Each definition above is a combination of two or more of these components.
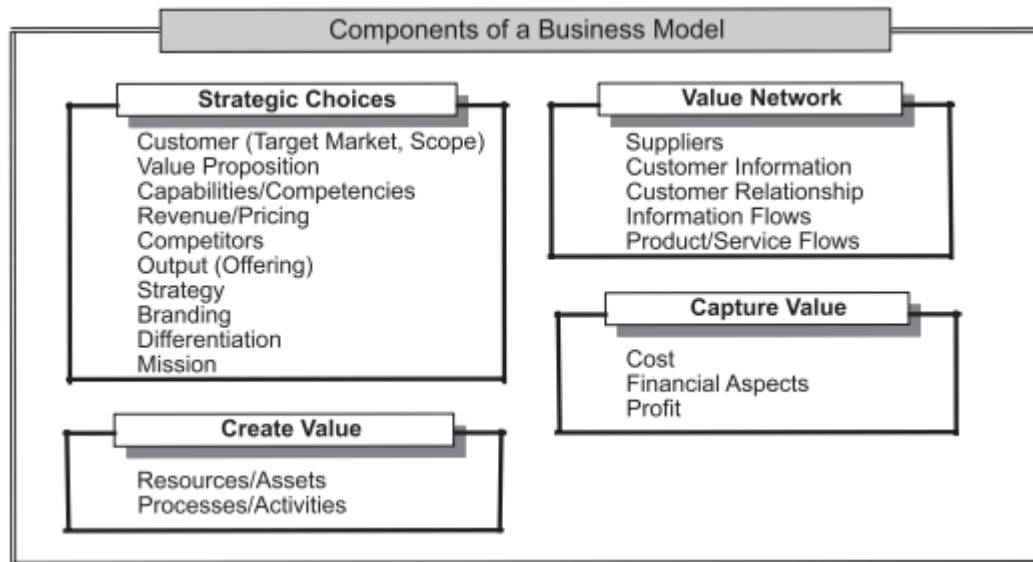
Figure 2- Components of business model definitions (Shafer, Smith and Linder, 2005)

The definition of Santos, Spector and Van Der Heyden (2009) of a business model as "*a configuration of activities and of the organizational units that perform those activities both within and outside the firm designed to create value in the production and delivery of a specific product or market set*" is applied in this thesis. Seeing a business model as a chain of organizations and activities helps the writer recognize where the rental model can be built up in the current fashion supply chain; which parties will participate in the new model; which are important links in the new supply chain. *All support to answer the research question about how to redesign the existing supply chain to enable a rental-service based business model.*

2.3. Closed-loop supply chain (CLSC)

Increasing concern about environmental issues and stricter regulation on wastes treatment has raised awareness in reverse logistics and closed- loop supply chain. The reverse logistics or reverse supply chain attempts to account for end-of-life products in the most environmental-friendly manner as possible. Following Govindan and Soleimani (2015), the evolution of the supply chains results in an integrated approach of considering both forward and reverse supply chain concurrently, well-known as closed-loop supply chain. Guide and Van Wassenhove (2009) mentioned that CLSC focuses on taking back products to recover

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them or add value by reusing the whole or parts of returned items. Thus, CLSC management is responsible for designing, controlling and operating a system to maximize value creation over the entire life cycle of a product by applying various recovery activities for various types of product returns. For instance, commercial returns are products sent back to sellers within guarantee days after purchase (often 30, 60 or 90 days). Such items might require minor repair operations and are best relaunched to the market as soon as possible. End-of-use returns are products returned in the condition of obsolescence or no longer have utility to current users. Thus, there is high variability in the use of such products due to the very different disposition and remanufacturing activities.

Ferguson and Souza (2010) provided a more complete view of how returned products are treated. They discussed six recovery alternatives:

1. **Land-filling**: the most common method of waste disposal. This option is illegal for some returned products like hazardous waste or electronic equipment

2. **Incineration**: this alternative reduces a significant amount of wastes go to the landfill but encloses with emissions and high pollution

3. **Recycling**: a testimonial of material recovery and is a preferable method for end-of-use returns. H&M have attempted to close the loop in fashion by giving discounts to customers when they bring back their unwanted garments to stores. Theirs Bring It film, which has just launched in January 2017, tells the journey how unwanted garments go on after being collected from stores.

4. **Resale**: this method is appealing if the secondary market for the used products is active. In fashion, this method is quite popular. A testimonial is second-hand shops.

5. **Internal re-use**: refurbishing in this method is light or unnecessary. Containers are an example.

6. **Remanufacturing**: a process of refurbishing used products to the new version. Value-added activities in this method might result in higher profitability among the other options.

There are many stages in a product's life cycle where a closed- loop can be formed. Flapper (2010) classified four types CLSC based on product life cycle concept: the production phases (for obsolete products or scrap), the distribution phase (for recalls, wrong deliveries, commercial returns), the use phase (for warranties or end-of-lease products), the end-of-life phases (for defect products but a part of them can be utilized for another purpose). Govindan

and Soleimani (2015) illustrates where a loop can be established along with the classic forward flow of a supply chain. The reverse supply chain can be simply between consuming and distributing/ retailing phases or with further upstream stages (Figure 3). Depending on product types, necessary reverse processes (repairing, reconditioning, remanufacturing, recycling, and disposing of) are planned. The recommended rental model in this thesis focuses on leasing clothes so that the loop will be closed at two last stages of a supply chain: consuming and retailing. The end-of-lease products will be back to the loop very soon and continue their cycles until being worn out and sent back for reconditioning/ remanufacturing/ recycling/ disposal.
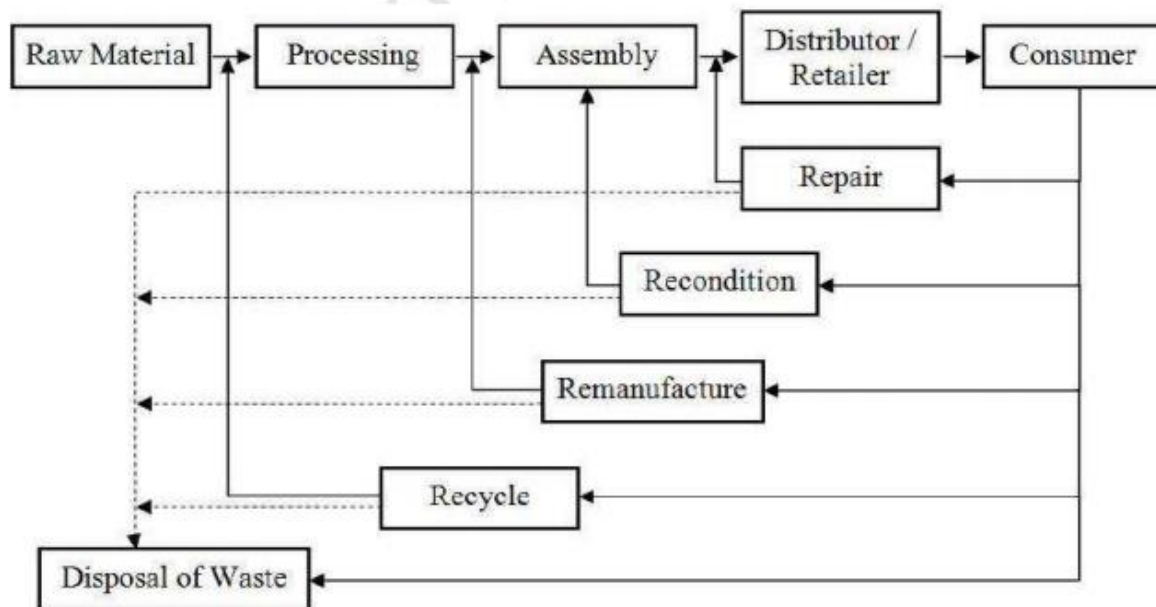
Figure 3- Closed loops can be formed at different stages of a forward supply chain (Govindan and Soleimani ,2015)

However, Flapper (2010) emphasized that there are several managerial and technical issues need to consider before implementing closed loop supply chain. The table below shows some of these aspects:

Business drivers	Reasons or motivations behind closing or not closing the loop in part of a supply chain (e.g. regulation, value creation, image) have to be clarified among management team
Technical aspects	Based on physical inputs and outputs of the considered closed-loop system, technical feasibility (e.g. testing, sorting, re-designing system) and costs have to be verified
Organisational aspects	Related internal and external parties involving in the recovery network has to be defined
Planning and controlling	Recovery activities need to be planned and controlled to foresee potential benefits and keep costs as low as possible
Information system	After the above aspects were clarified, hardware, software, IT experts and other information system support has to be clarified
Environmental aspects	This type of aspect is vital for companies intends to use the closed- loop system to form a green image
Business-economic aspects	Price tags needs to be put on all activities involving in the closed-loop supply chain to establish its profitability or other benefits

Table 2- Managerial and technical aspects of establishing a closed-loop supply chain (Flapper, 2010)

3. METHODOLOGY

3.1. Research design

3.1.1. Research model and methods

Regarding the research model, firstly, an explorative study is conducted to explore the theoretical underpinnings of the rental business model (BM) as well as advantages and disadvantages of the case company in relation to adopting the new model. Secondly, the conceptual rental-service based business model is described. Thirdly, the customer acceptance of the new BM and the BM profitability is evaluated, by survey based research and empirical analysis. Finally, the BM is redefined based on the results.
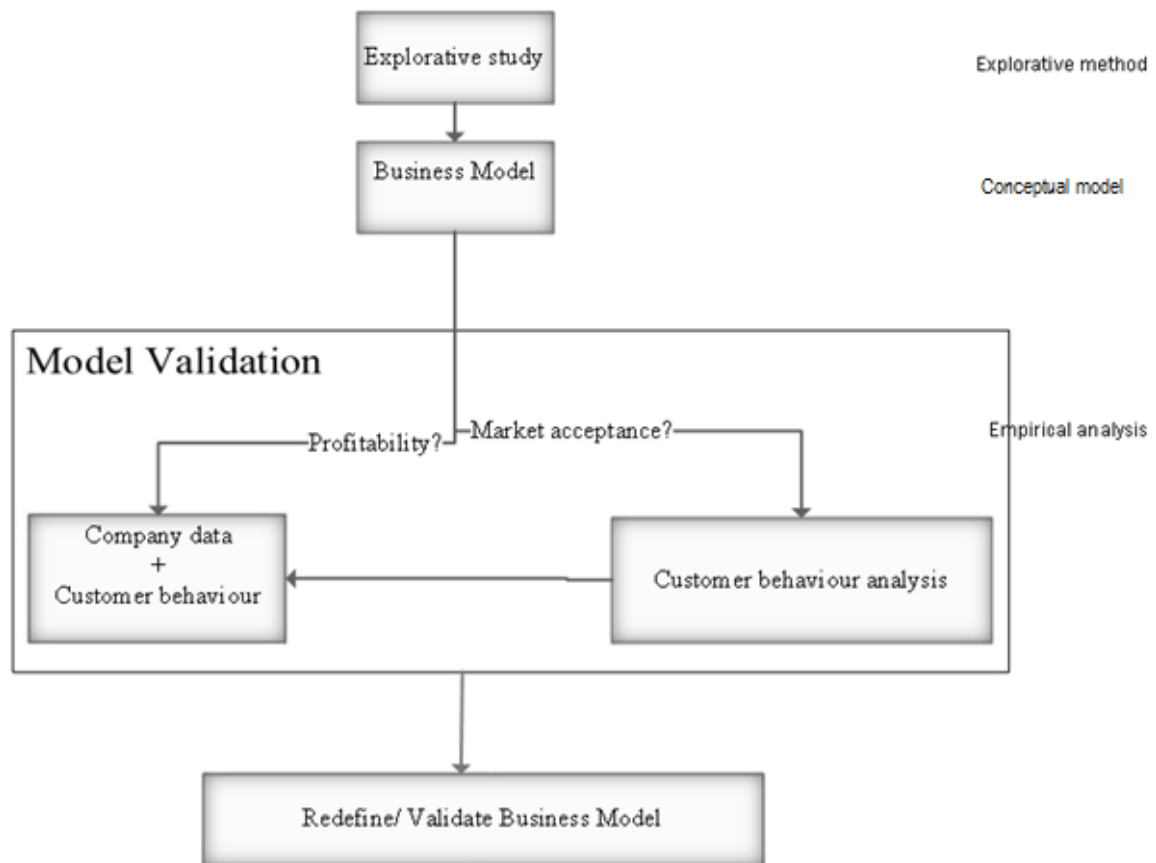
Figure 4- Research Model and Methods

1. **Explorative study**: According to Robson (2002), the explorative study is valuable in circumstances where the research goal is to seek new insights or evaluate phenomena in a new light. In this thesis, a phenomenon the author want to evaluate in a new light is that whether the rental model offered directly from fashion producer can be carried out in Norway or not. The explorative study chosen because it is flexible to change to a new direction according to new findings. The flexibility that exists in this kind of research does not mean that it lacks direction to the problem but it means that when a researcher starts his/her study can have a broad picture of the problem whose focus will narrow down as new insights are obtained and become more specific (Adams and Schvaneveldt, 1991). During the initial stages of the thesis, an explorative method was exploited to explore the theoretical underpinnings of the rental business model. This step helps to answer the research questions about "*How do supply chain capabilities support a rental-service based business model, and how to redesign the existing supply chain to enable a rental-service based business model?*". The SWOT analysis of the case company MoN is also conducted to explore advantages and disadvantages of their current business model in relation to adopting the new rental model.

2. **Business Model**: In the field of business model research, there are various frameworks to describe which elements create a business model. Following Teece (2010), six elements which should be included in a business model are *market segments, customer benefits, technologies and features of the product/ service, mechanisms to capture value, revenue streams and cost structure.* An activity system design framework by Zott and Amit (2010) added design themes besides design elements for a business model. Design elements are *content, structure and governance.* Design themes are *efficiency, complementary, lock-in and novelty.* Baden-Fuller and Haefliger (2013) introduced four business model elements *(customer identification, customer engagement, value delivery) in relation to innovation.* Osterwalder and Pigneur have taken six years to study about domains, concepts and relationships mentioned in the field and create a straightforward way to formulate a business model in 2010, which is well-known with name Business Model Canvas (Figure 5). The framework stated that there are nine building blocks to form a business model: *Value Propositions, Customer segment, Channels, Customer Relationships, Key Resources, Key Activities, Key Partners, Cost structure, Revenue stream* which covers the four main areas of business: customers, offering, infrastructure and financial viability. Business Model Canvas is chosen to describe current and new business model in this thesis because it is a framework that can generalize others business model element frameworks. Moreover, the framework also goes into details. Each block contains questions that a strategist needs to answer in order to describe the business logic of a firm. From that, he/she could brainstorm precise ideas for the next business model innovation.

The thesis is not limited in the area of an explorative study as it ends up with proposing a new business model, which can reduce waste and promote a better way to achieve sustainability in textile industry. This implies a normative process to achieve the research goal. The target is not only to gather facts but also to point out in which aspects the current business model of MoN can be improved to achieve an economically and environmentally sustainable business model.

KEY PARTNERS	KEY ACTIVITIES	VALUE PROPOSITIONS	CUSTOMER RELATIONSHIPS	CUSTOMER SEGMENTS
Who are our key partners? Who are our key suppliers? Which key resources are we acquiring from our partners? Which key activities do partners perform?	What key activities do our value propositions require? Our distribution channels? Customer relationships? Revenue streams?	What value do we deliver to the customer? Which one of our customers' problems are we helping to solve? What bundles of products and services are we offering to each segment? Which customer needs are we satisfying? What is the minimum viable product?	How do we get, keep, and grow customers? Which customer relationships have we established? How are they integrated with the rest of our business model? How costly are they?	For whom are we creating value? Who are our most important customers? What are the customer archetypes?
	KEY RESOURCES What key resources do our value propositions require? Our distribution channels? Customer relationships? Revenue streams?		**CHANNELS** Through which channels do our customer segments want to be reached? How do other companies reach them now? Which ones work best? Which ones are most cost-efficient? How are we integrating them with customer routines?	

COST STRUCTURE	REVENUE STREAMS
What are the most important costs inherent to our business model? Which key resources are most expensive? Which key activities are most expensive?	For what value are our customers really willing to pay? For what do they currently pay? What is the revenue model? What are the pricing tactics?

SOURCE WWW.BUSINESSMODELGENERATION.COM/CANVAS. CANVAS CONCEPT DEVELOPED BY ALEXANDER OSTERWALDER AND YVES PIGNEUR.

Figure 5- Business Model Canvas (Osterwalder and Pigneur, 2010)

3. **Market acceptance:** The successfulness of a new business model depends on the market acceptance. Thus, a customer survey was conducted in Moods of Norway concept store in Trondheim in order to gain a better understanding of customer needs, their preferences to product-service attributes and a fashion rental business model. The survey questionnaire (Appendix A) is divided into six parts as follows:

> **Part 1** is to collect information about customers' gender and age group as each gender and each age group has different buying behavior

> **Part 2.** This section asks about a number of clothes or accessories customers often buy in a year**, which helps to decide the maximum number of items to be rented by a customer.** This number needs to meet the demand of clients, needs to ensure the circulation of clothes so to ensure a predefined lower bound profit, and needs to ensure a smooth operation/logistics.

Part 3. This part asks about **which attributes are important to customers when they decide to buy a new piece of clothes and accessories**. Customers would assess attributes based on a five-point Likert scale ranging from "not important at all" to "very important". The tested attributes are:

1. **Quality attribute:** refer to the durable/technical aspects of the clothes
2. **Trend attribute**: refer to the popular features such as design, color, style, etc.
3. **Price** attribute
4. **Brand name** attribute
5. **Environmental consciousness** attribute
6. **Intangible attributes** such as symbolic benefits and emotional attachment
   - ➢ *Symbolic benefits* indicate about how the clothes could help consumers to express their self-personality and symbolize their social status according to Anisimova (2007) and Chevalier, Mazzalovo and Lu (2008). In this survey, customers are asked to rank how these two aspects impact their clothing purchasing decision.

   - ➢ *Emotional attachment* indicates about bonded feelings between customers and clothes. For example, love, passionate, connected or delighted feelings Thomson, MacInnis and Whan Park (2005)In this survey, customers are asked to rank how important "*The clothes have authentic icons that engage me to the culture of the country they are staying*" impact their clothing purchasing decision as MoN has products embedded with Norwegian heritage and culture, often bought as souvenirs by tourists.

Part 5. This part is related to **the amount money customers spend for clothing this year, last year and next year as well as the maximum amount they spend on formal suit/ dress.** The spending data will reveal *which amount is reasonable to charge for the rental service.*

Part 6 is designed to **explore the consumer behavior and attitude toward a rental model**. Customers are asked whether they are willing to wear the used clothes but cleaned professionally. And if yes, customers will vote for what kinds of outfit they want to rent: everyday outfits, formal party outfits and informal party outfits, on the scale 1 to 3 (1= most likely, 2= second likely; 3= third likely). This part will reveal

whether Norwegian customers accept to rent clothes and which clothes do they want to rent.

4. **Profitability:** This part reveals the answer for the third research question: *What is the profitability of a new rental-based business model?* When the conceptual business model was adjusted to fit the survey results with customer needs and company competencies, the profitability of the new model was evaluated to explore the economic-feasibility and -sustainability of the model. A business model cannot exist if it is not able to generate profit. The new business model can only be applied if it can earn profit more than the current one. Therefore, the thesis calculates the profit of a new business model and then compare to that of the current one.

The profit of current business model is calculated with formula:

$$Profit\ of\ current\ business\ model = Revenue\ - Total\ Costs$$
$$Total\ Costs = Product\ Cost + Operations\ costs$$

The current revenue data, product costs and operation costs were all provided by MoN to support calculations.

The profit of new business model is calculated with formula:

$$Profit\ of\ new\ business\ model = Revenue\ - Total\ Costs$$

$$Revenue = Rental\ fee\ \times\ Rental\ times$$
$$OR$$
$$Revenue = Monthly\ subcription\ fee\ \times\ Number\ of\ subscribers\ \times\ Duration$$

$$Total\ Costs = Product\ Cost + Operations\ costs$$
$$+ Additional\ costs\ resulting\ from\ rental\ business\ model$$

The revenue of the current fashion business model is from retailing unit price. The more units are sold, the higher the revenue is. However, in the new rental business model, the revenue is

from rental fee. The more rental times are, the higher the revenue is. Thus, the revenue of the new model equals rental fee multiply with rental times. If the new model offers monthly rental subscription package like Netflix, the revenue is up to number of subscribers and the duration a subscribe used the service. The difference in the cost structure between the current and the new model is additional costs of offering the rental service such as upgrading system cost, extra delivery costs, salary for more employees, etc.

5. **Refine/ Validate business model**: After refining the conceptual business model based on both survey results, customer needs, company competencies and profit estimation, the new business model will be delivered. The proposed model will reveal *which products are suitable for renting in the case company, which amount is reasonable to charge for the rental service and which aspects do they need to change to develop the rental business model.*

3.1.2. Data Collection and Analysis Method

The purpose of data collection is to gain a better understanding of customer needs, their preferences to product-service attributes and a fashion rental business model. The tool used in this research is survey, which was conducted during April. The target population for this study was MoN's customer between 18-64. The sample was selected at MoN's concept store and NTNU campus in Trondheim. A pilot study of 20 people at NTNU campus was conducted in March to test the survey and make any necessary adjustments. Based on the results of the pilot study, it was evident that respondents were having trouble inputting the number of clothes and accessories they bought every month. It is because people bought clothing at various times during a year. Changes in the Part 2 was made by designing three boxes (monthly, quarterly, yearly) in order to help customers easier to remember the number of items they bought. About the procedures of collecting data, there is a corner of the store was designed for customers to sit down and do paper surveys. Customers were given an incentive to participate the survey. MoN promised to include the participants at the store in four lucky draws for four NOK 500 gift cards. The participants at the campus were given an incentive by freebies.

Regarding data analysis method, significance tests are performed to ensure the reliability of our data to be used for further statistical analyses. The chi-square test of significance is performed to know the extent to which the findings could be generalized. Deleting outliers or transforming non-normally distributed variables to normality for further statistics will be conducted if necessary. The descriptive statistics, the cross-tabulation (pivot

table), filtering, trend analysis and ranking are applied to explore the story behind data. Applying the cross tabulating will help to compare answers between subgroups (such as gender groups, age groups). Filtering tool is useful as it helps to narrow down the focus to particular subgroups, filtering out others. Trend analysis is also applied to see how customer spending on clothes changes from the past to the present and future. Lastly, ranking is used to reveal the order of attributes, from the most to the least important, in customer decision of buying new clothes.

3.2. Data Validity and Reliability

3.2.1. Data Validity

Kimberlin (2008) states that validity is the degree of the instrument used in a research measures what it was supposed to measure. The development of the survey follows the steps introduced in the Research Model in Section 3.1.1 is aimed to:

1) **Evaluate the extent of market acceptance to the rental service.** To fulfil the first purpose, Part 6 of the questionnaire was developed to ask about whether customers are willing to wear the used clothes. If yes, which types of clothes they want to rent (formal party outfits, informal party outfits or everyday outfits).

2) **Explore customer shopping behaviour in order to design a profitable rental-based service business model.** Part 2, 3, 4 and 5 of the survey are parts designed for this purpose. The questions are about how many pieces of new clothes or accessories customers often buy, how much they spend on clothing in the past/ present / future, and how they value attributes (quality, price, trend, brand name, expressing personality, symbolize social status, cultural engagement, environmental friendliness aspects) when buying new clothes based on a 5-point Likert scale.

Then, the questionnaire was reviewed by MoN Retail Director. Store Manager and seven staffs in MoN concept store answered the questionnaire before I made a last version of the questionnaire and started collecting data. Comparing to my version sent to Retail Director, there are two changes. First, two questions asking about customers' spending last year and next year were added because the Retail Director recommended to look at the trend of spending to set the right price for the service. Second, the questionnaire first was only in English. The Norwegian version was developed later to ensure Norwegian customers understand the

questions right. The survey in Norwegian was tested by a Norwegian staff in MoN store to make sure the right vocabulary and grammar used.

3.2.2. Data Reliability

Hair et al. (2010) state that reliability is what extent the variable has true values and is free from error. If the same measure is performed a number of times how consistent the results will be. Small sample size and low response rate The literature has not indicated the exact number of reasonable sample size, rather it suggests to consider the nature of population either homogeneous population which can be well represented by a small sample or heterogeneous population which requires a relatively larger sample to capture more elements of a given population. The sample size also depends on research objectives, type of sampling, the expected confidence interval; time, resource and conditions under which a study is carried out (Malhotra and Birks, 2006; Kline, 2011). Schumaker and Lomax (2000) propose a reasonable sample size is 100 respondents or between 100 and 150 according to Hair et al. (2010). Lawley and Maxwell (1971) recommend at least more than five observations for every construct in a sample. Because a month for a survey is short, the researcher efforts to reach 100 answers to ensure bias as low as possible. The normality test of independent variables as well as chi – square test of association between categorical variables are performed to determine generalizability of data.

4. EMPIRICAL CASE DESCRIPTION – MOODS OF NORWAY

4.1.   Overview

Moods of Norway (MoN) is a Norwegian clothing brand built on the proud rural heritage of Norway like exotic mountainous and coastal landscapes and agriculture. The natural environment and rural life mixed with contemporary global breath are interpreted on each MoN design. The company sells fashion apparel in casual, street, sport and cocktail segments under the slogan: "Happy Clothes for Happy People". Cocktail is what is happily seen as the trademark of Moods of Norway: colorful suits/dresses in different patterns. MoN was established in Stryn by Simen Staalnacke, Peder Børresen and Jan Egil Flo in 2003. The company owns 17 brand and outlet stores across Norway plus brand stores in Strömstad and Los Angeles. In 2016, sales amount was NOK 122 143 930. The pie chart below indicates sales amount in terms of eight product category MoN has been selling in Norway. Male apparel

constitutes over 50% of total sales, following by female apparel and sports apparel. This is reasonably explained as 70% of customers are male. While the company is interested in expanding the age range, the target customers are at the age of 25-44.

SALES AMOUNT OF EACH PRODUCT CATEGORY

Accessories 10%
Footwear 2%
Comestics 1%
Apparel Sports 10%
Apparel Children 7%
Apparel Unisex 4%
Apparel Female 15%
Apparel Male 51%

- Apparel Male
- Apparel Female
- Apparel Unisex
- Apparel Children
- Apparel Sports
- Comestics
- Footwear
- Accessories
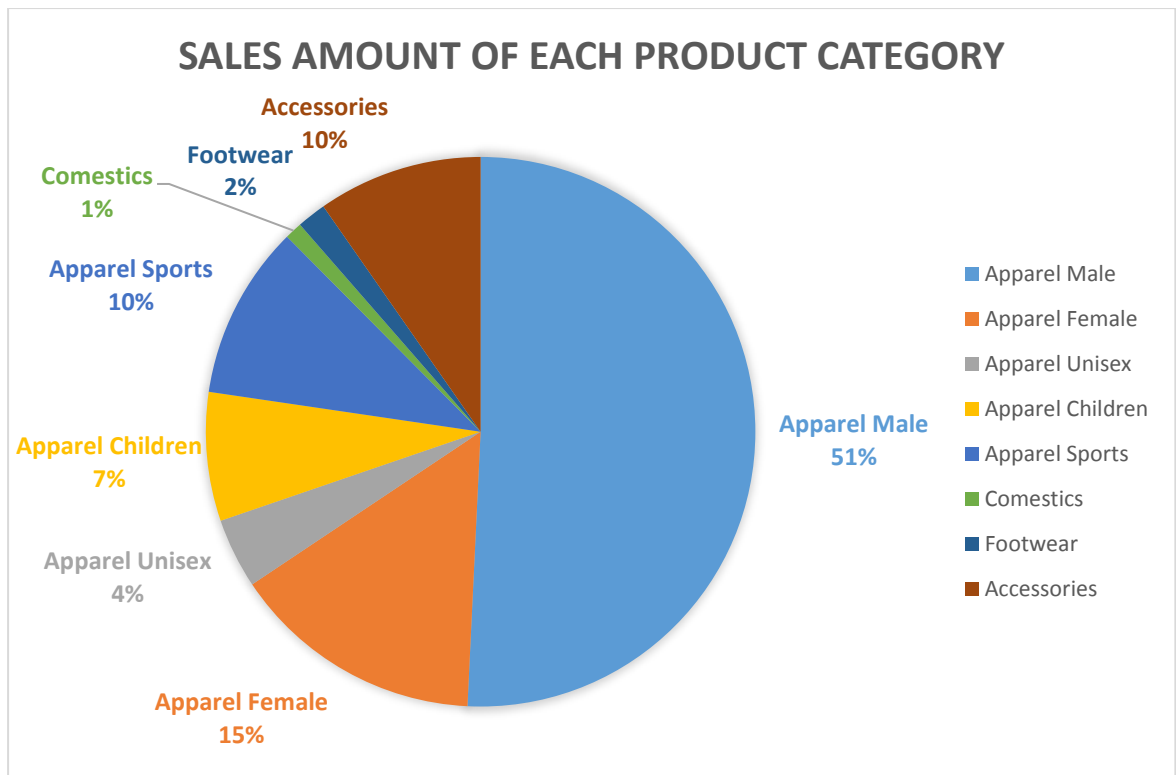
Figure 6- MoN sales amount of each product category

4.2. Current business model

This part aims to provide detailed look on Moods of Norway operations and Business Model Canvas is exploited as a descriptive visual tool presenting logic of MoN business.

Moods of Norway

Key Partners	Key Activities	Value Proposition	Customer Relationships	Customer Segments

Key Partners

Manufacturers in Europe and China

70 partners

IT Suppliers

RFID tags & readers: Checkpoint, Nedap, HRAFN

ERP system: Info M3

Cloud-based server: Nedap

Distribution 3PL partner

Scheinker is responsible for shipping products from warehouse to all stores in Norway

Key Activities

Vertically integrated system

In-house design
Centralized warehouse
Wholly owned stores

Key Resources

Designers

Employees in supporting functions (operations, administration and sales)

Value Proposition

Distinct Design

Offer cocktail/ street/ casual/ sport categories - flexible for customers as they can wear clothes based on what kind of mood they are in Storytelling approach- Norwegian stories behind each designTraditional Norwegian pattern

High-quality products

Customer Relationships

Marketing and PR- Fashion show

Positive in-store experience

Active social media

Distribution Channel

In-store

In Norway: 17 stores

Online

Online ordered products are shipped from the nearest store or from warehouse to customers

Customer Segments

Mid to high-end fashion conscious consumers

25 -44 years old

High-income

Cost Structure

Product costs

Salary expenses

Operation costs

Revenue Streams

Selling clothes

Figure 7- MoN current business model

1. **Value proposition**: MoN has developed three main apparel categories - casual, street and cocktail because they recognize that people wear different clothing based on the mood they are in. Later on, MoN has added sports as a new product category and expanded to children's clothes besides main lines for men and women. The most glorious feature of MoN is that they embed Norwegian stories and distinct culture aspects in the clothing such as Simen's grandmother waffle recipes on T-

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shirts or products developed with legendary skier Oddvar Brå and skater Sonja Henie. The storyline approach gives the brand exclusivity and populates the consumer's mind with ideas of the distinct Norwegian culture. Through provision of product diversity, from stylish designer suits to casual clothing with traditional patterns from the Norwegian countryside, MoN has managed to appeal to a diverse market, hence positioning themselves as an exotic and curious brand.

The price for MoN products is relatively high in the market. The price is a signal for high-quality products and a distinct image guaranteed in each product.

2. **Customer segments:** MoN targets mid to high- end fashion conscious consumers between 25-44 years old, with a somewhat high income.

3. **Customer Relationships:** Rather than spending money on traditional advertising, MoN has a focus on public relations (PR), in-store experience and social media. MoN's PR activities that focus the attention on their unique concept. Through investment in fashion shows, which is the primary marketing and PR activity for the company, MoN has managed to gain attention via positive media publicity.

In addition to MoN's creative in-store design and atmosphere, stores often run events like paper airplane competitions and waffle Wednesdays. Through providing waffles and champagne in the stores, MoN differentiates themselves and provides a positive in-store experience, which helps attract customers to their stores as these events become well-known.

MoN is currently very active on social media like Facebook, Twitter, Instagram, Pinterest, etc. For instance, they have a very informative Facebook site that has information about store location, pictures of both their men's and women's merchandise lines, along with a lot of other pictures of people wearing MoN clothes. They are also excellent at publishing pictures of celebrities wearing their clothes or posting links to magazine spreads where their clothes are featured.

4. **Distribution channels**: Both in-store and online channels. They have 14 brand stores and 3 outlet stores in Norway. Online orders last year are 12 400 orders (Peter Hubert, 2017) . To reduce shipping lead times, online ordered products are shipped

from the nearest stores or from the warehouse. The shipping cost for online orders is around 62 kroner (Peter Hubert, 2017).

5. **Key partners**: Currently, products are manufactured by 70 partners in Romania, Portugal, China and India. The lead time for suits are often 6 months. For other products, it is around three months (Peter Hubert, 2017).

   MoN is also a tech-savviness company. It is a pioneering and successful example of using RFID tags on all their merchandises to control activities in a whole supply chain from producers to end-customers. It has cooperated with several IT suppliers such as Checkpoint, Nedap, HRAFN for RFID tags and handheld readers. Info M3 is a partner in developing ERP system (Peter Hubert, 2017) .

   Distribution 3PL partner is Scheinker, who is responsible for shipping from warehouse to stores in Norway (Peter Hubert, 2017)

6. **Key activities:** MoN has established a vertically integrated system from in-house design, centralized warehouse to wholly owned stores to increase their brand control and profit margins. Today, the administration (design, merchandising, buying) is located in Oslo while IT, Logistics and Finance are still in Stryn. To support sales activity in-store, for any new collections, the management often has a training session and follow-ups with staffs in store, who communicates directly with customers. A training session includes discussions about stories behind designs. This built the proud and connection between staffs and MoN brand, and then they will transfer that positive manner to customers.

7. **Key resources:** The designer team and their designs are vital resources of MoN as they are a start of all activities. Employees in supporting functions are intellectual property to transfer on-paper design into hundreds of tangible products with the lowest cost as possible. Overall, it can be said that human are key resources of MoN.

8. **Revenue stream:** Selling clothes is one and only revenue stream of the current business model

9. **Cost structure**: Three main cost categories of the selling clothes business model is product cost, operation costs and salary expenses.

4.3. SWOT analysis and implications

In this part, SWOT analysis was conducted to indicate strengths, weaknesses, opportunities and threats of MoN current business model in relation to launching out the rental service.

4.3.1. Threats

Apparel and Footwear Report in Norway (2017) indicates that the competitive landscape in apparel and footwear continued to become increasingly consolidated following the ongoing strong growth of the leading players. The leading players and brands continued to account for a larger share of overall value sales as smaller companies struggled with shrinking margins and competition from internet retailers. In fact, MoN has experienced the loss during the last two years. Offering a wide range of both menswear and womenswear, categorizing from cocktail, casual, sport to street style has exposed MoN to several competitors in Norway in the same medium and high-end segment. Many brands that are fighting for customers. Direct competitors can be named are Tiger of Sweden, Acne Studio, J. Lindeberg, Oscar Jacobson with similar product offers and price. Shrinking in profit margins is a big business driver for the MoN 's management to cooperate in this study as they want to explore whether they can carry out the rental service for suits. The expectation of the rental-based business model is to increase the profit from their target male customer 25-44 and further is to expand the customer base.

4.3.2. Opportunities

The Norwegian Consumer Lifestyles Report in 2016 indicates top 5 consumer trends in Norway are

1. Consumer confidence near all-time low
2. Household debt has doubled in the last 10 years
3. Sharing economy gains momentum
4. Norway on its way to becoming a cashless society
5. Demand for electric vehicles continues to surge

According to these results, the first two trends send a discouraging signal for fashion producers as consumers will save more than spending under the economic downturn, only spending on necessities. However, the prediction that sharing economy becomes trendy is a very positive sign for launching out rental service, and timely with the economization trend. According to Apparel and Footwear Report in Norway (2017), sustainability and responsibility are key words in apparel and footwear in 2016. Several articles in the media relating to sustainability and responsibility generated lots of attention in 2016, especially on social media. The reusing or recycling of old clothes was covered heavily in the media, with the number of second-hand stores increasing notably, along with Norwegians donating old clothes to the less fortunate. The positive perception about reusing clothes is a huge advantage to develop the fashion rental service in Norway.

4.3.3. Strengths

MoN has competitive advantage through its unconventional and creative designs which give customers a feeling of a happy lifestyle. Unlike many of other Scandinavian brands which follow minimalism, MoN has not been afraid to use color and traditional rural Norwegian patterns on casual clothes as well as suits. Using tractors, fishing boats or small details such as labeling "made in Europe by really, really pretty blonde girls" made MoN become a brand that was recognized easily and well-known.

The high-quality products are a huge advantage for carrying out the rental service as the products will not be worn out easily.

The next advantage of MoN in developing the rental-based business model as they have already a strong fundamental of both brick and mortar stores as well as internet retailing. Thus, customers could be able to approach the service simply.

The current vertical integration from designing to retailing will help the company to estimate the profitability of the new rental service easier. Owning facilities could facilitate changes in the supply chain to suit to the new rental business model.

4.3.4. Weaknesses

MoN still needs to improve designs in the female market. The product variety is less than menswear. For example, there are 14 different suit styles and 6 blazer suits, all of them have

unique and eye-catching patterns. Meanwhile, the women dresses are limited around 5 styles. Although the quality is high, the design is quite simple and less unique in the dynamic womenswear sector. This shortcoming will limit MoN's accessibility to female customers, who tend to have higher demand for new clothes than men.

The children clothes are also less diversified, only having few styles so that carrying out the rental service for this segment in the short run is quite hard. It requires time for MoN to improve the design and upgrade the system.

After conducting the SWOT analysis of MoN, internal strengths such as high-quality clothes, unique design of suits, reputation, well-established system, vertical integration from designing to retailing are identified. These strengths are able to capitalize on rental service to reduce competition threats in the market and to catch up with latest trends on economization, sustainable and responsible consumption of Norwegian consumers.

5. CONCEPTUAL RENTAL-BASED BUSINESS MODEL

The development of the conceptual rental based BM follows the steps introduced in the Research Model in Section 3.1. Finding the supply chain aspects to enable circular economy by a closed loop supply chain strategy to support rental based services is the main deliverable of the first step. This part is a deliverable of the second step, which focuses on describing the conceptual rental-service based business model.

The idea behind the rental service is not about replacing the whole wardrobe of customers with rental clothes because each person needs to have some basic clothes for changing every day. The true idea of the rental-based business model is to satisfying the human demand of having something new to wear in the most environment-friendly way.

MoN 's management attempts to explore whether they can carry out the rental service for suits. However, this study expanded to design rental business model for both menswear and womenswear in order to explore and capture more aspects in the field of this research. Thus, the conceptual rental-based business model presented below are considering for both male and female users.

5.1. Supply chain redesign to support a rental based business model

Figure 6 illustrates (a) the current linear supply chain, where materials and resources are used up, and (b) the supply chain of the new business model, where the value creation

process continues through economically sustainable reuse, i.e. a closed loop supply chain model. The new rental business model for high-end apparel introduces two new phases into the value creating process - *repairing and cleaning* - between the distribution through retail stores and consumption. This creates a closed-loop to facilitate longer product life-cycles, through sustainable reuse.

THE LINEAR SUPPLY CHAIN, BASED ON THE CURRENT BUYING THE PRODUCT BUSINESS MODEL
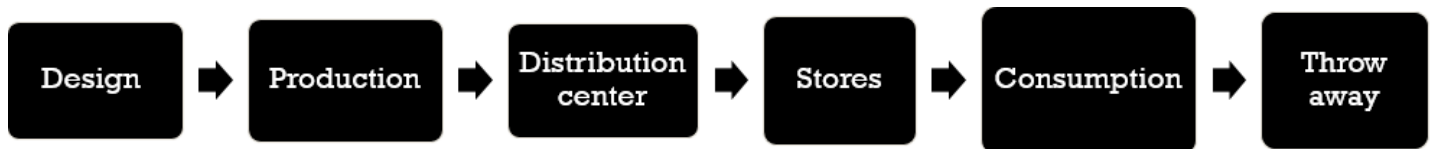
THE CIRCULAR SUPPLY CHAIN, BASED ON A RENTAL BUSINESS MODEL
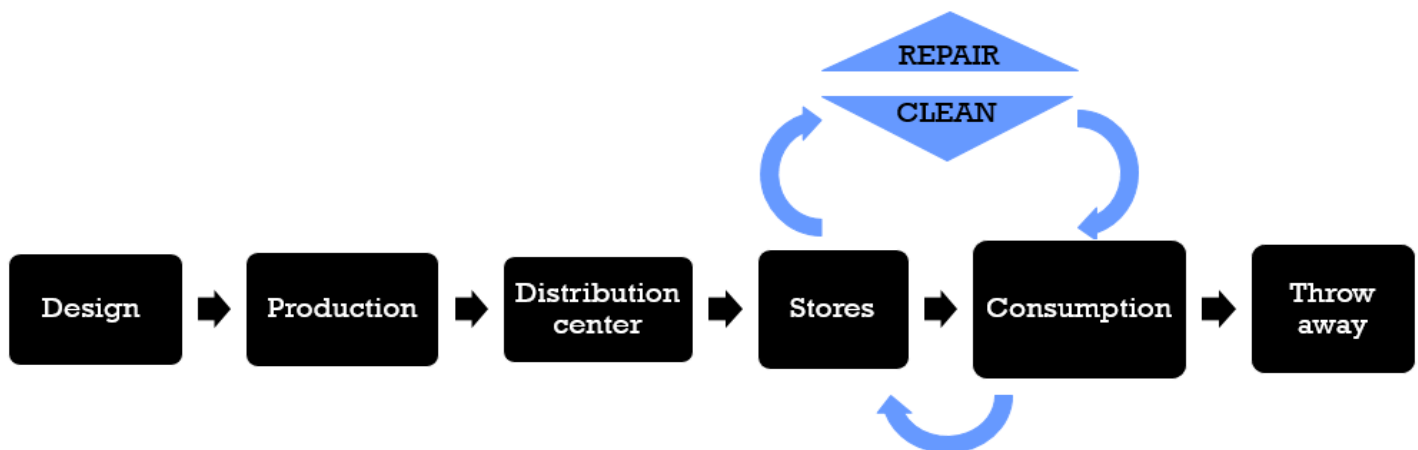
Figure 8- The closed-loop MoN supply chain

The business activities in the new rental business model will be conducted as illustrated in Figure 7. Customers can rent clothes at stores or online (website and apps). At stores, customers can try on clothes. For online customers, they will receive their chosen size and one backup size to ensure the clothes fit them well. Customers can return the clothes both at stores or at the nearest post. After receiving the items, staff will inspect damages. If there are minor damages, the items will be sent to repairing function. Otherwise, they will be shifted to cleaning function. The clothes will ship back to stores/ display available to rent online in order to continue its circulation until they are worn out.
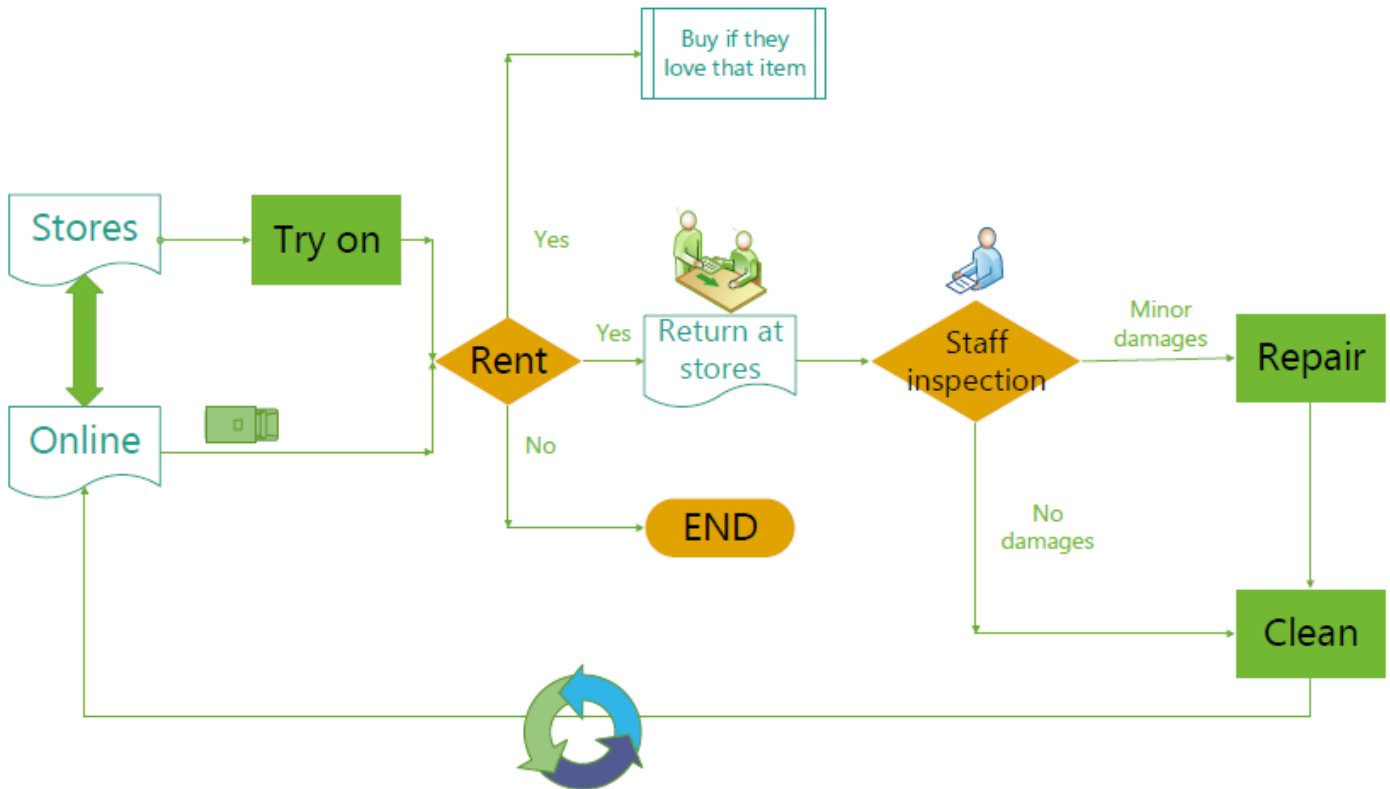
Figure 9 - Business activities in the rental- based business model

5.2.   New service description

The new business model consists of **two different types of rental service-packages,** targeting different customers and needs (Figure 8):

1. **Service model 1 - Pay As You Rent (PAYR).** This service model is built on the demand for high-end apparel (women gown dress, men suits) for special events (Christmas, New Year Party, 17th May, Confirmation Ceremony of teenagers). The demand per customer for such apparel is roughly estimated to 1-2 times/ a year.

2. **Service model 2 - Style**. In this service model, the customers prefer to change frequently and be fashionable in everyday outfits, casual party outfits as well as formal parties. The demand per customer is estimated to change about six (6) times per year. The package could increase at least 6 usage times of high-quality casual clothing which MoN is selling. This also means MoN could enjoy 6 times to earn the revenue from the same item. However, it is critical to consider the cost of handling the item 6 times such as shipping costs, labor costs, IT costs, etc.

	Business Model 1 "Pay As You Rent"	**Business Model 2** "Be Style Every Single Day"
WHO	For woman / man to shine in their special events	For fashionista/ fashion lovers For businesswoman / businessman For those who want to try different styles without having to pay a full price For those who lose/gain weight, need clothes to fit and wear comfortably in a short period before they take back their normal weight
WHAT	High-end suits/dresses for a fraction of retail price	A rotating closet for one monthly price Rent 3 items + 2 accessories at a time
HOW LONG	7 days rental	Unlimited rentals: swap anytime, can keep up to 2 months
SERVICE	Free backup size Free dry cleaning	Priceless care shopping Swap anytime Free insurance Free dry cleaning
PRICE	NOK 500-1000 Insurance fee for spills /minor damage: 50% of rent price (return if the item is not damaged)	NOK 500/ month

Figure 10- Service packages in the rental-based business model

5.3.   New business model – Conceptual version

The new business model is exploited through the Business Canvas framework. Figure 9 summarizes the main features of new rental business models. The yellow stickers present new features compared to the current business model (introduced in Section 4.2, Figure 5). Gray stickers present current features.

As compared to the current business model, the new rental-based business model requires the following changes in the MoN supply chain and consumer strategies:

1. **Redesign the supply chain by adding two new partners** - tailors and cleaning partners**.** Tailors are responsible for fixing minor damages of rental clothes. They could be part-time employees/contractors as the task volume is not high.

   In contrast, cleaning part involves a high volume of clothes as well as requires fast completion to increase the circulation of clothes in the supply chain. A sustainable cleaning and drying method to keep the clothes from wearing out is also important to sustain the business. Cleaning should be in-house or outsourced to local partners. Following Gereffi, Humphrey and Sturgeon 's framework of value chain governance (2005), the modular governance is highly recommended in the situation of outsourcing cleaning functions, First, it is because the task requirements/criteria can be codified easily. Further, the number of laundry suppliers in Norway are average and they have high competency & compliance with green service. Thus, vendors can take full responsibility for process technology and generic machinery. This keeps low switching costs and limits transaction-specific investments for MoN even though the information flow across inter-firms to coordinate logistics activities can be complex. Such complexion can be solved by upgrading IT system.

2. **Keep customer segments the same but change the marketing strategy**. The new model focuses on improving the way to approach the current internal and external customers and spreading this sustainable idea via expanding the size of each segment. The current customers are early adopters of the new model. According to Carnite's study (2015), early adopters buy rapidly and promote new products/service and technology via word of mouth. Early adopters are known for giving authentic input and recommendations to change.

Figure 11- The conceptual rental-based business model

CC model- MoN

Key Partners

1. Who are your key partners?
2. Who are your key suppliers?

Manufacturers

IT suppliers

Repairers (tailors)

Cleaning partners (e.g. Trondheim vask / ESP)

Key Activities

1. What are your key activities?

Changes in Stores -> Consumption link

Add 2 more functions : Repairing + Cleaning

Key Resources

1. What are your key resources?

Designers + clothes collection

Current employees in Store+ Support Function

Repairing function

Cleaning function

Value Proposition

1. What are your value propositions?

Be free in carrying and taking care of a luxury vest/ dress to join speacial events in the business trip/ a travel

Be style every single day without having to pay a full price

A physical + online leasing service platform allows customers to try with various style via the subscription model

Be comfortable and fit on clothes regardless that you lose/ gain weight

Via rental serivces, customers can change the size of clothes in their wardrobe without financial burden. Clothes will always fit their body shape

Minimize the environmental impact during washing+ Prolong the lifespan of clothing

Use 3PL party/ in-house cleaning department to take good care during cleaning and drying phases

Customer Relationships

1. Your customer relationships?

Actively manage social media (Facebook, Instagram, Twitter, Snapchat,...)

Minimum 3 posts week:
1. About new arrivals
2. Other initiatives/ stories about sustainable fashion
3. Knowledge about enlightening people how to wash environmentally friendly, eco-fashion designing/ material to change the consumer consumption pattern and lifestyle

Distribution Channels

1. Channels

Online

New smartphone App- Members can reserve online + register members + order + track & race items

Well designed + frequently managed online networking on blogs/ other social media to encourage the communication in the middle of members and proprietors

Offline - 14 brand stores

Customer Segments

1. Customer Segments

Internal customers = Our employees

External customers = Current customers

Both are early adopters to spread this model out

Early adopters buy rapidly and promote new products/service and technology via word of mouth.

Early adopters are known for giving authentic input and recommendations to change (Carnite, 2015).

Cost Structure

1. What about your cost structure?

Product costs

Administration costs

IT costs

Repairing costs

Cleaning costs

Extra Logistics costs

Extra costs for IT system

Revenue Streams

1. What are your revenue streams?

Selling clothes

Rental fee

Financial support from institution/ goverment/ organisation

Membership fee per month

3. **Value proposition**: Two service packages offer their members to

- ❖ Enable to wear high-end clothes to join special events without carrying and taking care of them in a business trip/ travel
- ❖ Be style every single day without having to pay full price. A physical + online leasing service platform allows customers to try with various style via the subscription model
- ❖ Be comfortable and fit in clothes regardless that they lose/gain weight. Via rental services, customers can change the size of clothes in their wardrobe without financial burden. Clothes will always fit their body shape.

4. Promote both offline and online **distribution channels**: The first channel for individuals to rent garments is the physical spaces of the 17 brand and outlet stores in Norway. Besides, it is vital to add in another smartphone App and function on the website, which will allow members to rent their clothes directly online without limitation of locations.

5. **Customer relationships**: Sustaining customer relationships is done in the physical store and through online networking. Our internal customers (our employees) are early adopters appreciate the ethical factor that accompanies to the service, having the chance to see another person happy and sharing the story of the clothes. The social media networking (Facebook, Instagram, Twitter, Snapchat, etc.) have to be actively managed, minimum three posts/ week about

- ❖ New arrivals, events, campaigns
- ❖ Initiatives/ inspiration stories about sustainable fashion
- ❖ Knowledge about enlightening people how to wash environmentally friendly, eco-fashion designing/ material to change the consumer consumption pattern and lifestyle

to encourage the communication in the middle of members and proprietors and address how to reduce the climate consequences of looking good. The significant spreading speed of social media offers a cheap but effective word of mouth marketing tool to raise the awareness of the service.

6. **Revenue stream**: The revenue mainly comes from membership fees and rental fees of two service packages. The secondary source is from selling clothes. Also, the financial support from environmental institutions/ organizations.

7. **Key resources:** The designing team and clothes collection of MoN are still key resources in this new business model. In addition, repairing and cleaning functions (labors and machines) become important resources as they affect directly the clothing quality.

8. **Key activities**: In opening hours, there is a staff to arrange the apparel, clean up the store, serve clients, check the quality of returning clothes and registering new members at stores. Another key activity is to arrange logistics activities to ship the returning clothes to repairing and cleaning locations and ship back the washed clothes to stores. Logistics is also between stores and customer houses as we include home shipping service in both offering packages. Cleaning is as part of the maintenance and sustainability practice. They try to clean the clothes in a sustainable way with less water, energy, and less detergent, at the same time to ensure the durability of clothes. The marketing team will scale up the customer base by frequently uploading new posts on social media.

9. **Cost structure**: The main add-in costs of running rental service model is repairing and cleaning costs. The additional cost in IT system and logistics activities would also involve.

6. ADAPTED RENTAL-BASED BUSINESS MODEL BASED ON SURVEY RESULTS

The development of the adapted rental based BM follows the steps introduced in the Research Model in Section 3.1.1. Firstly, the supply chain aspects to enable circular economy by a closed loop supply chain strategy to support rental based services. Secondly, the rental-service based business model is described. Thirdly, the consumer acceptance of the new BM and the BM profitability is evaluated, by survey based research and empirical analysis. Finally, the MB is redefined based on the results. This part will cover the last two step of Research Model.

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6.1. Survey results and implications

6.1.1. Missing data

There are 7 out of 100 cases missing data:

- Four cases missed data on spending in the past and future. They are all female: two women aged 45-64, one from 18-24 and one from 25-44. These customers wrote down their spending this year only. This might be because customers could not remember and predict exactly their spending last year and next year. The missing data has added by assuming that their spending is unchanged (i.e. the spending last year and next year will equal this year).

- One case missed all data on spending. The case is from the female 45-64 age group. The missing data were filled in with the average spending of this age group.

- The remaining two cases are the cases that respondents forgot to answer their age range. The researcher plans to analyse the consumer behaviour based on age groups to get in-depth views before adapting the recommended model. The lack of information will challenge the research process and threaten the reliability of survey result. Thus, these two cases were deleted from database.

In total, there are 98 answers used for further analysis.

6.1.2. Survey results

A. Part 1 results

In 98 valid answers, there are 66 answers from female and 32 answers from male. In terms of age group, there are 49 people from 18-24, 34 people from 25-44 and 15 people from 45-64.

Row Labels	Count of Gender
female	66
male	32
Grand Total	**98**

Table 3- Number of respondents, catagorized based on gender and age groups

Row Labels	Count of Age
18-24	**49**
female	34
male	15
25-44	**34**
female	23
male	11
45-64	**15**
female	9
male	6
Grand Total	**98**

B. Part 2 results

The survey results reveal consumer behaviour when buying new clothing. Starting with number of clothes and accessories customers bought. On average, the aged 18-44 buy two clothes and one accessory to update their wardrobe every month (Table 4). The older 45-64 group buy more clothes, three pieces. Considering the gender group, female buy more than men. Female 18-24 have more demand for new clothes, they often buy three new items every month while male buy only one. These figures suggest that an appropriate number of items included in the STYLE rental package to satisfy demand are two pieces of clothing and one accessory.

Table 4- Consumer demand for new clothing

Age group	Average of new clothes/month	Average of new accessories/month
18-24	**2**	**1**
female	3	1
male	1	1
25-44	**2**	**1**
female	2	1
male	2	0
45-64	**3**	**1**
female	3	1
male	2	1
Grand Total	**2**	**1**

C. Part 3 results

Consumer behaviour is also revealed through how customers value different attributes when buying new clothing. Table 9 shows the ranking of attributes. In the survey, respondents used the Likert 5-point scale to evaluate each attribute with 1= "not important at all" to 5= "the most important". The average score of each attribute was calculated. Based on that, top five attributes valued the most are revealed: Quality, Price, Personal Image, Environment and Trend. Consumers value quality as the most important attribute in buying new clothes. Its score is outstanding from the second runner Price, 4.21 vs 3.81. Consumers express their desire to show personality through clothes they wear by scoring 3.73 for Personal Image attribute. Comparing to Price's score, it is not a significant difference. **The positive signal for rental service is suggested by the rank and score of Environmental attributes**. The apparel produced and consumed environmental-friendly are relatively important to customers, coming at the 4th attribute considered when buying new clothing. On average, trend, brand name, cultural pattern and social status are scored between 2 and 3. This means they play a less important role in customer buying decision.

Table 5- Consumer ranking on attributes when buying new clothing

Attributes	Score	Ranking
Quality	4.21	1
Price	3.81	2
Personal image	3.73	3
Environmental	3.17	4
Trend	2.92	5
Brand name	2.71	6
Cultural pattern	2.37	7
Social status	2.35	8

D. Part 4 results

Part 4 indicates consumer behaviour through their annual spending in the past, present and future.

Table 6- Average annual spending in the past, present and future

Age groups	Average of Spending last year _	Average of Spending this year _	Average of Spending next year _
18-24	7937	7552	7095
female	8115	7949	7460
male	7533	6653	6267
25-44	11921	11144	10909
female	13435	12091	12526
male	8755	9164	7527
45-64	20583	26240	19470
female	11860	10733	13451
male	33667	49500	28500
Grand Total	11255	11659	10312

The common trend is that all respondents aged 18-44 want to reduce their annual spending on clothing. This could be seen as the biggest business driver/ reason for fashion companies to think of the new way to approach customers as the client budget is shrinking. The results show that male tends to spend less than women on clothing, except for the 45-64 group. Spending of the 45-64 female and male are quite fluctuated but they have the biggest budget for clothing. The youngest group has the least budget among age groups, around NOK7100 – 8000. The 25-44 spend around NOK 11000-12000 every year for clothes.

Table 6 below summarises the normality test results of each construct's spending in the past, present and future (see more in Appendix B). Only data of Female 45-64 is normally distributed as the p-value is greater than the chosen significance level. It means the result from this groups are reliable, others are not. The main reasons behind are extreme values, small dataset and values close to a natural limit. Deleting outliers or transforming non-normally distributed variables to normality for further statistics will be conducted if necessary.

Table 7-Test of Normality of Spending in the past, present and future for each construct

		Shapiro - Wilk		
		Spending last year	Spending this year	Spending next year
	df	Sig.	Sig.	Sig.
Female 18-24	34	,000	,000	,000
Female 25-44	23	,011	,008	,003
Female 45-64	9	*,582*	*,648*	*,507*
Male 18-24	15	,000	,002	,001
Male 25-44	11	,035	,029	,001
Male 45-64	6	,021	,001	,014

Part 4 also indicates consumer behaviour through their maximum spending on a formal suit/ dress

Table 8- Average of Maximum amount spent on a formal outfit

Row Labels	Average of Maximum amount
female	**2599**
18-24	2131
25-44	2852
45-64	3722
male	**4850**
18-24	3780
25-44	5455
45-64	6417
Grand Total	**3334**

Notably, male spent much more money than female to invest on a formal outfit, 4850 vs 2599. This is a positive sign for MoN to offer rental service of their suits. Male customers 18-24 spent around NOK 3780 for a suit, those aged 25-44 spent NOK 5455. Meanwhile, this amount was NOK 6417 for the male 45-64. Similarly, female aged 45-64 could pay NOK 3722 for a gown, while the younger groups paid less. The aged 18-24 female paid around NOK 2131 and the 25-44 paid NOK 2852.

The normality test was taken to test the reliability of maximum amount variable. Table 9 below summarises test results (see a full set of results in Appendix C). The results indicate that the data of three groups: Female 45-64, Male 18-24 and Male 25-44 are normally distributed because p-values are greater than the chosen significance level ($\alpha = 0.05$). It means the results from these three groups are reliable, others are not. The main reasons behind are extreme values, small dataset, and values close to a natural limit. Deleting outliers or transforming non-normally distributed variables to normality for further statistics will be conducted if necessary.

Table 9- Tests of Normality of Maximum amount spent on a formal outfit

	Shapirio Wilk		
	Statistic	df	Sig.
Female 18-24	,494	34	,000
Female 25-44	,862	23	,005
Female 45-64	,958	9	**,774**
Male 18-24	,884	15	**,054**
Male 25-44	,917	11	**,292**
Male 45-64	,738	6	,015

E. Part 5 results

Part 5 is designed to explore the consumer behaviour and attitude toward a rental-based service model. Customers are asked whether they are willing to wear the used clothes but cleaned professionally (yes/no)..

Table 10- Yes/No answers on rental service

Row Labels	no	yes
18-24	**12%**	**88%**
female	6%	94%
male	27%	73%
25-44	**18%**	**82%**
female	9%	91%
male	36%	64%
45-64	**33%**	**67%**
female	44%	56%
male	17%	83%
Grand Total	**17%**	**83%**

A positive signal is that 83% of respondents are willing to use the rental service. The female customers show higher level of acceptance than male, except for the oldest group.

The willingness to adopt a rental service is also varied between age group (Table 10). People between 45-64 years old show the least interest in rental service. The targeted customer of MoN, those aged between 25-44, are open to the service with 82% saying "yes". The potential customer group of the service from 18 to 24 years old express the highest level of acceptance to the service with 88% saying" yes". These results prove that offering the rental service to the current MoN targeted customer group and approaching the younger group by this service is possible.

The researcher is interested in exploring whether there is an association between gender/ age and acceptance on using the rental service or not. The null hypothesis is that there is no association between these two variables. As the chi-square test between gender and acceptance shown in Table 11, there are no cells had an expected count less than 5 so that the Person Chi-Square result is valid. Since p-value (0.085) is higher than the chosen significance level ($\alpha = 0.05$), we do not reject the null hypothesis The conclusion is that there is no association between gender and acceptance on using the rental service.

Table 11- Chi-Square tests between gender and customer acceptance

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	3,850[a]	1	,050	***,085***	,049	
Continuity Correction[b]	2,814	1	,093			
Likelihood Ratio	3,647	1	,056	,085	,049	
Fisher's Exact Test				,085	,049	
Linear-by-Linear Association	3,810[c]	1	,051	,085	,049	,035
N of Valid Cases	98					

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 5,55.

b. Computed only for a 2x2 table

Similarly, the Chi-square test was also conducted between age and acceptance on using the rental service (Table 12). As there is a cell have expected count less than 5, the Fisher's Exact Test will provide the valid result. Since the p-value (0.166) is higher than the chosen significance level ($\alpha = 0.05$), the conclusion is that there is no association between age and acceptance on using the rental service.

Table 12- Chi- Square tests between age and customer acceptance

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	3,565[a]	2	,168	,183
Likelihood Ratio	3,206	2	,201	,208
Fisher's Exact Test	3,455			*,166*
N of Valid Cases	98			

a. 1 cells (16,7%) have expected count less than 5. The minimum expected count is 2,60.

In short, saying" yes" to the rental service is not related to gender and age.

For respondents say "yes" to the rental service, they will vote for what kinds of outfit they want to rent: everyday outfits, formal party outfits and informal party outfits, on the scale 1 to 3 (1= most likely, 2= second likely; 3= third likely). *As 1= most likely, it means the lowest the average score is, the more that kind of outfit is favourable to rent by customers.*

Table 13- Customer voting on different outfits

Row Labels	Average of Formal party outfits	Average of Informal party outfits	Average of Everyday outfit
18-24	**1.74**	**1.98**	**2.23**
female	1.78	1.94	2.28
male	1.64	2.09	2.09
25-44	**1.68**	**1.96**	**2.29**
female	1.67	2.00	2.33
male	1.71	1.86	2.14
45-64	**1.80**	**1.50**	**2.11**
female	2.00	1.40	2.00
male	1.60	1.60	2.20
Grand Total	**1.73**	**1.91**	**2.24**

The lowest is the most favourite

The results indicate that the willingness to rent is highest for *Formal party outfits* regardless of gender and age. The second favourite is *Informal party outfits*. The least favourite is *Everyday outfits*.

F. SUMMARY OF MAIN FINDINGS OF THE SURVEY:

1. In 98 valid answers, there are 66 answers from female and 32 answers from male. There are 49 people from 18-24, 34 people from 25-44 and 15 people from 45-64.

2. Top five attributes valued the most when buying new clothing are Quality, Price, Personal Image, Environment and Trend.

3. 83% of respondents are willing to use the rental service. The oldest group 45-64 show the least interest in rental service. Meanwhile, the young aged 18-24 and aged 25-44 shows the high level of acceptance. These results prove that offering the rental service to the current MoN targeted customer group and approaching the younger group by this service is possible.

4. The Formal party outfits is the most favourable outfit that customers are willing to rent regardless of gender and age.

5. The maximum spending on formal outfits from three groups Female 45-64, Male 18-24 and Male 25-44 are reliable, others are not. For a formal gown, female aged 45-64 spend NOK 3722. For a formal suit, male customers between 18-24 spend NOK 3780. The aged 25-44 spend NOK 5455.

6. On average, the aged 18-24 and the aged 25-44 buy two clothes and one accessory to update their wardrobe every month. These figures suggest that an appropriate number of items included in the STYLE rental package to satisfy demand are two pieces of clothing and one accessory.

6.2.   Adapted business model

6.2.1. Changes in service models based on survey findings and SWOT analysis

Based on the main findings of Part 6.1.2., the rental service package should shift the focus on party outfits as a product because people are less interested in renting everyday outfits. Considering MoN's strengths and weaknesses (presented in Part 4.3.3 and 4.3.4.), *suits*, as predicted by the top management, are the most appropriate product line to offer rental service in the short term. To serve the female group, MoN needs time to develop their design of dresses and gowns.

A raising question is "*How much are customers willing to pay to rent party outfits?*" This depends on the maximum amount they spent for a formal outfit (presented in Part 6.2.2, Section D). For a formal suit, male customers between 25 -44 spent around NOK 5455, which nearly equals the retail price of a MoN suit. Thus, if MoN wants to offer a suit rental service to their target male customer, they could offer an attractive deal equalling one-fourth of their retail price, approx. NOK 1500. Considering the opportunities to touch the younger male group whose budget for a formal suit is lower (NOK 3780) via the rental service, it is necessary to look at the full retail price of cheaper suits from lower-segment competitors:

Dressman suit: NOK 2000-3000 (Dressmann.com, 2017)

Selected suit: NOK 2800-3200 (Selected.com, 2017)

Match suit: NOK 3000-3600 (Matchsuit.com, 2017)

(Note: the price was collected from their websites and confirmed again by asking salesman in Dressman, Selected and Match stores in Trondheim)

The charge for renting a MoN suit can still be at NOK 1500/ time as this price is not too low to depreciate the high-quality tailored suit of MoN but is still quite competitive to the alternative choice of buying a new suit from another brand and can approach the younger customer group.

The suit rental service can still be offered in two types PAYR and STYLE, targeting different customers with different needs (mentioned in Part 5.2). However, the user profile of PAYR is narrowed down, they are, men between 18-44 who needs to suit up for just one or two special events during a year; or, male visitors who stay in hotels and feel convenient if they can rent a suit at hotels, releasing them from carrying and taking care of a suit during the journey. The potential charge is NOK 1500/ rental time like explained above. This amount will be tested further in profitability estimation part below to see whether it can cover relevant costs to run the service.

The user profile of STYLE is men 25-44 who are male fashionista or businessman. Commonly, they have already owned a wardrobe of suits; however, the subscription attracts them in terms of satisfying their demand of having something new to wear. In addition, the businessmen are often in business trips and stay at hotels so that using STYLE package is highly convenient and economical for them. But, "*How much are customers willing to pay STYLE subscription?*". This mainly depends on the yearly spending amount on clothes of the male aged 25-44. As mentioned in Section D, Part 6.1.2, the past, current and future spending of male 25-44 are not

normally distributed. Thus, it is necessary to find the reasons of non-normality and then conduct normalization methods. Normality of data can be achieved by cleaning outliers or transforming variables to normal distribution. The method and results are presented in Appendix D. The mean results (or average) after normalized data is input to set the price for STYLE. The results are

	Mean of Spending last year	Mean of Spending this year	Mean of Spending next year
Male 25-44	8521	9311	8266

If we calculate the monthly spending based on the above results, the range in which male 25-44 spend on new clothes monthly is NOK 689 – 776. The price of STYLE subscription package could be NOK 700/ month. This amount will be tested further in profitability estimation part below to see whether it can cover relevant costs to run the service.

Resulting from discussions with Store Manager and Tailor Manager, the insurance fee needs to be incorporated into both service packages. The recommended insurance fee is NOK 2000 to raise customer awareness of taking care of suits. This amount will be fully returned to customers if there are no damages. For minor damages, this amount will be deducted before returning to users. For major damages that cannot be fixed, the customer will have to pay the full retail price of the suit. If a customer loves the suit, he can buy it with 70% of retail price. For STYLE package, there is no insurance fee but the customer will commit to use the service in 12 months. The minor damage fees will be charged in the monthly bill. For major damages that cannot be fixed, the customer will also have to pay the full retail price of the suit like PAYR. They can buy the suit cheaper than PAYR customers, 60% of retail price.

The survey results reveal the average number of new clothes a male 25-44 wants are two pieces and one for the 18-24 male. At present, a suit requires at most a week to fix lengths to fit the customer. Thus, the maximum suits a customer can rent during a month is two. This number supports the demand of our target group 25-44.

The measurement method and size charts of MoN can be published on their website so that customers can measure themselves. However, customers are encouraged to come to the nearest store in order to be measured by professionals.

The figure 10 below summarizes main features of adapted service models.

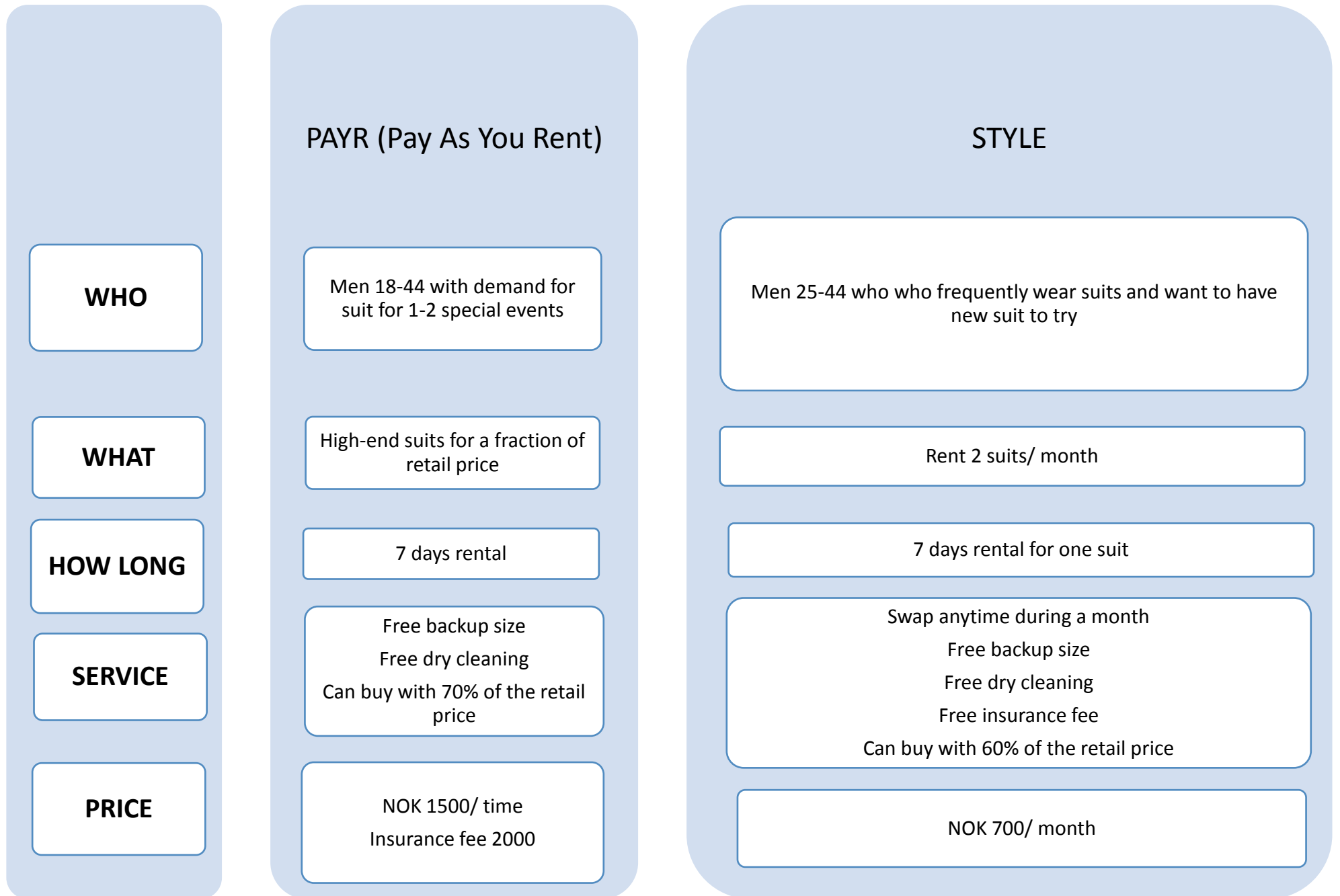|	PAYR (Pay As You Rent)	STYLE
WHO	Men 18-44 with demand for suit for 1-2 special events	Men 25-44 who who frequently wear suits and want to have new suit to try
WHAT	High-end suits for a fraction of retail price	Rent 2 suits/ month
HOW LONG	7 days rental	7 days rental for one suit
SERVICE	Free backup size Free dry cleaning Can buy with 70% of the retail price	Swap anytime during a month Free backup size Free dry cleaning Free insurance fee Can buy with 60% of the retail price
PRICE	NOK 1500/ time Insurance fee 2000	NOK 700/ month

Figure 12- Adopted rental packages

6.2.2. Profitability estimation

The profitability of the adapted rental service models was evaluated to explore the economic-feasibility and -sustainability of the models. A business model cannot exist if it is not able to generate profit. The new business model can only be applied if it can earn profit more than the current one. The profit of selling suits in 2015 (presented in Part 6.2.2.1.) is used to compare with the profit of new models, which are calculated as follows. The data of 2015 is used because the costs of operations and salary in 2016 have not published by MoN's Accounting Department.

6.2.2.1. Profitability of the current business model

Figure 11 shows the revenue data and cost structure of MoN in 2015, which are used to calculate the profit of suits in the current business model.

Konsern

	Note	2015	2014
Salgsinntekt	12	243 612 772	302 101 503
Annen driftsinntekt	12	1 729 040	2 167 447
Sum driftsinntekt		245 341 812	304 268 950
Varekostnad		108 584 599	99 235 458
Lønnskostnad	10, 13	77 919 682	110 518 879
Avskrivning	1	9 703 496	12 321 493
Nedskrivning	1	12 142 323	4 015 010
Annen driftskostnad	13	67 935 507	94 917 462
Sum driftskostnad		276 285 606	321 008 302
Driftsresultat		-30 943 794	-16 739 353

Figure 13-MoN revenue and costs in 2015

As mentioned in Part 3.1.1, the profit of current business model is calculated with formula:

$$Profit\ of\ current\ business\ model\ (suits) = Revenue\ - Total\ Costs$$
$$Total\ Costs\ = Product\ Cost + Operations\ costs$$

Suits vest, suits blazer, suits jacket, suits pants, suits shorts are all included in suits category. According to MoN Retail Director, 20% of total MoN profit is from suits category. The product cost of suits is 14% of total MoN product costs. Thus,

$$Revenue\ of\ suits = 20\%\ of\ total\ sales\ in\ 2015 = 20\% \times 243\ 612\ 772\ = 48\ 722\ 554$$

$$Product\ cost\ of\ suits = 14\%\ of\ total\ product\ cost\ in\ 2015 = 14\% \times 108\ 584\ 599$$
$$= 15\ 201\ 844$$

Figure 11 only shows operations costs of the whole system of MoN. To calculate the operations costs for suits only, I consider the operation costs of Apparel Men category because suits are included in this sector. In total, MoN has eight product categories (mentioned in Part 4). If assuming that resources are divided equally for eight categories, the operation cost of each category will equal 12.5% of total operation costs. As the Apparel Men category contributes 51% of total sales (Figure 4, Part 4) and 70% of MoN customers are male, more resources might be invested in this category. Thus, my estimation is that Apparel Men category constitute 30% of total operation costs. With 13 subcategories in Apparel Men (including suits), each will constitute around 2.3% of total operation costs. So,

$$Operation\ costs\ of\ suits = 2.3\%\ of\ Total\ operation\ costs\ in\ 2015$$

$$= 2.3\% \times (Total\ costs\ in\ 2015 - Total\ Product\ costs\ in\ 2015)$$

$$= 2.3\% \ \times (276\ 285\ 606 - 108\ 584\ 599)$$

$$= 3\ 857\ 123$$

(Noting: The data of total costs and total product costs in 2015 is shown in Figure 11)

THUS,

$$Total\ costs\ of\ suits = Product\ cost\ of\ suits + Operation\ costs\ of\ suits$$

$$= 15\ 201\ 844 + 3\ 857\ 123$$

$$= 19\ 058\ 967$$

Profit of current business model $= Revenue\ of\ suits - Total\ Costs\ of\ suits$

$$= 48\ 722\ 554 - 19\ 058\ 967$$

$$= \mathbf{29\ 663\ 587}$$

6.2.2.2. Profitability of new business model, with PAYR rental-service package

The profit of new business model is calculated with formula:

$$Profit\ of\ new\ business\ model\ PAYR = Revenue\ - Total\ Costs$$

$$Revenue = Rental\ fee\ \times\ Rental\ times$$
$$Total\ Costs = Product\ Cost + Operations\ costs + Cleaning\ costs$$
$$+ Tailoring\ costs$$

1. **Revenue of PAYR**

$$Revenue\ of\ PAYR = Rental\ fee\ \times\ Rental\ times$$

Assume that one PAYR customer rents once a year. Thus, to estimate the rental times, it starts from estimating the number of the customer will use PAYR. The main target of PAYR is men between 18-44 who wants to suit up for just one or two special events during a year.

$$Number\ of\ PAYR\ customers = Number\ of\ current\ male\ customers \times Percentage\ of\ "yes"\ of\ male\ 18-44$$

- The current number of MoN customers is 65 000 and 70% of them is male. Thus, the number of current male customers is 45 500.
- Section E of Part 6.1.2. indicates the percentage "*yes*" of male 18-24 is 73%. The percentage "yes" of male 25-44 is 64%. The average percentage "yes" from male 18-44 is around 69%.
- With the assumption that one PAYR customer rents once a year, it means the number of rental times equals the number of customers.

Thus,

$$Number\ of\ PAYR\ rental\ times = Number\ of\ PAYR\ customers$$

$$= 45\ 500\ \times 69\%$$

$$= 31\ 395$$

The price for PAYR is NOK 1500/ rental time. Thus, the revenue of PAYR package is

$$Revenue\ of\ PAYR = Rental\ fee\ \times\ Rental\ times$$

$$= 1500\ \times 31\,395$$

$$= 47\,092\,500$$

2. Product cost of PAYR

$$Product\ cost\ of\ PAYR = Number\ of\ suits\ in\ the\ system\ \times Product\ cost\ of\ a\ suit$$

To estimate the number of suits required in the system to run the service, it starts from considering the rental times. As estimated above, PAYR rental times is 31 395 rentals/ year in the whole system of 17 stores of MoN. It means 190 suit rentals/month /store.

The first customer rent a suit for a week. Then, that suit require at most a week for repairing, cleaning and delivering back to stores. Thus, the rotation rate of a suit during a month is two.

So, one store needs to have at least $190 \div 2 = 95\ suits$.

If the company scales up extra 10% suits available in order to meet customer needs in peak seasons (Christmas and New Year, 17th May, Confirmation Day of male teenagers), it needs to produce $95\ suits\ for\ a\ store \times 17 stores \times 110\% = 1777\ suits\ in\ the\ whole\ system$

As the product cost of a suit is NOK 827 (Peter Hubert, 2017), the total product cost of PAYR is

$$Product\ cost\ of\ PAYR = Number\ of\ suits\ in\ the\ system\ \times Product\ cost\ of\ a\ suit$$

$$= 1777\ \times 827$$

$$= 1\,469\,579$$

3. **Cleaning cost of PAYR**

$$Cleaning\ cost\ of\ PAYR = Number\ of\ cleaning\ times\ \times Cleaning\ cost\ per\ time$$

- The number of cleaning times equal the number of PAYR rental times in a year, that is, 31 395.
- Based on price list of Trondheim Vask As (Appendix D), including 20% discount for the large amount, the cost of cleaning a suit is NOK 240

So, the cost of cleaning of PAYR is

$$Cleaning\ cost\ of\ PAYR = Number\ of\ cleaning\ times\ \times Cleaning\ cost\ per\ time$$

$$= 31\ 395 \times 240$$

$$= 7\ 534\ 800$$

4. Tailoring cost of PAYR

$$Tailoring\ cost\ of\ PAYR = Number\ of\ tailoring\ times\ \times Tailoring\ cost\ per\ time$$

- As usual, suits need to be fixed lengths to fit the measurement of users. Assuming that all suits are fixed, the number of tailoring times will equal the number of PAYR rental times in a year, that is, 31 395.
- Based on price list of Synnman tailor service (APPENDIX E), including 20% discount for the large amount, the cost of fixing the length of arm sleeves and trouser is NOK 400

So, the cost of tailoring of PAYR is

$$Tailoring\ cost\ of\ PAYR = Number\ of\ tailoring\ times\ \times Tailoring\ cost\ per\ time$$

$$= 31\ 395\ \times 400$$

$$= 12\ 558\ 000$$

5. **Operation costs of PAYR**

To estimate the operation costs of new model, the activity –based costing systems method proposed by Cooper and Kaplan (1992) is applied. Activity-based costing systems help to predict the cost of resources required in organizational activities due to the changes in

output volume. If the required activity usage is over the resource quantity available in a firm, higher expense to increase the supply of resources will likely soon occur. If the required activity usage is below the available resource, the expenses of resources will not decrease automatically. This case requires management 's actions to eliminate the unused capacity. The authors take an example in a purchasing department to illustrate their methods. In the example, there are 10 full-time employees (the resource supplied) who are responsible for processing purchasing orders (the activity performed). Each is paid $2000/month. Assuming that each employee can process 125 orders per month, a capability to process is 1250 purchasing orders during a month. If there is a change in a firm which requires higher demand for the procurement activity, for example, 2000 purchasing orders need to be processed. The increase in purchasing orders (output) exceeds available supply of the system by 750 orders, which requires hiring 6 more employees. Thus, the company will spend $12 000 more to adapt to the new demand of processing purchasing orders.

Applying the activity-based cost systems proposed by Cooper and Kaplan (1992), first, it is necessary to considering about outputs, that is, sales orders of suits in case of MoN. At present, MoN system can handle 18 194 sales orders of suits/ year (Peter Huber, 2017). The suit rental PAYR model requires the system to handle 31 395 orders/ year. This increase in demand exceeds resource supply of the current operation 1.7 times ($31395 \div 18194$). Higher spending to increase the supply of resources will likely soon occur. My assumption is that operations costs will increase 1.7 times comparing to the current operation costs of suits in 2015.

$$Operation\ costs\ of\ PAYR = 1.7\ \times Operations\ costs\ of\ suits\ in\ 2015$$
$$= 1.7\ \times 3\ 857\ 123$$
$$= 6\ 557\ 109$$

(The operation costs of suits category in 2015 is NOK 3 857 123, presented in Part 6.2.2.1)

6. Profitability of PAYR and the adaption of PAYR rental model

Based on the results of costs and revenue above, with the rental fee **NOK 1500/ suit rental time:**

$$Total\ Costs\ of\ PAYR = Product\ Cost + Cleaning\ costs + Tailoring\ costs\ + Operations\ costs$$
$$= 1\ 469\ 579 + 7\ 534\ 800 + 12\ 558\ 000 + 6\ 557\ 109$$
$$= 28\ 119\ 488$$

$$\textit{\textcolor{red}{Profit of new business model PAYR}} = \textit{Revenue } - \textit{Total Costs}$$
$$= \mathbf{47\,092\,500} - \mathbf{28\,119\,488}$$
$$= \mathbf{\textcolor{red}{18\,973\,012}} \; \textcolor{red}{< \textit{current profit } 29\,663\,587}$$

If we charge NOK 1500 / suit rental time, the PAYR model will earn profit of NOK 18 973 012, which is less than the profit of current business model NOK 29 663 587 (see Part 6.2.2.1.)

If we increase the charge to **NOK 1600/ suit rental time** (only revenue will change), the profit of PAYR will be:

$$\textit{Revenue of PAYR} = \textit{Rental fee } \times \textit{ Rental times} = \mathbf{1600} \times \mathbf{31\,395} = \mathbf{50\,232\,000}$$

$$\textit{Profit of new business model PAYR } = \textit{Revenue } - \textit{Total Costs}$$
$$= \mathbf{50\,232\,000} - \mathbf{28\,119\,488}$$
$$= \mathbf{22\,112\,512} \; < \textit{current profit } \mathbf{29\,663\,587}$$

If we increase the charge to **NOK 1700/ suit rental time,** the profit of PAYR will be:

$$\textit{Revenue of PAYR} = \textit{Rental fee } \times \textit{ Rental times} = \mathbf{1700} \times \mathbf{31\,395} = \mathbf{53\,371\,500}$$

$$\textit{Profit of new business model PAYR } = \textit{Revenue } - \textit{Total Costs}$$
$$= \mathbf{53\,371\,500} - \mathbf{28\,119\,488}$$
$$= \mathbf{28\,391\,512} \; < \textit{current profit } \mathbf{29\,663\,587}$$

If we increase the charge to **NOK 1800/ suit rental time,** the profit of PAYR will be:

$$\textit{Revenue of PAYR} = \textit{Rental fee } \times \textit{ Rental times} = \mathbf{1800} \times \mathbf{31\,395} = \mathbf{56\,511\,000}$$

$$\textit{Profit of new business model PAYR } = \textit{Revenue } - \textit{Total Costs}$$
$$= \mathbf{56\,511\,000} - \mathbf{28\,119\,488}$$
$$= \mathbf{28\,391\,512} < \textit{current profit } \mathbf{29\,663\,587}$$

If we increase the charge to **\textcolor{red}{NOK 1900/ suit rental time},** the profit of PAYR will be:

$$\textit{Revenue of PAYR} = \textit{Rental fee } \times \textit{ Rental times} = \mathbf{1900} \times \mathbf{31\,395} = \mathbf{59\,650\,500}$$

$$\textit{\textcolor{red}{Profit of new business model PAYR }} = \textit{Revenue } - \textit{Total Costs}$$
$$= \mathbf{59\,650\,500} - \mathbf{28\,119\,488}$$
$$= \mathbf{31\,531\,012} > \textit{current profit } \mathbf{29\,663\,587}$$

<u>**SUMMARY:**</u>

Therefore, after the profitability estimation step, it can be seen that the charge fee of PAYR service package needs to be increase to NOK 1900/ suit rental time in order to be attractive to MoN. The second adaption is MoN needs to scale up the operation 1.7 times to meet the increased orders of suits from customers.

Noting that charging NOK 1900/suit rental time is the result under the assumption that only PAYR package is offered to customers. The next part will present the profitability of offering both PAYR and STYLE packages at the same time

6.2.2.3. Profitability of new business model, both PAYR and STYLE packages

The suit rental model can be offered in two types PAYR and STYLE, targeting different customers with different needs. Different from PAYR customers, customers of STYLE package (or called as subscribers) will commit to use the service in 12 months and pay subscription NOK 700/month. The PAYR customers will pay NOK 1500/ rental time. In this part, the profitability is evaluated under the assumption that both PAYR and STYLE are offered together.

The profit of new business model is calculated with formula:

$$Profit\ of\ new\ business\ model\ PAYR\ \&\ STYLE = Revenue\ - Total\ Costs$$

$$Revenue\ of\ PAYR\ \&\ STYLE = Revenue\ of\ PAYR\ +\ Revenue\ of\ STYLE$$

$$Revenue\ of\ PAYR = Rental\ fee\ \times\ Rental\ times$$

$$Revenue\ of\ STYLE$$
$$= Monthly\ subcription\ fee\ \times\ Number\ of\ subscribers\ \times\ Duration$$
$$(12\ months)$$

$$Total\ Costs = Product\ Cost + Operations\ costs + Cleaning\ costs + Tailoring\ costs$$

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1. **Revenue of PAYR and STYLE**

$$Revenue\ of\ PAYR = Rental\ fee\ \times\ Rental\ times$$

$$Revenue\ of\ STYLE$$
$$= Monthly\ subcription\ fee\ \times\ Number\ of\ subscribers\ \times\ Duration$$

If the PAYR package is introduced together with STYLE, there will be a number of customers changing from PAYR to use STYLE. Assume that there is 45% of previous PAYR customers changing to use STYLE package and 55% remaining still use PAYR, so that,

$$Number\ of\ STYLE\ _{customers\ (subcribers)} = 45\%\ \times Number\ of\ PAYR\ customers\ before$$
$$= 45\% \times 31\ 395$$
$$= 14\ 128$$

$$Number\ of\ PAYR\ _{customers} = 55\%\ \times Number\ of\ PAYR\ customers\ before$$
$$= 55\%\ \times 31395$$
$$= 17\ 267$$

(The number of PAYR customers before is 31 395, which was presented in Section 1 – Revenue of PAYR in Part 6.2.2.2 above)

Assume that one PAYR customer rents once a year. Thus,

$$Number\ of\ PAYR\ _{rental\ times} = Number\ of\ PAYR\ customers = 17\ 267$$

$$\textbf{Revenue of PAYR } = \textbf{Rental fee } \times \textbf{ Rental times}$$
$$= 1500\ \times 17\ 267$$

$$= \textbf{25 900 500}$$

The Revenue of STYLE is

$$\textbf{Revenue of STYLE} = \textbf{Monthly subcription fee } \times \textbf{ Number of subscribers } \times \textbf{ 12 months}$$
$$= 700\ \times 14\ 128\ \times 12$$
$$= \textbf{118 675 200}$$

$$Revenue\ of\ PAYR\ \&\ STYLE = Revenue\ of\ PAYR + \ Revenue\ of\ STYLE$$
$$= 25\ 900\ 500 + 118\ 675\ 200$$
$$= 144\ 575\ 700$$

2. Product cost of PAYR & STYLE

$$Product\ cost\ of\ PAYR\ \&\ STYLE$$
$$= Number\ of\ suits\ in\ the\ system\ \times Product\ cost\ of\ a\ suit$$

To estimate the number of suits required in the system to run both service packages, it starts from considering the total rental times of PAYR & STYLE.

- As estimated above, PAYR rental times is   17 267 rental times/ year.
- STYLE subscribers rent twice a month so the rental times of STYLE is
  $$2 \times 12\ months\ \times Number\ of\ subcribers$$
  $$= 2 \times 12 \times 14\ 128$$
  $$= 339\ 072\ \text{rental times/ year}$$

$$Total\ rental\ times\ of\ PAYR\ \&\ STYLE = PAYR\ rental\ times + STYLE\ rental\ times$$
$$= 17\ 267 + 339\ 072$$
$$= 356\ 339\ rental\ times/year$$

The number of rental times of STYLE is 356 339 rental times/ year in the whole system of 17 stores of MoN. It means 1747 suit rentals/month /store.

The first customer rent a suit for a week. Then, that suit require at most a week for repairing, cleaning and delivering back to stores. Thus, the rotation rate of a suit during a month is two.

So, one store needs to have at least $1747 \div 2 = 874\ suits$.

If the company scales up extra 10% suits available in order to meet customer needs in peak seasons (Christmas and New Year, 17th May, Confirmation Day of male teenagers), it needs to produce $847\ suits\ for\ a\ store \times 17 stores \times 110\% = 15\ 839\ suits\ in\ the\ whole\ system$.

As the product cost of a suit is NOK 827 (Peter Hubert, 2017), the total product cost of PAYR is

$$Product\ cost\ of\ PAYR\&STYLE = Number\ of\ suits\ in\ the\ system \times Product\ cost\ of\ a\ suit$$

$$= 15\,839 \times 827$$

$$= 13\,098\,853$$

3. **Cleaning cost of PAYR & STYLE**

$$Cleaning\ cost\ of\ PAYR \& STYLE = Number\ of\ cleaning\ times \times Cleaning\ cost\ per\ time$$

- The number of cleaning times equal the number of PAYR & STYLE rental times in a year, that is, 356 339.
- Based on price list of Trondheim Vask As (Appendix xxx), including 20% discount for the large amount, the cost of cleaning a suit is NOK 240

So, the cost of cleaning of PAYR is

$$Cleaning\ cost\ of\ PAYR \& STYLE = Number\ of\ cleaning\ times \times Cleaning\ cost\ per\ time$$

$$= 356\,339 \times 240$$

$$= 85\,521\,360$$

4. **Tailoring cost of PAYR & STYLE**

$$Tailoring\ cost\ of\ PAYR\&STYLE = Number\ of\ tailoring\ times \times Tailoring\ cost\ per\ time$$

- As usual, suits need to be fixed lengths to fit the measurement of users. Assuming that all suits are fixed, the number of tailoring times will equal the number of PAYR &STYLE rental times in a year, that is, 356 339.
- Based on price list of Synnman tailor service, including 20% discount for the large amount, the cost of fixing the length of arm sleeves and trouser is NOK 400

So, the cost of tailoring of PAYR is

$$Tailoring\ cost\ of\ PAYR \& STYLE = Number\ of\ tailoring\ times \times Tailoring\ cost\ per\ time$$

$$= 356\,339 \times 400$$

$$= 142\,535\,600$$

5. <u>Operation costs of PAYR & STYLE</u>

Applying the activity-based cost systems proposed by Cooper and Kaplan (1992), first, it is necessary to considering about outputs, that is, sales orders of suits in case of MoN. At present, MoN system can handle 18 194 sales orders of suits/ year (Peter Hubert, 2017). The suit rental PAYR &STYLE model requires the system to handle 356 339 orders/ year. This increase in demand exceeds resource supply of the current operation 19.6 times (356399 ÷ 18194). Higher spending to increase the supply of resources will occur. My assumption is that operations costs will increase 19.6 times comparing to the current operation costs of suits in 2015.

$$Operation\ costs\ of\ PAYR\ \&\ STYLE = 19.6\ \times Operations\ costs\ of\ suits\ in\ 2015$$
$$= 19.6\ \times 3\ 857\ 123$$
$$= 75\ 599\ 611$$

(The operation costs of suits category in 2015 is NOK 3 857 123, presented in Part 6.2.2.1)

6. <u>Profitability of PAYR & STYLE and the adaption of rental model</u>

Based on the results of costs and revenue above, with the **PAYR rental fee NOK 1500/ suit rental time** and the **STYLE subscription fee NOK 700/ month:**

$$Total\ Costs\ of\ PAYR\ \&\ STYLE$$
$$= Product\ Cost + Cleaning\ costs + Tailoring\ costs\ + Operations\ costs$$
$$= 13\ 098\ 853 + 85\ 521\ 360 + 142\ 535\ 600 + 75\ 599\ 611$$
$$= 316\ 755\ 424$$

$$Profit\ of\ PAYR\ \&\ STYLE\ model = Revenue\ - Total\ Costs$$
$$= 144\ 575\ 700 - 316\ 755\ 424$$
$$= -172\ 179\ 724$$

If we charge NOK 1500 / suit rental time and NOK 700/ month for subscription package, the PAYR & STYLE model will get a big loss. The loss is mainly rooted from significant additional costs associated with the introduction of STYLE package. Thus, it is necessary to consider the charge of STYLE package.

If we keep the PAYR charge NOK 1500/ rental time and increase the charge to **NOK 800/ month for subscription package** (**only revenue of STYLE will change**), the profit of PAYR &STYLE will be:

$$Revenue\ of\ STYLE = Monthly\ subcription\ fee\ \times\ Number\ of\ subscribers\ \times\ 12\ months$$

$$= 800\ \times 14\ 128\ \times 12$$

$$= \mathbf{135\ 628\ 800}$$

$$Revenue\ of\ PAYR\ \&\ STYLE = Revenue\ of\ PAYR +\ Revenue\ of\ STYLE$$

$$= 25\ 900\ 500 +\ 135\ 628\ 800$$

$$=\ 161\ 529\ 300$$

$$Profit\ of\ PAYR\ \&\ STYLE\ model = Revenue\ -\ Total\ Costs$$

$$= 161\ 529\ 300 - 316\ 755\ 424$$

$$= \mathbf{-155\ 226\ 124}$$

If we increase the charge to **NOK 1000/ month for subscription package,** the profit of PAYR & STYLE will be:

$$Revenue\ of\ STYLE = Monthly\ subcription\ fee\ \times\ Number\ of\ subscribers\ \times\ 12\ months$$

$$= 1000\ \times 14\ 128\ \times 12$$

$$= \mathbf{169\ 536\ 000}$$

$$Revenue\ of\ PAYR\ \&\ STYLE = Revenue\ of\ PAYR +\ Revenue\ of\ STYLE$$

$$= 25\ 900\ 500 +\ 169\ 536\ 000$$

$$=\ 195\ 436\ 500$$

$$Profit\ of\ PAYR\ \&\ STYLE\ model = Revenue\ -\ Total\ Costs$$

$$= 195\ 436\ 500 - 316\ 755\ 424$$

$$= \mathbf{-121\ 318\ 924}$$

If we increase the charge to **NOK 1400/ month for subscription package,** the profit of PAYR & STYLE will be:

$$Revenue\ of\ STYLE = Monthly\ subcription\ fee\ \times\ Number\ of\ subscribers\ \times\ 12\ months$$

$$= 1400 \ \times 14\,128 \ \times 12$$

$$= \mathbf{237\,350\,400}$$

$$Revenue\ of\ PAYR\ \&\ STYLE = Revenue\ of\ PAYR + \ Revenue\ of\ STYLE$$

$$= 25\,900\,500 + \ 237\,350\,400$$

$$= \ 263\,250\,900$$

$$Profit\ of\ PAYR\ \&\ STYLE\ model = Revenue\ -\ Total\ Costs$$

$$= \ 263\,250\,900 - 316\,755\,424$$

$$= -53\,504\,524$$

If we increase the charge to **NOK 1800/ month for subscription package,** the profit of PAYR & STYLE will be:

$$Revenue\ of\ \ STYLE = Monthly\ subcription\ fee\ \times\ Number\ of\ subscribers\ \times\ \mathbf{12}\ months$$

$$= 1800\ \times 14\,128\ \times 12$$

$$= \mathbf{305\,164\,800}$$

$$Revenue\ of\ PAYR\ \&\ STYLE = Revenue\ of\ PAYR + \ Revenue\ of\ STYLE$$

$$= 25\,900\,500 + \ 305\,164\,800$$

$$= \ 331\,065\,300$$

$$Profit\ of\ PAYR\ \&\ STYLE\ model = Revenue\ -\ Total\ Costs$$

$$= \ 263\,250\,900 - 316\,755\,424$$

$$= \mathbf{14\,309\,876}\ \ > \mathbf{0}$$

If we increase the charge to **NOK 1900/ month for subscription package,** the profit of PAYR & STYLE will be:

$$Revenue\ of\ \ STYLE = Monthly\ subcription\ fee\ \times\ Number\ of\ subscribers\ \times\ \mathbf{12}\ months$$

$$= 1900\ \times 14\,128\ \times 12$$

$$= \mathbf{322\,118\,400}$$

$$Revenue\ of\ PAYR\ \&\ STYLE = Revenue\ of\ PAYR + \ Revenue\ of\ STYLE$$

$$= 25\ 900\ 500 + 322\ 118\ 400$$

$$= \ 348\ 018\ 900$$

$$Profit\ of\ PAYR\ \&\ STYLE\ model = Revenue\ - Total\ Costs$$

$$= \ 263\ 250\ 900 - 348\ 018\ 900$$

$$= 31\ 263\ 476\ \ > current\ profit\ \ 29\ 663\ 587$$

<u>*SUMMARY:*</u>

The subscription charge of NOK 700- 1700/month leads to the losses. If the charge is increased to NOK 1800, the PAYR & STYLE package starts to gain profit. In order to be attractive to MoN, the subscription charge should be NOK 1900 because the profit of PAYR & STYLE model starts to be greater than current model.

Thus, after the profitability estimation step, the first necessary adaption of PAYR & STYLE rental business model is the charge for STYLE subscription package, NOK 1900/months instead of NOK 700/ month. The second adaption is is MoN needs to scale up the operation nearly 20 times to meet the increased orders of suits from customers.

7. CONCLUSIONS

7.1. Summary

The increasing amount of textile consumption and waste has made the topic of how to achieve the sustainability in the textile industry hot than ever. The environmentally proactive efforts are to concentrate on reorganizing business activities to prolong clothing lifespans and reuse. Such actions will help to reduce the number of new apparel produced every year and touch the issue of sustainability at the root. The purpose of the master thesis is to design a rental-service based business model for a fashion producer as the core company. The new business model built is sustainable if and only if it is accepted by consumers and profitable for the enterprise.

The first objective of this thesis is to explore how supply chain capabilities support a rental-service based business model and how to redesign the existing supply chain to enable a rental-service based business model. The literature reviews that closing the loop in the two last

stages of supply chain (consuming and retailing) is the theoretical underpinning of the rental-service based business model. The end-of-lease products will be back to the loop very soon so they can stay in use for longer and continue their cycles to create continuous sustainable and economic values. The closed-loop rental business model is then developed and described in Part 5- Conceptual rental-based business model. Necessary changes in partners, resources, operations in the supply chain (adding cleaning and repairing functions) and in the way approach customers through value propositions and marketing strategy to educate customer about sustainability are stated clear to facilitate the thorough understanding of a rental-service based business model.

The second objective is to explore the customer behaviour towards the rental service because the successfulness of a rental-service based business model depends on the market acceptance. The customer survey was conducted with a good sign is that 83% of respondents are willing to use the rental service. Top five attributes consumers valued when buying new clothing were revealed with the 4th position for environmental attribute. The young people 18-44 express the high interest in the rental service while the oldest group do not. Both female and male customers have high demand to rent party outfits than everyday outfits. Thus the rental business model was adapted to suits category, which is the most current appropriate and attractive product to offer the rental service in the case of the core company Moods of Norway. Part 6.1 in the thesis describes aspects that need to change in the conceptual business model to fit with the customer survey results.

The third objective is to estimate profitability of the rental-service based business model. A business model cannot exist if it is not able to generate profit. The new business model might be not attractive to the case company if it cannot earn profit equal or more than the current one. The suit rental service can be offered in two types PAYR (Pay as you rent) and STYLE (Monthly subscription package), targeting different male customers with different needs. Part 6.2 showed the adaption in the charge for each service package to cover additional costs resulting from the new rental business model as well as profit estimation. The estimation indicates that PAYR is the most viable to the case company because of low upgrading costs and high profitability. In the medium and long-term, offering both PAYR and STYLE require the significant upgrade of the operations. The company might need to consider to build in-house cleaning and repairing functions because the spending on these areas are substantial in the PAYR & STYLE rental business model.

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7.2.   Contributions, Limitations and Future research

The main contribution is the study has developed a conceptual rental- based business model to facilitate circular economy objectives through economically sustainable reuse of high-end fashion clothes. The conceptual model was also tested and modified based on customer responses and profitability estimation.

The customer survey results can reveal consumer behaviour on buying new clothes. The future research on behaviour of female consumers on buying and using high-end apparel should be conducted because women have higher demand and spend more on clothing than men. Knowing about their behaviour will be a fundamental for recommendations which results in positive changes in female sector and would result in a big impact.

The work might be the pre- work for further study and application, such as the ranking of attributes valued by male and female customers helps fashion companies develop the forecasting model for design and production planning for their current and future products.

In this study, the survey was conducted in a month with 100 responds. More data need to be collected to increase the accuracy and generalizability of results to reflect accurate consumer behaviour of the population. The online survey on website is highly recommended because 55% of total MoN online order traffic are from the target group 25-44 years old and 12% of the potential group 18-24 years old. The online approach will be a more effective and efficient method to collect data from the targeted and potential customer group for the rental service and to eliminate the problem of missing data through inspecting function of online survey tools.

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APPENDIX

A. English and Norwegian survey questionnaire

Survey for new fashion rental service

I am Nancy Le, a final-year master student in Logistics, with a strong passion for **sustainable fashion** consumption. Within the context of my Master's thesis, **I am conducting a research on launching a new rental service for the customers of Moods of Norway**.

This survey aim is to understand customer needs, your opinion about rental services and buying preferences. **Your input and answers are highly appreciated!**

This survey takes about **3 minutes** and is **anonymous**.

Your gender ☐ Male | ☐ Female

Your age   ☐ 18-24 | ☐ 25-44 | ☐ 45-64 | ☐ >65

How many items do you buy per month/ quarter/ year to update your wardrobe?
(please fill in the number and the period of time below)

Number of clothes (shirts, pants, vest, jacket, dress, skirt...)

.... per ☐ month | ☐ quarter | ☐ year

Number of accessories (belt, scarf, hat, tie, bag...)

.... per ☐ month | ☐ quarter | ☐ year

Buying behavior

How the following attributes influence your purchase of new clothes & accessories (1= not important at all; 2= unimportant; 3= neutral; 4= important; 5 =very important)

Quality (Durability/ Technical aspects)
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Not important at all   Very Important

Trend of the year (Style/ Colour)
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Not important at all   Very Important

Price
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Not important at all   Very Important

Brand name
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Not important at all   Very Important

The clothes are produced/ consumed environmental-friendly
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Not important at all   Very Important

(To be continued in the next column...)

Express my self-personality
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Not important at all   Very Important

Symbolize my social status
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Not important at all   Very Important

The clothes have authentic icons that engages me to the culture values of the country I am staying
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Not important at all   Very Important

Budgeting

How much do you currently spend on new clothes + accessories per month/ quarter/ year?

NOK....................... per ☐ month | ☐ quarter | ☐ year

Last year, **how much did you spend on new clothes+ accessories?**

NOK....................... per ☐ month | ☐ quarter | ☐ year

In the next year, **how much do you expect your spending on clothes + accessories?**

NOK....................... per ☐ month | ☐ quarter | ☐ year

Maximum amount you spent on a formal suit/ a formal dress to join a special event

NOK...

Rental service

Are you willing to wear clothes which had already worn by others but cleaned professionally?

☐ Yes | ☐ No

If yes, which items would you like to rent? (1= most likely, 2= second likely, 3= third likely)

EVERYDAY OUTFITS   ☐ 1 ☐ 2 ☐ 3

(jeans, kaki chinos, shirts, sweater, coat...)

FORMAL PARTY OUTFITS   ☐ 1 ☐ 2 ☐ 3

(gown, suit, tuxedo...)

CASUAL PARTY OUTFITS   ☐ 1 ☐ 2 ☐ 3

(cocktail dress, weekend dress, blazer...)

THE END ☺ **THANK YOU FOR YOUR OPINION!**

Jeg er **Nancy Le**, en siste-års **masterstudent i logistikk**, med en sterk lidenskap for bærekraftig moteforbruk. Innenfor rammen av masteroppgaven min, gjennomfører jeg **et forskningsprosjekt på å lansere en ny leietjeneste for kundene av Moods of Norway.**

Denne **undersøkelsen** tar sikte på **å forstå kundens** behov, din mening om utleie og kjøpspreferanser. Ditt innspill og svar er høyt verdsatt!

Denne undersøkelsen tar ca. **3 minutter** og er **anonym**.

Kjønn   ☐ Mann | ☐ Kvinne
Alder   ☐ 18-24 | ☐ 25-44 | ☐ 45-64 | ☐ >65

Hvor mange plagg kjøper du per måned / kvartal / år trenger for oppdatere garderoben?
(Fyll i antall og periode under)

Antall klær (skjorte, bukser, vest, jakke, kjole, skjørt ...)

.... per ☐ måned | ☐ kvartal | ☐ år

Antall tilbehør (belte, skjerf, lue, slips, vesker ...)

.... per ☐ måned | ☐ kvartal | ☐ år

Kjøpsatferd

Hvordan følgende attributter påvirke kjøp av nye klær og tilbehør (1 = ikke viktig i det hele tatt, 2 = uviktig, 3 = nøytral, 4 = viktig, 5 = veldig viktig)

Kvalitet (Holdbarhet / Tekniske aspekter)
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Ikke viktig i det hele tatt   Veldig viktig

Årets trend (Style / Farge)
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Ikke viktig i det hele tatt   Veldig viktig

Pris
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Ikke viktig i det hele tatt   Veldig viktig

Merkenavn
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Ikke viktig i det hele tatt   Veldig viktig

Klærne er produsert / forbrukt miljøvennlig
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Ikke viktig i det hele tatt   Veldig viktig

(Videreføres i neste kolonne...)

Uttrykke min personlighet
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Ikke viktig i det hele tatt   Veldig viktig

Symboliserer min sosiale status
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Ikke viktig i det hele tatt   Veldig viktig

Klærne har autentiske symboler som engasjerer meg til kulturverdiene i landet jeg bor
☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5
Ikke viktig i det hele tatt   Veldig viktig

Budsjettering

Hvor mye bruker du nå på nye klær og utstyr per måned / kvartal / år?

NOK........................ per ☐ måned | ☐ kvartal | ☐ år

I fjor, hvor mye brukte du på nye klær og tilbehør?

NOK........................ per ☐ måned | ☐ kvartal | ☐ år

Neste år, hvor mye forventer du å bruke på klær og tilbehør ?

NOK........................ per ☐ måned | ☐ kvartal | ☐ år

Maksimalt beløp du ville brukt på en formell dress / en formell kjole til en spesiell anledning

NOK...

Utleie

Er du villig til å bruke klær som allerede brukt av andre, men rengjøres profesjonelt?

☐ Ja | ☐ Nei

Hvis ja, hvilke elementer vil du leie? (1 = mest sannsynlig, 2 = andre sannsynlig, 3 = tredje sannsynlig)

UFORMELLE ANTREKK   ☐ 1 ☐ 2 ☐ 3

(jeans, kaki chinos, skjorter, genser, jakke ,...)

FORMELLE FESTANTREKK   ☐ 1 ☐ 2 ☐ 3

(kappe, dress, smoking ...)

UFORMELLE FESTANTREKK   ☐ 1 ☐ 2 ☐ 3

(cocktail kjole, helgekjole, blazer ...)

FERDIG ☺ **TAKK FOR DIN MENING!**

B. Normality test results on spending in the past, present, future of each construct

Tests of Normality[a]

	Kolmogorov-Smirnov[b]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Spending last year _	,316	34	,000	,578	34	,000
Spending this year _	,288	34	,000	,613	34	,000
Spending future year _	,282	34	,000	,504	34	,000

a. Gender = female, Age = 18-24

b. Lilliefors Significance Correction

Tests of Normality[a]

	Kolmogorov-Smirnov[b]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Spending last year _	,251	23	,001	,881	23	,011
Spending this year _	,243	23	,001	,875	23	,008
Spending future year _	,261	23	,000	,856	23	,003

a. Gender = female, Age = 25-44

b. Lilliefors Significance Correction

Tests of Normality[a]

	Kolmogorov-Smirnov[b]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Spending last year _	,270	9	,058	,940	9	,582
Spending this year _	,158	9	,200*	,946	9	,648
Spending future year _	,211	9	,200*	,933	9	,507

*. This is a lower bound of the true significance.

a. Gender = female, Age = 45-64

b. Lilliefors Significance Correction

Tests of Normality[a]

	Kolmogorov-Smirnov[b]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Spending last year _	,270	15	,004	,725	15	,000
Spending this year _	,213	15	,067	,775	15	,002
Spending future year _	,285	15	,002	,736	15	,001

Tests of Normality[a]

	Kolmogorov-Smirnov[b]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Spending last year _	,270	11	,024	,843	11	,035
Spending this year _	,246	11	,062	,837	11	,029
Spending future year _	,366	11	,000	,719	11	,001

a. Gender = male, Age = 25-44

b. Lilliefors Significance Correction

Tests of Normality[a]

	Kolmogorov-Smirnov[b]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Spending last year _	,277	6	,168	,751	6	,021
Spending this year _	,377	6	,008	,612	6	,001
Spending future year _	,337	6	,032	,734	6	,014

a. Gender = male, Age = 45-64

b. Lilliefors Significance Correction

C. Normality test results of maximum amount spent on a formal outfit

Tests of Normality[a]

	Kolmogorov-Smirnov[b]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Maximum amount you spent for a formal suit/ a formal dress to join a special event (in NOK)	,338	34	,000	,494	34	,000

a. Gender = female, Age = 18-24

b. Lilliefors Significance Correction

Tests of Normality[a]

	Kolmogorov-Smirnov[b]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Maximum amount you spent for a formal suit/ a formal dress to join a special event (in NOK)	,132	23	,200[*]	,862	23	,005

*. This is a lower bound of the true significance.

a. Gender = female, Age = 25-44

b. Lilliefors Significance Correction

Tests of Normality[a]

	Kolmogorov-Smirnov[b]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Maximum amount you spent for a formal suit/ a formal dress to join a special event (in NOK)	,181	9	,200[*]	,958	9	,774

*. This is a lower bound of the true significance.

a. Gender = female, Age = 45-64

b. Lilliefors Significance Correction

Tests of Normality[a]

	Kolmogorov-Smirnov[b]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Maximum amount you spent for a formal suit/ a formal dress to join a special event (in NOK)	,206	15	,086	,884	15	,054

a. Gender = male, Age = 18-24

b. Lilliefors Significance Correction

Tests of Normality[a]

	Kolmogorov-Smirnov[b]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Maximum amount you spent for a formal suit/ a formal dress to join a special event (in NOK)	,204	11	,200[*]	,917	11	,292

*. This is a lower bound of the true significance.

a. Gender = male, Age = 25-44

b. Lilliefors Significance Correction

Tests of Normality[a]

	Kolmogorov-Smirnov[b]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Maximum amount you spent for a formal suit/ a formal dress to join a special event (in NOK)	,341	6	,028	,738	6	,015

a. Gender = male, Age = 45-64

b. Lilliefors Significance Correction

D. Price list of Trondheim Vaskeri

Trondheim Vask- og Renseri AS

PRISLISTE

	NOK			NOK
Dress	302		Brudekjole, fra kr.	586
- Jakke	161		Kjole lang	243
- bukse	161		- Kort	220
Frakk tynn	272		Skjørt lang	224
Frakk tykk	324		- Kort	156
Vest	68		Kåpe tykk	324
Skjorte	72	5 eller flere kr. 30 per stk	- Tynn	283
Slips/sløyfe	58		Kappe	283
	0		Drakt	306
Livkjole	344		Cape	225
Smokingskjorte	147		Bluse	74
- Vest	86		Forkle kulørt	66
- Jakke	183			0
- Bukse	183		Barnekåpe	187
	0		Dåpskjole	241
Bunad	384		Barnebunad	259
- Skjorte	384		Barnedress	179
- Skjørt	241		Konfirmasjonskappe	140
- Cape	225			0
- Vest	94		Genser	85
- Sjal	100		Bukse	85
- Forkle	90		T-Skjorte	28
- Veske	74		Nattkjole	84
- Lue	74		Pyjamas	56
	0		Morgenkåpe	134
Dunjakke	336		Shorts	74
Jakke Tykk	225		Truser	11
- Tynn	172		Strømper	29
	0		Strømpebukse	19
Arbeidsklær	0		Håndklær	11
Jakke	45		Kluter	6
Bukse	45		Lommetørkle	6
Kjeldress	67			
Foret jakke	90			
- Bukse	90			
- Kjeldress	112			

E. Price list of Synnman tailor service

Prisliste skredder fra 01.01-2017 (forenklet versjon)

Moods of Norway Trondheim

DRESS:

Bukser inn / ut i livet: 220,- (tillegg inn i skritt/rumpe: 200,-)
Bukseben opp /ned: 200,- + 70,- FOR NEDLEGG /TA VARE PÅ STOFF
Bukseben innsying (smalere) **lår+hofter**: 200,- **fra knær og ned**: 350,-
Jakke-ermer opp: 300,- (tillegg for flytting av knapper: 25,-/per pilkehull)
Jakke-ermer ned: 350,- (tillegg for flytting av knapper: 25,-/per pilkehull)
Jakke inn i rygg: 350,-
Jakkelengde opp: fra 800,- (ekstra for håndstikning, ca. 1200,-)

Skredder betales på forhånd, andre skreddertjenester enn i listen over, betales ved henting.

400,- dekkes ved kjøp over 5400,-

F. Online order traffic of Moods of Norway in 2017

Alder	Trafikk			Atferd			Konverteringer Netthandel ▼		
	Økter ↓	% nye økter	Nye brukere	Fluktfrekvens	Sider per økt	Gjennomsnittlig øktvarighet	Transaksjoner	Inntekt	Konverteringsfrekv. for netthandel
	187 107 % av summen: 67,68 % (276 439)	39,49 % Gj.sn. for datautvalget: 47,59 % (−17,01 %)	73 886 % av summen: 56,17 % (131 544)	38,91 % Gj.sn. for datautvalget: 40,78 % (−4,60 %)	3,41 Gj.sn. for datautvalget: 3,31 (3,05 %)	00:02:08 Gj.sn. for datautvalget: 00:02:03 (3,74 %)	4 471 % av summen: 69,64 % (6 420)	kr 4 860 075,90 % av summen: 68,56 % (kr 7 088 889,43)	2,39 % Gj.sn. for datautvalget: 2,32 % (2,89 %)
1. 25-34	52 285 (27,94 %)	37,22 %	19 461 (26,34 %)	35,71 %	3,52	00:02:19	1 202 (26,88 %)	kr 1 308 672,39 (26,93 %)	2,30 %
2. 35-44	51 722 (27,64 %)	36,31 %	18 782 (25,42 %)	36,66 %	3,63	00:02:14	1 522 (34,04 %)	kr 1 670 583,73 (34,37 %)	2,94 %
3. 45-54	36 340 (19,42 %)	39,40 %	14 319 (19,38 %)	40,53 %	3,42	00:02:02	987 (22,08 %)	kr 1 088 156,77 (22,39 %)	2,72 %
4. 18-24	22 712 (12,14 %)	40,82 %	9 272 (12,55 %)	37,68 %	3,22	00:02:11	329 (7,36 %)	kr 365 476,60 (7,52 %)	1,45 %
5. 55-64	15 426 (8,24 %)	46,49 %	7 172 (9,71 %)	45,93 %	3,02	00:01:42	312 (6,98 %)	kr 310 465,75 (6,39 %)	2,02 %
6. 65+	8 622 (4,61 %)	56,60 %	4 880 (6,60 %)	55,52 %	2,58	00:01:22	119 (2,66 %)	kr 116 720,65 (2,40 %)	1,38 %

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